Chimbu: issues in development

Diana Howlett, R. Hide & Elspeth Young
with J. Arba, H. Bi & B. Kaman
Chimbu: issues in development

Errata

On page line should read
xvi  1 District Advisory Committees District Advisory Councils
xxix 12 Ressettlement Resettlement
xxxvii 4 Vneral Venereal
332, 17. province district

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39  Table 3.6
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Row 19 should read: PAPUA NEW GUINEA 2.5 9.5 2.7 2.2 7.9 2.5

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52  Figure 3.2 key
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Chimbu: issues in development
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Economic development is something much wider and deeper than economics ... Its roots lie outside the economic sphere, in education, organisation, discipline and, beyond that, in political independence and a national consciousness of self-reliance. It cannot be 'produced' by skilful grafting operations carried out by foreign technicians or an indigenous elite that has lost contact with the ordinary people ...

Success cannot be obtained by some form of magic produced by scientists, technicians, or economic planners. It can come only through a process of growth involving the education, organisation, and discipline of the whole population. Anything less than this must end in failure.

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### A note on nomenclature

Major changes in nomenclature were made between September 1975 and January 1976. This report adopts the current terminology for administrative positions and areas, and for government departments, except in historical contexts. The former and present terminology relevant to this report are set out below:

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<td>Department of Public Works</td>
<td>Department of Transport, Works and Supply</td>
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* * * * * * * * * * *

### Abbreviations used

- **ANGAU**: Australian New Guinea Administrative Unit
- **ANU**: Australian National University
- **CCC**: Chimbu Coffee Co-operative
- **CILM**: Commission of Inquiry into Land Matters
- **CILMS**: Commission of Inquiry into Land Matters, Submissions
- **CPO**: Central Planning Office
- **CSLS**: Chimbu Savings and Loan Society
- **CSIRO**: Commonwealth Scientific Industrial and Research Organisation
- **DASF**: Department of Agriculture, Stock and Fisheries
<table>
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<tr>
<td>DDA</td>
<td>Department of District Administration</td>
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<td>DPI</td>
<td>Department of Primary Industry</td>
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<td>DCC</td>
<td>District Co-ordinating Committee</td>
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<td>LGC</td>
<td>Local Government Council</td>
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<tr>
<td>MCH</td>
<td>Maternal and Child Health</td>
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<td>NBC</td>
<td>National Broadcasting Commission</td>
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<td>NGAR</td>
<td>New Guinea Annual Reports</td>
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<td>OBD</td>
<td>Office of Business Development</td>
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<td>OPAC</td>
<td>Office of Planning and Co-ordination</td>
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<td>PNGDB</td>
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<td>PNGFSLS</td>
<td>Papua New Guinea Federation of Savings and Loan Societies</td>
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<td>PHD</td>
<td>Public Health Department</td>
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<td>PMV</td>
<td>Public Motor Vehicle</td>
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<td>PWD</td>
<td>Public Works Department</td>
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<td>RIP</td>
<td>Rural Improvement Programme</td>
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<td>UPNG</td>
<td>University of Papua New Guinea</td>
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Preface

This report is not a conventional development plan, but rather it sets the foundation on which area planning may be based. We have made a number of recommendations which we believe will contribute to improvement in the province and in the lives of its people: the present condition in Chimbu is such that these recommendations refer as much to social development as economic development. With one or two exceptions, we have not suggested priorities or programmes for implementation procedures, believing that decisions on these matters should be made by the people themselves. It seems appropriate, therefore, to outline briefly the background and present status of planning within the province, and to set the context in which the study team carried out its terms of reference.

In common with all provinces, Chimbu has had a series of advisory and co-ordinating bodies in the past decade which have been intended to assist provincial planning. In 1965-66, District Co-ordinating Committees (now known as Provincial Co-ordinating Committees) were established throughout the country to co-ordinate Administration programmes within the Districts, a role which was strengthened in later years by the widening of departmental representation. The Chimbu body is chaired by the Provincial Commissioner and its membership comprises the Deputy Provincial Commissioner and the senior officer in the province of the Departments of Health, Primary Industry, Education, Business Development and Public Works. In 1973, this Committee assisted in the preparation of a Chimbu District Draft Economic and Social Programme for the Office of Programming and Co-ordination.

On becoming a separate District in 1966, a District Advisory Council was also established in Chimbu. District Advisory Councils were non-statutory bodies formed to 'give residents an opportunity to express their views and to offer advice to the district commissioner on matters affecting the district ... Each consist[ed] of the district commissioner and members appointed by the Administrator for terms of two
years' (NGAR, 1965-66:31). The District Advisory Committees were dissolved in the early 1970s as Area Authorities were established. Area Authorities, representing all the local government councils in a District, were envisaged as having largely a planning and co-ordinating role, and one of their more important functions was to be the preparation and determination of priorities within the Rural Improvement Programme (NGAR, 1971-72:39).

Between 1964 and 1966, Kundiawa had a Town Advisory Council, a non-statutory body formed to 'advise the Administration on matters affecting township areas not within the area of a local government council' (NGAR, 1965-66:31). The functions of this council were absorbed by the Kundiawa Local Government Council when it was proclaimed in 1967.

Early in 1975, Chimbu set up a District Planning Committee which closely resembles the former District Advisory Council in that its membership includes expatriate representatives from private enterprise and the missions. Many of the government members are also members of the PCC. Finally, mention should be made of the monthly meetings of the Assistant District Officers, which deal largely with matters concerning administration of rural areas.

It would appear that none of these bodies has proved an effective instrument for planning in the province. A Planning Workshop sponsored by the Public Service Commission and the Provincial Commissioner in Chimbu in December 1975 (see Appendix 5, pp.357 - 372 ) drew attention to the lack of communication and co-ordination between virtually all sectors of the community. As the National Planning Committee of Cabinet stated bluntly in 1974:

One basic feature of district organisation makes district planning more complex than departmental planning. In most districts there is no individual or organisation with final responsibility for projects, or with the power to manage and co-ordinate projects involving more than one department or council ... The lack of a district-centred political and administrative system has seriously impeded district planning (Central Planning Office, 1974:10).
A similar conclusion was drawn by Grey:

... planning at the centre, or 'top down' planning developed from the administrative system which grew up while Papua New Guinea was administered by Australia. It produces good results in terms of the quality of national plans, but it cannot satisfy the demands of people in the district for a planning and administrative system which is sensitive to their needs (1974:31).

Grey pointed out that there is nobody in the District who has the power to say 'this is our plan for the district, and this is what everybody has to do to complete the projects', and further, that there is no generally accepted list of what should be included in a district plan (op. cit.).

This study was carried out by a team of six. The Development Studies Centre of the Australian National University nominated the three non-national members, Diana Howlett (co-ordinator), Robin Hide and Elspeth Young. The national counterparts, James Arba, Henry Bi and Barunke Kaman, are all from Chimbu Province and were nominated by Papua New Guinea's Central Planning Office. Field work in Chimbu Province was undertaken from September to December, 1975.

Data for the study were collected from many sources. The bibliography indicates that a number of studies have been published on Chimbu, largely with an anthropological, demographic or geographic bias. These publications have provided an indispensable background to the enquiry. We are particularly indebted to the work of Harold Brookfield and Paula Brown, which reports and analyses changes in Chimbu socioeconomic from 1958-73, an unusually long period for Papua New Guinea. Provincial and national government reports have been consulted, and we are grateful to heads
of government departments in the province who made their files available to the team.

Interviews were held with representatives of all relevant government departments in the province, and with district officers. In addition, some departmental officers representing the Highlands Region were consulted. Representatives of the churches and private enterprise were also interviewed. The study team visited all districts of the province in the course of its field work. A visit to Bomai and Karimui in the far south was made possible by government air charter.

The study team felt that in view of its short period in the province, it would be useful to attempt to establish some guidelines for future planning to particular sections of the community. Specifically, we had a responsibility to the Chimbu members of the team, who were recruited on the basis of their concern for the province's future rather than for any particular academic or planning expertise. Although J. Arba had been appointed as the province's planning officer earlier in 1975, Chimbu had no planning office. The first steps toward setting up such an office were made possible by the generosity of the Area Authority, which made available some rooms and facilities in its building. One of the first undertakings of the Chimbu team members was to assemble and catalogue a reference library of publications and documents relating to the province. Although much remains to be done, we would hope that from this small beginning a functional planning office may eventually be established.

More generally, the team was concerned at the lack of a province-wide consciousness and knowledge among Chimbu's political leaders. For example, it was learned that although most members of the Area Authority have visited Port Moresby, and perhaps half have made official visits overseas, few have travelled widely within the highlands and a considerable number have yet to visit all parts of Chimbu. The Area Authority and local government councils are currently debating the style of provincial government they wish to adopt in Chimbu. As demands increase for greater decentralisation of responsibility to provincial bodies, we considered it useful to try to indicate ways for these bodies to establish and evaluate local needs.

To this end, and given the constraints of time imposed on the team, soon after our arrival in Chimbu we organised a series of meetings at weekly intervals in three widely
scattered locations: at Dirima (Gumine District); Womatne (Gembogl District) and Keu (Chuave District). These rural 'workshops' had several purposes. One was to enable members of the Area Authority and councillors from other areas to gain a better appreciation of the internal diversity of the province, and to meet rural people in the context of their particular environmental and economic circumstances. A second purpose was to give rural people an opportunity to express their views on developmental and social problems. Finally, the workshops enabled the study team, in its effort to 'record, as far as possible, the varying aspirations of the Chimbu people' (see Terms of Reference), to meet and listen to a broad cross-section of the Chimbu people. The organisation of the workshops and a record of the issues raised are set out in Appendix 4.

The team also felt that Chimbu people should have an opportunity to learn more about innovations which had been introduced elsewhere in the highlands and which might be of relevance to their province. We considered that three ventures in particular might be of value in Chimbu: Yangpela Didiman (Young Farmers' clubs) in Banz, the Maket Raun (mobile market and service scheme) operating from Mt Hagen, and the Kainantu Erias and village courts. Arrangements were made to take Chimbu members of the study team, relevant public servants, and in the case of Kainantu, some Chimbu community leaders to evaluate these projects, and the Chimbu members of the team have prepared reports on their potential application to Chimbu Province in Chapters 7 and 9.

The team used Radio Chimbu as an effective way of informing people of its activities. The programme of rural workshops was announced over the radio before each meeting, and interviews with team members were broadcast during and at the conclusion of the programme. Broadcasts were also made following the visits to Kainantu's Erias and the Western Highlands Maket Raun.

At the conclusion of our fieldwork in late December, we were able to participate in the Chimbu Planning Workshop referred to above. The Planning Workshop was attended by community leaders, public servants, councillors and Area Authority members, university students, and some mission representatives. Although Chimbu members of parliament were invited, a political crisis prevented all but a few from attending. Those participating in the Workshop formed small
working groups to debate the most serious problems raised at the first plenary session.

One of the most valuable results of the Planning Workshop appeared to be the opportunity for communication between many sectors of the community, rural and urban, public and private, outstation and headquarters. Such liaison in the past has been poor or non-existent. The Planning Workshop also proved very valuable to the study team, in confirming many of its own conclusions as well as raising new issues.
Acknowledgements

We are indebted to many people who assisted us in the collection of data and the preparation of this report. We would particularly like to acknowledge our gratitude to the Chimbu Area Authority, which assisted us with transport and provided office space for the Chimbu team members. We are grateful to the Provincial Planning Committee, Provincial Co-ordinating Committee, the Area Authority and the board of directors of the Chimbu Coffee Co-operative for their courtesy in permitting us to attend their meetings and conferences, and to Radio Chimbu for allowing us broadcast time.

We would like to express our appreciation to Kuman Dai, Kumai Sundu and Gari Waiaiki, who hosted the rural workshops in their communities; to Greg Morley, Bob Smith and Tom Weston of the Central Planning Office, for their unstinting support and co-operation; and to Bill Standish, Nancy Clark and Herb Weinand of the Australian National University, who helped us in ways too numerous to recount.

The report was typed by Maureen Kirkup, and the maps were drawn by Hans Gunther and Lio Pancino. May Dudley, Pauline Falconer, Elizabeth Lawrence and Nadia Spesyyv all helped with various stages of report preparation. To all these people we express our warmest thanks.

We list below the people consulted during field work, without whose advice, information and assistance this report could not have been written.*

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Mr K. Bariau    President, Karimui Local Government Council
Mrs Bayak       Traffic registration, Kundiawa
Mr B. Biel      Executive officer, Coffee Marketing Board, Goroka

* Appointments indicated are those held at the time of interview.
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<td>Mr K. Deutrom</td>
<td>Officer in charge, Kainantu Komuniti Erias</td>
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<td>Miss M. Heartfield</td>
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<td>Rev. R. Heuter</td>
<td>Lutheran Mission, Kundiawä</td>
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<td>Mr A. Ingram</td>
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<td>Mr Kawale</td>
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<td>Research Fellow, Institute of Papua New Guinea Cultures, Port Moresby</td>
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<td>Public Service Commission, Port Moresby</td>
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<td>Mr B. Korowaro</td>
<td>Station Manager, Radio Chimbu</td>
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<td>Mr N. Kuman</td>
<td>Overseer, Chimbu Coffee Co-operative, Karimui</td>
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<td>Dr N. MacArthur</td>
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Mrs A. Nombri  Community Development Officer, Chimbu
Mr M. Nombri  Government Liaison Officer, Chimbu
Mr D. Nuttall  Kundiawa Vocational Centre
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Mr W. Owe  Councillor, Karimui Local Government Council
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Mr K. Palmer  Central Planning Office, Port Moresby
Mr K. Pandan  Department of Primary Industry, Kundiawa
Mr L. Pearson  Manager, Kundiawa Vocational Centre
Mr S. Penney  Department of Primary Industry, Kerowagi
Mr N. Philp  Department of Economics, ANU
Mr H. Popon  Superintendent of Education, Chimbu
Mr B. Shaw  Chief Economist, Papua New Guinea Development Bank, Port Moresby
Mr E. Saile  Local Government Officer, Chimbu
Mr R. Saker  District Officer, Kamtai Sub-district
Dr R. Scott  Division of Land Use Research, CSIRO, Canberra
Mr T. Shelley  Chimbu Developments Ltd
Mr C. Shelton  Summer Institute of Linguistics, Ukarumpa, Eastern Highlands Province
Mr P. Simbouk  Adult Education Officer, Chimbu
Mr G. Simpson  Research Officer, Southern Highlands Area Authority
Dr R. Skeldon  Research Fellow, New Guinea Research Unit
Mr R. Smith  Central Planning Office, Mt Hagen
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Mr R. Sunderland  Papua New Guinea Development Bank, Mt Hagen
Mr K. Sundu  President, Mt Wilhelm Local Government Council
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Mr M. Towa  Deputy Provincial Commissioner, Chimbu
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Terms of reference

1. To assess the extent and location of resources within Chimbu Province;

2. to identify the existing pressures on these resources and the constraints on their further development;

3. to record, as far as possible, the varying aspirations of the Chimbu people;

4. to devise alternative strategies through rural improvement and development to meet these aspirations;

5. to assess the need and opportunities for development outside the province which would ease the internal problems.
Summary of main findings and recommendations

Demography

Findings

1. The annual rate of population increase is relatively low (0.7 per cent) but fertility is increasing and mortality declining hence the rate of growth will increase in future (3.46);

2. Population density is higher than in any other province and in parts of Chimbu imposes a severe strain on resources (3.64; 5.1 ff);

3. Migration from Chimbu is increasing, but most migration is 'circular' and the present pattern offers no solution to population problems (3.62-3.64);

4. Abnormally high dependency ratios are created because most migrants are young adult men (3.64);

5. Existing census data is inadequate to make accurate forecasts of demographic trends (3.21-3.26).

It is recommended that:

1. The rate of population increase be reduced below present levels and family planning be strongly promoted (3.68-3.69);

2. More intensive use be made of existing resources (see Agriculture);

3. More Chimbu be given the opportunity to re-settle in other parts of the country (see Re-settlement);

4. A register of vital events, particularly of births and deaths, and of migrants, be started as a matter of urgency, and students and councils assist in the accurate maintenance of such records (3.73).

Land availability

Findings

1. Average population density on agricultural land (below xxvii
2400 m) in northern Chimbu is 84 per km\(^2\), but in Mitnande and Niglkande census divisions the density is 289 and 206 per km\(^2\) respectively (Table 5.2; para. 5.7);

2. Land shortage, both absolute and specific, is the most serious problem of the majority of Chimbu (5.1 ff);

3. 94 per cent of the Chimbu live in the rugged northern half of the province where almost 50 per cent of the land is higher than 2000 m (5.3-5.4).

4. In northern Chimbu there are less than 2 hectares of all land per person (5.5);

5. Land use is characterised by extreme fragmentation and dispersal of holdings, but any alteration of the existing pattern of land holding and land use could only be achieved under special conditions, i.e., through coercion, or through mass politicisation and agreement upon fundamentally new goals (5.27 ff);

6. Flexibility is an integral part of the system of land tenure and has both advantages and disadvantages (5.21);

7. Due to inadequate resources and too many people, consolidation of holdings will not achieve greater productivity (5.34 ff), but partial consolidation of coffee holdings by small groups of individuals may improve efficiency of production (5.36);

8. Animal husbandry (especially cattle and pig projects) is concentrated in land-short regions of Chimbu; if recommended stocking rates are followed, each head of cattle requires as much land as is available for three or four people (9.95); traditional pig husbandry imposes heavy demands on both cultivated and fallow land (9.101-9.103);

9. Pressure on land is a major cause of disputes and tribal fighting (5.38 ff).

It is recommended that:

[Recommendations concerning land are included under Resettlement and Agriculture. Those below relate only to administration of land matters.]
1. All rural leases be reviewed to ensure that land is used as effectively as possible (5.44); closed airfields be investigated to determine their best future use (5.48);

2. Payment of compensation to customary land owners (e.g., for loss or damage due to road-building) be made as a collective fund for specific development projects determined by the community in question (5.50); or, if the present payment system is continued, a mobile banking service should accompany the payment officer where feasible (5.51);

3. The implications of the land dispute settlement structure be carefully considered and possibly amended (5.39-5.42).

Resettlement

Findings

1. Resettlement can provide only a partial solution to Chimbu's problems of population pressure and land shortage (3.65-3.66; 5.55; 5.64 ff);

2. Most Chimbu migrants are 'circular' migrants and prefer to maintain contact with their home land or to re-locate within reasonable access to it (3.62 ff);

3. The areas most favoured for future resettlement (Bomai, Karimui and the middle Ramu valley) lack road access to northern Chimbu (5.57 ff);

4. The only short-term resettlement option is to give priority to land-short people in existing schemes (5.92);

5. Chimbu believe that they are discriminated against by their reputation in the allocation of resettlement land (5.53-5.54; Appendix 5);

6. The Wahgi Swamp holds the best prospects for providing additional resettlement land without vast expense and difficulty in the next decade (5.91);

7. Insufficient ecological and agricultural data are available to make decisions about types of resettlement schemes for Bomai and Karimui (5.66 ff);

8. The land use and resettlement potential of the middle Ramu valley is fairly low (5.86);
9. If the Purari river basin is developed, there are long-term prospects for the re-location of some of the Chimbu (5.90; 5.94).

*It is recommended that:*

1. The national government give first priority in resettlement schemes to those who need land most (5.53 ff);

2. Provincial leaders actively seek the support of the central government to provide resettlement lands for the Chimbu (5.56);

3. Action be taken immediately to take up all available slack in existing schemes for the land-short, and in Chimbu priority be given to resettling applicants from Gembogl and Gumine Districts (5.92);

4. A register of all vacant blocks in existing schemes be prepared and made available to Lands officers in areas of population pressure (5.92);

5. National government take decisions immediately concerning the possible development of the Wahgi swamp and the Karimui-Bomai regions (5.93);

6. Comprehensive ecological monitoring be initiated at Bomai and Karimui as a matter of urgency, and be continued for a minimum of ten years (5.69-5.70; 5.76);

7. Any future resettlement in the middle Ramu valley be based on a mixed subsistence and grazing economy, and on groups rather than individual families (5.86).

**Environment**

*Findings*

1. Chimbu's location, environment and difficulties of access place severe constraints on the expansion of modern economic activities (4.14);

2. Chimbu has no known economic mineral deposits (4.15);

3. Climatic data for Chimbu are scanty, irregular or unreliable (4.16);
4. Although annual rainfall appears adequate for most agricultural needs, rainless periods of up to several weeks cause considerable stress for rural people and crops each year (4.20);

5. Soil surveys have been few and are inadequate for agricultural prediction (4.24-4.35);

6. The potential forest resources of Chimbu cannot be exploited due to lack of access (4.42); most remaining forest in northern Chimbu is degraded and natural forest regeneration is unlikely (4.39);

7. The Forestry Office in Chimbu is grossly understaffed in relation to the province's needs (4.47).

It is recommended that:

1. Selected primary schools, all secondary schools and all mission stations keep rainfall and temperature records for their localities and arrangements be made to continue records during school vacations (4.16);

2. Local government councils, schools and agricultural extension and forestry officers combine their efforts to promote wider use of soil conservation techniques in northern Chimbu (4.34);

3. Soils be analysed at Karimu and Bomai under fallow, subsistence and experimental cash crops during wet and dry months for a minimum of ten years (4.35; 5.69-5.70);

4. Chimbu be allocated more trained forestry officers, especially for Gumine and Gembogl Districts (4.47);

5. An intensive campaign be mounted in collaboration with agricultural officers to:
   a) educate and inform rural people of environmental problems of deforestation;
   b) undertake erosion control and reforestation;
   c) promote the economic and nutritional advantages of tree planting, especially for timber, fruits and nuts;
   d) regulate planting and exploitation of timber resources in rural areas at community rather than individual level as at present to ensure firewood for energy needs in settlements (4.47; 5.17);
6. Small wood-treatment plants be introduced to preserve timber used in housing and fencing for longer periods (4.43; 5.17).

**Infrastructure**

**Findings**

1. Upgrading of the Highlands Highway has reduced dependence on aircraft, especially for freight movement (6.4);

2. Southern Chimbu relies totally on aircraft for links with other regions (4.4);

3. Kerowagi should replace Kundiawa as the main airfield in the province (see under Urban);

4. Sections of all roads, including the Highlands Highway, are prone to landslides and washaways (6.7);

5. The Highlands Highway in Chimbu is heavily used by pedestrians as well as freight and passenger traffic, and lacks safety features and amenities for users (6.9);

6. Most power is supplied by the Ramu scheme and small diesel generators. The only hydro-scheme within Chimbu is operated by the Catholic mission at Toromambuno (6.17);

7. Small rural electrification plants are widely needed (6.19);

8. Kundiawa relies on roof catchment for its water supply, and sources of supplementary water from nearby rivers are heavily polluted (6.21);

9. Few villages have a water supply, but depend on contaminated streams which are a factor in gastro-enteritis in young children and other diseases (6.23);

10. The trend toward more permanently occupied settlement sites, with the use of more permanent building materials for houses, may lead to haphazard agglomerations of shanties in rural areas (5.17);

11. Radio services are a vital means of communication in a region where all other forms of communication are difficult and unreliable, and in which the population is largely
illiterate (6.31).

It is recommended that:

1. Off-road parking bays with shelters be provided at all major PMV stations along the Highlands Highway (6.10);

2. Road margins in hazardous sections of the Highway be indicated by permanent markers (6.9);

3. The feasibility of small water-powered generators to provide power for rural needs, especially cool storage of produce, be investigated (6.19);

4. The feasibility of providing a secure water reticulation scheme to provide adequate potable water for Kundiawa, and capable of meeting future urban growth and demand from industrial users, be investigated (6.22);

5. Radio Chimbu's broadcasting schedule be restored to its pre-September 1975 level and less-developed provinces such as Chimbu be given priority over other areas in radio services and facilities (6.31);

6. Plans be prepared for rural settlements, including provision of water supplies, sewage and other waste disposal and use, minimum house-to-house distance recommendations to reduce fire risk, tenure considerations and basic house design for both traditional and permanent materials (5.17).

7. Access between Kundiawa and Kerowagi be improved by installing telephone connections and introducing regular bus services between the two towns (10.20).

Political institutions

Findings

1. Many functions of the political (as well as administrative) institutions need to be defined or re-defined; roles and relationships between individuals and institutions in political (and administrative) spheres are generally unresolved, and until they are, governance of the province will continue largely on an unsatisfactory ad hoc basis (8.3);

2. Councils have proved ineffective and unsatisfactory
political institutions (8.5 ff);

3. Councillors and sometimes their advisers have made hasty, ill-considered decisions, and have abused privileges associated with their position (8.8);

4. No women have yet been elected to Chimbu councils (8.10);

5. Members of the Area Authority have never been given clear guidelines, and the body has had to function in a policy and operational vacuum (8.39);

6. Area Authority members face considerable difficulties in achieving an integrated view of the province and its development needs (8.42–8.48);

7. National level politics have only indirect relevance for most Chimbu, but many people are dissatisfied at the lack of contact between national representatives and their constituents (8.49);

8. The problems for maintaining contact with electorates are greater for national than for provincial or local level political leaders (8.50).

*It is recommended that:*

1. Alternative forms of local organisation, such as the *Eria Komunitis* in the Kainantu District, provide a possible model for adoption in Chimbu (8.21; 8.32 ff);

2. Before introducing alternative forms of local government, the functions of councils be integrated with district level administration for more effective guidance and project coordination in each area (8.33–8.34; 11–6);

3. Although the Kainantu *Erias* are associated with village courts, such courts not be more widely introduced in Chimbu until the Kerowagi courts have become firmly established, to avoid duplication of mistakes elsewhere (8.35–8.37);

4. Councils (or their equivalent) be consulted in the establishment of mobile service units (9.139);

5. The Area Authority (or Provincial Government) make a more determined effort to establish provincial development needs and priorities, and give first consideration to
reducing spatial inequalities in services, infrastructure and opportunities in the province (8.42-8.44);

6. The Area Authority (or Provincial Government) hold several meetings each year in centres other than Kundiawa (8.45);

7. The Area Authority (or Provincial Government) work for greater consultation and collaboration with officers of government departments (8.46);

8. Members of parliament use forums such as council and Area Authority meetings, radio, rural market places and church gatherings to maintain closer contact with their constituents (8.50).

Public service

Findings - general

1. Chimbu has suffered neglect by the central administration in the past, and on many indices of 'development' consistently ranks among the lowest two or three provinces in the country (11.2);

2. Most regional offices of the public service are based in Mt Hagen or Goroka, making access to their services more difficult (8.52);

3. Localisation of the public service has reduced the effectiveness of government officers (8.56);

4. Lack of communication and coordination between government departments, and between government officers and other sections of the community, are widely reported (8.58);

5. Considerable opportunities exist for abuses of the wantok system within the public service (and by political leaders) (8.63 ff.);

6. Public servants at the provincial level have little power to formulate appropriate local policy (8.52), and have had little success in inter-departmental coordination of national policies at the provincial level (8.3).
It is recommended that:

1. The Provincial Commissioner sponsor a planning workshop with wide community participation as a regular annual event (11.6);

2. The Provincial Commissioner hold periodic meetings with people in rural areas (11.6);

3. The Provincial Coordinating Committee be revitalised for more effective implementation of policy (8.59; 11.6);

4. The central government delegate more responsibility to departmental heads within the province (8.59);

5. The central government examine staffing and expenditure for all departments and agencies in Chimbu and aim to bring inputs up to the national average (11.2);

6. Public servants posted to Chimbu be given an orientation period including a stay at rest houses to familiarise them with local people and customs (8.59; 9.145);

7. Greater use of radio facilities be made to inform the community of government activities and to increase publicity for visits by government officers to rural areas (8.59);

8. The senior officer in each district circulate a list of market places and market days for his district to all departments in Kundia, and Radio Chimbu broadcast each morning the places at which markets are scheduled that day (9.68);

9. Consultative and coordinating bodies, such as district development committees, comprising government officers and council leaders, be formed in each district (8.33-8.34; 11.6);

10. A system of mobile service units be implemented in Gembogl, Gumine, Kerowagi, Chuave and Sinasina with overall coordination by the Department of Provincial Affairs in Kundia (8.59; 9.128 ff; Appendix 3).

Health

Findings

1. Government expenditure per capita on health facilities
is the second lowest in the country (7.14; Fig. 7.1);
2. Health extension services are frequently interrupted or suspended due to transport and communication problems (7.16);
3. Venereal diseases and malnutrition are now among the province's most serious health problems (7.18-7.22) but malaria, leprosy, respiratory infections, dysentery and gastro-enteritis are also serious (7.3-7.11);
4. Chimbu's poor reputation creates problems between health workers from other provinces and rural Chimbu (7.22).

It is recommended that:
1. Government expenditure on health services be increased relative to other provinces (7.23);
2. Maternal and child health clinics be increased to help combat malnutrition, to achieve greater enrolment of young children, to improve family health and promote family planning (7.23);
3. Activities of health extension workers be coordinated with the work of agricultural officers, teachers and community development staff (7.23; 9.133; 9.139);
4. A clinic for the treatment of venereal diseases, staffed by personnel trained in diagnosis, treatment, and educational extension techniques, be established in the province (7.23);
5. A greater effort be made to recruit and train health workers from within the province (7.22).

Education

Findings
1. Present national education policy is largely irrelevant to the future needs of Chimbu society (7.41) and provides little scope for adaptation to regional needs;
2. There is a complete lack of forward planning in education in Chimbu, partly due to the rapid turnover of education personnel, from junior teachers to senior administrators (7.42; 7.50; 7.53);
3. The Chimbu regard schooling as a main avenue to material advancement, and feel disadvantaged by their late start which means fewer Chimbu in nationally prominent positions (7.24, 7.41);

4. Enrolment in both primary and secondary schools is well below the national average (7.29-7.30);

5. There are spatial inequalities in education opportunities in the province, with the most isolated and most densely populated regions being most disadvantaged (7.31);

6. Boys have better chances of receiving primary education than do girls, and at secondary school the discrepancy is greater (7.32);

7. Families in areas with little cash cropping have difficulty in raising school fees (7.42; 7.52);

8. School leavers have increasing difficulty in finding employment (7.24);

9. Rural and urban society is polarised by the concentration of the more highly educated people in towns and district centres (7.51).

_It is recommended that:_

1. The reduction of spatial inequalities in educational opportunities in relation to other provinces, and within Chimbu, be a main priority in education policy (7.31; 7.48; 7.49);

2. Senior education personnel prepare an education plan more appropriate to Chimbu's needs, i.e. one which places more emphasis on preparing students for rural society (7.53);

3. Primary schools be oriented toward rural life by not accepting students before the age of eight, so that they will be more mature on completion of primary education, and by emphasis on skills such as agriculture, crafts and book-keeping (7.43);

4. Chimbu's academic high schools should be reduced, and three replaced by an agricultural high school, a technical high school and a commercial high school (7.44-7.45);
5. Skulanka and community education programmes provide training for informal sector employment in rural areas, including trade store management, repair and maintenance services, food preparation, storage and sale (7.39);

6. Vocational centres rather than high schools be established at Gumine and Gembogl (7.47);

7. Vocational centres be given more assistance to train technicians in useful rural skills (9.112);

8. Government policy on school fees be modified either by granting subsidies to families in less developed areas or by applying a means test for school fees (7.52);

9. Students not be accepted by vocational centres until in late teens (7.45);

10. The Department of Education appoint community teachers to conduct adult education and assist liaison between rural communities and government (7.46);

11. Young educated Chimbu be encouraged to seek posting in their province, to bridge the gap between rural communities and urban elites (7.50).

Community development and welfare

Findings

1. The work of the Office of Community Development and Welfare is ineffective due to lack of policy guidelines; inadequate staff for extension work in rural areas; reluctance of staff to do extension work outside office hours; poor staff training programmes; and lack of support for junior welfare assistants (7.54-7.56; 7.63);

2. Village people have not been consulted before the establishment of community centres; of ten centres established in recent years only one (at Kewamugl) still functions (7.58; 7.63);

3. A growing number of rural women are interested in forming clubs, especially for small businesses (7.59-7.61; Appendix 4).
It is recommended that:

1. The desire for women's clubs and business activities be supported, and women be given assistance in obtaining grants from the Rural Improvement Programme (7.64);

2. Extension effort of the Department of Community Development and Welfare concentrate on these projects and consult more fully with groups which have requested help (7.64);

3. Junior welfare assistants be more closely supervised and encouraged to work in teams with more mature village women (7.64);

4. Men be encouraged to participate in community projects which are now evolving from women's clubs (7.64).

Land use; Department of Primary Industry

Findings

1. Chimbu will have to rely on subsistence agriculture for many years (9.2) but cannot hope to maintain present subsistence levels unless agriculture is intensified and techniques changed (9.5);

2. Only an active role by governments is likely to achieve any results in agricultural intensification (9.5); under present conditions, Chimbu will not readily adopt more intensive land use methods because they require higher labour inputs, but such methods will become essential for many Chimbu in the near future (9.18);

3. The DPI in Chimbu has always suffered from inadequate staffing and difficulties in maintaining contact with and cooperation from rural people (9.12);

4. DPI has had to implement national policies inappropriate to Chimbu (9.12) but Chimbu people equate 'development' or 'improvement' with an increase in their ability to earn cash (9.11);

5. Rural people are largely dissatisfied with the effectiveness of agricultural extension officers (9.13);

6. The most immediate goal of the DPI should be improvement of subsistence (9.14-9.16);
7. If subsistence is to be improved by increased and sustained higher yields without environmental deterioration, base-line information on the limits of contemporary cultivation systems is essential (9.20);

8. Apart from coffee, the few alternative cash crops are insignificant in terms of area planted, number of growers, and income derived (9.21);

9. Accurate information on coffee planting and production is not available (9.27) but coffee cannot be grown in the higher settled areas (9.26; 9.28);

10. Coffee husbandry practices are poor, but intensification of production on existing holdings demands higher labour inputs and is unlikely to be worthwhile unless prices are high (9.36);

11. Given the instability of coffee prices, and land shortage, the Chimbu have strong economic justification for retaining self-sufficiency in food production (9.32–9.33);

12. Coffee buying and processing are highly competitive and subject to many vested and conflicting interests (9.50);

13. The failure of pyrethrum as a cash crop is due to planting in unsuitable environments, inadequate marketing arrangements, high labour requirements, low returns, and lack of conspicuous status of the crop (9.51);

14. Peanuts and vegetables have been unsuccessful cash crops due to the problems of marketing outside the province (9.53; 9.58);

15. Rural produce markets have increased in number and size in recent years but there is little specialisation in produce and associated informal sector activities are rare (9.59; 9.64);

16. Livestock projects have increased considerably in recent years (9.90), but cattle and pigs are not produced for sale in urban markets to substitute for expensive imports — rather their slaughter for distribution or sale within the traditional exchange system contributes to the inflationary spiral of intergroup prestations (9.92; 9.105);
17. The distribution of livestock projects is highly uneven, with 87 per cent of cattle projects in Kundiawa and Kerowagi Districts (9.93);

18. Traditional pig husbandry is a system of low productivity (9.97) which imposes heavy demands on cultivated and fallow land and is a major cause of soil erosion (9.97-9.98);

19. Piggery projects are not an example of intensive animal husbandry because of the need to expand sweet potato production to support them (9.99-9.103).

It is recommended that:

1. Senior agricultural staff and rural community leaders consult on ways to improve rapport and the effectiveness of extension programmes (9.13);

2. The implications of proposals to reduce or withdraw DPI extension officers from areas of tribal fighting be seriously considered (9.12);

3. Subsistence production be improved by making supplies of seed more widely available and promoting high-nutrition foods (wing bean, peanuts, other legumes) at rural markets, council offices, DPI offices and trade stores (9.14);

4. Improvement of subsistence production be stimulated by the introduction of rural shows at the level of council areas/districts, and DPI use these events to identify, select and disseminate superior varieties of traditional foods (9.15);

5. Booklets in Pidgin on improved farming techniques (such as prepared by Yangpela Didiman) be more widely available to villagers (9.14);

6. DPI staff, with assistance from students at nearby schools, systematically monitor staple availability at rural markets to provide information for planning regional specialisation of production, and to coordinate supply with institutional demand for foods (9.17);

7. DPI make a major commitment to developing more intensive methods of land use to help rural people maintain adequate subsistence when current technology will no longer be appropriate (9.19);
8. Without a well-regulated pricing system DPI should not make any increased extension effort to improve coffee husbandry (9.37);

9. Any changes in regulations and legislation concerning coffee buying and processing be applied to all highlands provinces, and be framed to achieve the widest possible distribution of benefits by considering growers' interests (9.50);

10. No further promotion and extension of pyrethrum is warranted (9.52);

11. Increased sale and consumption of peanuts, including processed forms, for the domestic market be promoted (9.53);

12. A cool store for periodic surpluses of vegetables be established as a pilot project by the Mt Wilhelm Local Government Council in conjunction with DPI (9.66);

13. The use of rural market places for wider communication, trading and other informal sector activities be encouraged (9.68);

14. Chimbu communities be urged to rethink the place of pigs in their subsistence and ceremonial activities (9.98).

Credit institutions

Findings

1. Most non-agricultural enterprises depend on the availability of credit (9.69);

2. Chimbu was one of the last two provinces (with Manus) to receive a PNGDB branch office (9.70);

3. Chimbu received 1.8 per cent of all PNGDB loans made to Papua New Guineans between 1967-75 (9.71);

4. Allocation of PNGDB loans within Chimbu has been uneven both spatially and according to purpose, with 73 per cent of all loans between 1970-75 made for livestock projects (9.73) and two-thirds of all cattle loans made to the three census divisions with highest population densities and less than one hectare of all land per capita (Waiye, Dom, Sinasina) (9.73; 9.95);
5. The CSLS enables a lower level of borrowing for a wider range of purposes and reaches a larger number of people than the PNGDB, but membership is also concentrated in the Kundia and Kerowagi Districts and wider recruitment for new members is not contemplated (9.79; 9.83);

6. 55 per cent of PNGDB loans (by value) in Chimbu have gone to only 5 per cent of borrowers; 32 per cent of CSLS loans to 3 per cent of borrowers (9.80-9.81);

7. Concentration of credit and extension assistance is leading to the emergence of a rural elite with a monopoly on scarce resources (9.75);

8. Livestock loans are eagerly sought by the Chimbu and are satisfactory to the lending institutions, but this policy may be counterproductive in the longer term (9.105);

9. Niches for economic specialisation of all kinds are acutely limited (9.77).

_It is recommended that:_

1. Policy makers distinguish between generalised and specific opportunities in formulating improvement programmes for disadvantaged provinces (9.77);

2. Government credit and technical skills be invested in programmes designed to economise on land and capable of being adopted by as many Chimbu as possible (9.105);

3. Government credit and skilled personnel no longer be used to support livestock projects which require extensive land use by the few, creating land pressure for the many (9.105).

**Wage employment**

_Findings_

1. Chimbu has 6.6 per cent of the country's indigenous population but only 2 per cent of the country's monetary sector workforce (9.148);

2. The proportion of Chimbu in skilled occupations is significantly lower than the national average (9.144);
3. Opportunities for paid employment within Chimbu are limited and spatially uneven, leading to increased separation between the rural and urban sectors (9.143);

4. Most skilled occupations in the province are held by non-Chimbu and the majority of unskilled occupations by Chimbu – relations between supervisors and subordinates are poor (9.145; 9.150);

5. The potential Chimbu workforce is greater than the number of jobs locally available (9.151), hence labour migration is unavoidable for the majority seeking paid employment (9.153);

6. For every Chimbu employed within his province, four are employed elsewhere (9.153);

7. Unemployment of Chimbu migrants in urban areas elsewhere is over 30 per cent, compared with the average for all other provinces of 18 per cent (9.157);

8. Average wages of Chimbu migrants in urban areas are lower than the average for other provinces (9.157);

9. Unemployment among Chimbu migrants leads to a vicious circle of drinking, gambling, crime and continued unemployment (9.158);

10. Few Chimbu women have entered the monetary sector workforce (9.159).

It is recommended that:

Recommendations: see under small-scale industry; Chimbu people; Public service.

Small-scale industry and service industries – Department of Business Development

Findings

1. Chimbu's industrial potential is very limited (9.108);

2. Chimbu has few industrial establishments, and industrial growth has been slow (9.160);

3. Chimbu has had less assistance than other highland
provinces in the establishment of small industries (9.114);

4. Chimbu's Office of Business Development is seriously under-staffed (and at times has been unstaffed) but project supervision for the PNGDB makes heavy demands on staff time (9.114);

5. Rural areas are poorly provided with services (9.122);

6. The main rural service industries, retailing and transport, are under-capitalised, operate irregularly and with inexperienced management (9.122);

7. Expansion of rural service industries is inhibited by the seasonal availability of cash, limited opportunities in any particular field, status perception of particular ventures, and the limited range of models for potential entrepreneurs to adopt (9.123-9.124);

8. Present constraints on rural entrepreneurship will inhibit improvement in rural services without government assistance (9.127);

9. Tourism has considerable unexploited potential (9.164).

**It is recommended that:**

1. Small industry policy be based on the present lack of local employment opportunities, the one-dimensional nature of the rural cash economy, the desirability of creating local incentives to reduce the rate of outmigration, and the limited input of the Department of Business Development to date (9.121);

2. Small industry policy give priority to labour-intensive ventures to create employment opportunities; on the use of locally-available raw materials, on projects designed initially to meet local needs or existing markets (9.109);

3. Small industry policy be formulated in consultation with technical instructors at the Kundiawa vocational centre, to develop small 'agro-industries' to meet needs in rural areas (9.112-9.113);

4. The feasibility of establishing a small-scale cement works at Chuave using local deposits of limestone and based on adaptive technology, be investigated (9.111);
5. The Office of Business Development be expanded, in particular to provide managerial support to revive the weaving industry (9.118);

6. Qualified Chimbu people be recruited to understudy Business Development project advisers with the aim of increasing project self-reliance (9.121);

7. A system of mobile service units, involving both government activities and private entrepreneurs, be established in Gembogl, Gumine, Sinasina, Chuave and Kerowagi Districts to improve the distribution and coordination of services in more isolated regions (9.133-9.142; Appendix 3);

8. The possibilities of expanding tourism be investigated, possibly by a special committee of the provincial government (9.164-9.168).

Urban centres

Findings

1. Kundiawa's growth has been inhibited by lack of investment, lack of industrial development, dominance of Mt Hagen and Goroka, and shortage of urban land and housing (10.10);

2. Large areas of Kundiawa cannot be developed due to environmental constraints, but much urban land is underutilised, and administration of urban leases is inefficient and ineffective (10.11);

3. The Provincial Land Board is not adequately representative of the range of interests in the province (10.15);

4. Expansion of Kundiawa's present urban area is precluded by high rural population densities in adjacent tribal lands (10.16);

5. Future growth of Kundiawa will depend on replanning certain current land uses to provide more rational allocation of land use, more public amenities, and to improve physical access to government agencies (10.17-10.27);

6. The high turnover of public servants prevents the development of a stable urban community (10.42-10.45);

7. Chimbu's rural and urban sectors are polarised by the
concentration of most non-Chimbu, and most educated people, in the towns (10.46).

It is recommended that:

1. A thorough review be made of all urban leases (including unleased alienated urban land) to provide a complete and up-to-date inventory of urban land, including the status of unused sections, their suitability for development; the state of improvement in relation to lease conditions, status of rents and realistic rent appraisals (10.13);

2. Real rents be paid by leaseholders of business leases in urban areas (10.14);

3. Rents for business leases be paid to the Kundiawa Local Government Council (10.14);

4. The Chimbu Land Board draw its membership from a wider representational base (10.15);

5. The Housing Commission investigate Kundiawa's residential area with a view to replacing high covenant bungalows with more appropriate medium density structures to increase the provision of urban housing (10.17);

6. Kundiawa airfield be closed for urban re-development, and Kerowagi become the province's main airfield (10.18 ff.);

7. The provincial and district offices, and the proposed new provincial government headquarters, be located at the northern end of the present airfield (10.21-10.22);

8. The existing government offices precinct be converted into a people's park and amenities centre (for pedestrians only) bordering the present commercial centre (10.23-10.25);

9. The Kundiawa Local Government Council provide and maintain shade trees, shelter houses, refreshment kiosks, toilets and drinking fountains in the people's park, using revenue from urban rents (10.23-10.25; 8.15);

10. Kundiawa's market be re-located near the present commercial centre and proposed people's park, preferably on the site of the present Department of Primary Industry and Community Development offices (10.24);
11. PMV terminals in Kundiawa for Highway passengers and at the Keglsugl road junction be provided with parking bays, shelters and litter bins (10.26; 8.15);

12. Inexpensive hostel accommodation, including cooking facilities, be provided in Kundiawa and at all district or council headquarters (10.27).

Chimbu people and society

Findings

1. Limited local resources and government inputs have created a situation in which most post-colonial innovations have been traditionalised (1.4; 1.9; 1.13; 1.15; 2.15; 9.3; 9.11);

2. The lack of structural transformation has led to tensions and frustrations between groups, between generations, between sexes, between Chimbu and non-Chimbu (3.10-3.12; 9.7-9.10; 9.145; 9.150; 8.56-8.58; 7.48 ff.);

3. Frustrations and tensions find outlets in tribal fighting, outmigration, brawling, drunkenness and crime in urban areas (1.2; 3.14-3.19; 3.50 ff; 5.37-5.38; 9.153-9.158);

4. People from other highland provinces use the name 'Chimbu' when convenient, and especially to transfer blame for their own misdemeanours (1.2; Appendix 2; 11.7);

5. As a result of these factors, the Chimbu have acquired an extremely poor reputation which is responsible for a vicious circle of continued lawlessness, neglect, and public servants' reluctance or fear to serve in the province (7.22; 8.56; 9.12; 9.158; Appendix 5).

It is recommended that:

1. Chimbu leaders assume more responsibility for spreading awareness among their people (including migrant communities) of the negative consequences of the Chimbu reputation (11.7; Appendix 5);

2. Rural communities make a greater effort to cooperate with extension workers (7.50-7.51; 8.57; 9.13);

3. Chimbu communities reappraise certain aspects of their
traditional socio-economy, in particular the role of young unmarried people in economic activity, and the role of pigs in economic and social activities (9.9-9.10; 9.98);

4. More educated and skilled Chimbu people be encouraged to work or request postings in their home province (3.50; 3.64; 7.49; 8.63; 9.146);

5. Rural communities give greater opportunities to younger members with new types of training and skills to apply them in the rural areas (7.49; 7.51; 7.56).
Chapter 1

Introduction

1.1 Chimbu is the name of a place and a people. Both uses of the term, which was probably a greeting, stem from the colonial period. The people of Chimbu Province usually refer to themselves as Chimbu only when in other parts of the country, or when addressing visitors from elsewhere. Otherwise they identify themselves by reference to their clan, tribe or locality. To other Papua New Guineans, however, 'Chimbu' frequently implies not only the province and the people who live there, but highlanders in general. In this report we refer to all the people of the Chimbu Province as Chimbu. This is a convenient usage only, and implies neither cultural nor linguistic homogeneity, nor a widespread consciousness of political unity.

1.2 The word Chimbu invariably has negative connotations for outsiders, evoking images of a difficult mountainous region and an unruly aggressive people, whose main activity in their home territory is believed to be tribal fighting, while Chimbu migrants in urban areas are assumed to be mainly squatters who support themselves by crime. In the early 1950s when the Highlands Labour Scheme was begun highlanders, regardless of their place of origin, were commonly known as Chimbu in the lowlands. The first labourers were unskilled and seemed quite primitive to coastal people, who treated them with both fear and derision. Subsequently, with the increase in independent migration, large numbers of unskilled highlanders have congregated in the bigger towns, where many live as unemployed or unemployable fringe dwellers. The habit of referring to all highlanders as Chimbu persists, to the detriment of the province. The poor reputation is partly due also to Chimbu's lack of development, the reasons for which are outlined below.

1.3 Although Chimbu people are strongly attached to their homeland, they too acknowledge its uncompromising environment, and their generally poor reputation among their fellow
countrymen. It is seldom realised, by either Chimbu people or others, that a number of Chimbu have attained national prominence. Few Chimbu know of these men because their careers have taken them to the capital, Port Moresby, while others identify them with their achievements rather than their birthplace. The country's first national Ombudsman is from Chimbu, and he is also the first mainland New Guinean to be ordained as a Catholic priest. Contemporary artists such as Kauage, William Onglo and John Danger enjoy a prestigious reputation for their interpretations of traditional culture, and their works have been exhibited in other countries. Kama Kerpi, one of the country's most perceptive playwrights, is from Chimbu, as is Ben Umba. Other Chimbu hold senior positions in the government and public service. One is a Provincial Commissioner and others are members of national commissions.

1.4 Many such paradoxes characterise the Chimbu. The province has one of the most intractable environments in the country, yet supports its highest population densities. Most people are dependent on subsistence and have few opportunities in their home territories for more than marginal participation in the monetary sector, yet the demands for more urban services, for industries and factories, and other avenues into the modern economy are higher than in many more favourable parts of the country. As our terms of reference indicate, it has been our task to analyse these and other problems and prospects in the province.

1.5 The fieldwork for this study began a few days after Papua New Guinea became an independent nation on 16 September 1975. Consciousness of independent status was widespread among the Chimbu, but comprehension was not. Most people were aware that the government was no longer under Australian control and indeed that Papua New Guineans have, since self-government was attained in 1973, assumed responsibility for almost all the affairs of the nation. At the time of independence the Chimbu heard many injunctions at public gatherings and over the radio to be self-reliant, to work hard, to live peacefully, to 'stand on two legs'. However, a crucial dilemma for the Chimbu is that not only are they heavily reliant on the central government, but that the central government itself is largely dependent on external aid, investment and expertise. More than half the country's annual revenue is still supplied by Australian aid.
1.6 Australia recognised the necessity to transfer more power and responsibility to Papua New Guinea very belatedly, only as the dates for self-government and independence became firmer in the early 1970s. This tardy recognition has meant that the country has a severe shortage of citizens with adequate training and field experience to conduct effectively the affairs of a new nation. Perhaps as critical is a widespread lack of confidence in leadership at all levels.

1.7 The implications for Chimbu are considerable. This province was brought under the colonial administration effectively only in the years following the Second World War, and its isolated southern region not until the 1960s. From the beginning of colonial contact the Chimbu have been placed in a dependency relationship to outsiders - in particular to those representing agencies of the administration, and Christian missions. All the present Chimbu population apart from the elderly have grown up under a colonial administration, and have always been dependent on it. People have become accustomed to the regulatory role which the administration exercised in virtually every field, and to reliance on the central government to provide the province's funds.

1.8 The colonial administration established Chimbu's few towns, its rural outstations, its roads and airfields, and introduced the crops on which a monetary economy was to be based. With considerable early support from the missions, medical and education facilities were introduced. Later, local government councils, the Chimbu Coffee Cooperative, and facilities for obtaining credit and business advice were also promoted by the administration.

1.9 Brookfield wrote in the early 1960s that the province had 'an extremely low level of services even by Territory standards' and cited its poor communications, health, education and agricultural services (1966:58). Nevertheless the colonial administration has been virtually the sole source of innovation in Chimbu. Paula Brown, writing at the same time as Brookfield, commented that:

The Chimbu immediately developed a taste of European goods and depend upon the government to provide the means of attainment. For they have no other source
of information or stimulus, no chance of independently learning of new possibilities (1966:38).

Although the recent increase in out-migration makes Brown's observation less applicable now, people still expect and rely on help and direction from the government, as much in areas which were once the responsibility of traditional leaders as in non-traditional matters. In this connection we may note Beckford's observation that 'the most intractable problem [of dependent societies] is the colonized condition of the minds of the people' (1972:235; quoted in Brookfield, 1975:161).

1.10 Independence was attained by Papua New Guinea against the will of many highlanders, and it is inevitable that their conditioned dependency on the colonial administration will be transferred to the national government. In a sense the situation in Chimbu at independence parallels that of the early 1950s. Then and now inadequate resources of personnel and finance have led to constraints on government programmes for development and social welfare, and to 'much waste of effort and finance due to inadequate or insufficiently sustained input' (Brookfield, 1972:100).

1.11 Many Chimbu have travelled and worked in other parts of the country and are aware that their home territory is disadvantaged in many respects, especially compared with its neighbouring provinces, the Eastern and Western Highlands. Relative to its neighbours, Chimbu's resources are fewer, its services and infrastructure poorer. A more difficult environment and greater population density excluded the expatriate private sector based on plantations which was significant to the east and west, and meant a lower level of involvement locally in the cash economy for rural Chimbu. These conditions have been reflected in lower government inputs, especially for infrastructure. Indeed, for a number of government agencies and essential services Chimbu continues to be a satellite of Goroka and Mt Hagen. It may be argued that Chimbu has been better served than many lowland regions with considerably longer contact and easier accessibility, but compared with its adjacent provinces Chimbu has experienced neglect.

1.12 Although the Chimbu realise the relative disadvantages of their province, the confidence to remedy their
problems appears to be largely lacking. The points which we would stress here are that dependency attitudes are now firmly embedded in the Chimbu people and will make 'self-reliance' an empty phrase for some years yet; and that the scarcity of resources both locally and nationally precludes any major new directions in Chimbu's development for the present.

1.13 At the same time, Chimbu expectations are high. This is undoubtedly due to the historical accident that the only available development models have been provided by Australia, while the increasing flow of Australian aid during the last decade has inevitably reinforced people's expectations. What is perhaps surprising is that expectations among the Chimbu have remained high: cycles of 'hope and frustration' were identified over ten years ago by Brookfield (1966), and have been documented perceptively in his subsequent publications (1968; 1973). The alternation of buoyancy and resignation continues to characterise Chimbu communities. Periods of optimism which accompanied most innovations have been followed by pessimism with the realisation that the targets were too high, or the available resources and experience too limited, to adopt them effectively.

1.14 The Chimbu should not be censured for any lack of success in modern sector activities. The innovations which most attracted the Chimbu, those which held promise of entry into the cash economy, were rarely if ever presented as complete 'packages' but rather as an initial stage of a system for which the linkages and supports are often still largely unavailable. The lack of processing, distribution and marketing facilities for agricultural and other products is the most obvious example. Furthermore, alternative sources of cash income within the province are few, and the options available in the cash economy at any period have been restricted.

1.15 Chimbu socioeconomy has never been challenged by an innovation so successful, never been subject to an external force so drastic, that any irrevocable structural modification has occurred in it. The traditional culture has changed, in ways which are elaborated in the following chapters, but its essential elements have survived. We do not contend that Chimbu has a dual economy and society. The introduction of innovations has not produced a sharp
dichotomy between the indigenous and introduced systems. The willingness of the Chimbu to adopt and experiment with innovations has meant that many new features have been grafted onto the traditional system and become an indispensable part of it over a relatively short period. Such additions have not always been successful or beneficial. More often they have been the best compromise by the villagers in their circumscribed conditions. If there is a dichotomy in Chimbu life perhaps it lies in the conflict between expectations and reality, between what is aspired to and what is possible.

1.16 However, in reviewing the events of the last 30 or 40 years, villagers would perhaps be more conscious than outsiders of a sense of dualism. Although the expatriate private sector in Chimbu has always been small, it has been associated with a large expatriate government sector. The combination has resulted in a separation from, rather than integration with, the rural community. There is no indication yet that the replacement of expatriate public servants and businessmen by Papua New Guineans will lessen the polarity. The politicisation of some strata of Chimbu society is a recent phenomenon, related to the changed political status of the nation. Political power at local and national levels is increasingly used to reinforce economic status, leading to the emergence of a rural elite as well as an urban elite (which differs in that it has more formal education and is more bureaucratically oriented). Thus while dualism may be too strong a term to apply to Chimbu's socioeconomy, social stratification based on education, wealth and office is certainly becoming apparent. Such stratification, especially of rural society, is in contradiction to the ideology of the Eight Point Plan, yet it would appear that certain government agencies are the main stimulus promoting its evolution, whether consciously or not. Some implications of this process in Chimbu are discussed in the report.

1.17 The recommendations presented here do not require wide-reaching structural changes and reforms in the present system. Changes such as these must evolve from internal (both regional and national) perceptions and demands, and will require a general commitment to, and faith in, their consequences. The Prime Minister has said, 'We will not disrupt our traditional way of life any more than is absolutely necessary' (Somare, 1973:3), but many social
scientists believe that development cannot occur without often drastic changes to traditional ways of life. Wertheim, for example, has said:

The true obstacles to an overall development are not removed through ... isolated measures that keep the social and political structure intact.

If, on the other hand, the governments of the new states were really willing to tackle the development problem as a whole, at least some of these policies would feature among the measures to be taken. The formation of cooperatives, technical innovation, propaganda for birth control and, first and foremost, land reform, would all form elements of the development plan. But such a plan would also have to attack the existing social order and the basis of the existing hierarchy in order to be really viable (1974:281-2).

1.18 It is against this background that the report is presented. The recommendations are made in the light of what we consider attainable, given the present values and resources of the people and their province. With the exception of proposals for Kundiawa, the recommendations basically propose incremental improvements of a kind which can be implemented and adopted readily by the people, or institutional rearrangements which we believe will lead to improvements in net welfare. Many of the recommendations have been suggested to us by Chimbu people.

1.19 Clunies Ross, writing on the occasion of Papua New Guinea's independence, suggested that:

Significant grass-roots development in any community in Papua New Guinea probably depends on the fulfilment in the locality of four conditions, of which possibly three are simultaneously necessary:
* There must be a check to population growth before land is fully used for food-growing under traditional techniques;
* There must be transport adequate to convey tradeable goods to market without undue cost or effort;
* There must be access to knowledge about non-traditional marketable or usable products and about new techniques;
* There must be a well-informed 'mobiliser' who (recent experience suggests) will be a local man or woman with secondary education at least, as well as personal qualities that include a marked degree of self-confidence and dedication (1975:268).

As the following chapters indicate, none of these desiderata for development applies in Chimbu at present.
Chapter 2

Colonial history

2.1 Colonial rule lasted only some forty years in Chimbu, yet by independence in 1975, some 80 per cent of the province's people had been born since 1933 and very few adults had not spent their entire mature years under colonial authority. Although brief by comparison with the experience of other parts of Melanesia, the significance of this period far outweighs its short duration for, as Brookfield notes, 'the colonial process is a revolutionary transformation of a society through invasion by agents of another society' (1972:18). Detailed analyses of particular trends initiated during the colonial penetration and of continuing significance today are presented in later sections. Here a more general perspective is intended, providing an overview of the nature, timing and scale of the transformation effected by 1975.

2.2 For convenience, the colonial phase of Chimbu history can be divided into three periods, each distinguished by an expansion of government control (see Map 2.1). The first, from 1933 to the early 1940s, saw the arrival of missions and the government, and the establishment of a rudimentary system of centralised control in the densely populated north. The second, covering the ANGAU (Australian New Guinea Administrative Unit) interregnum during World War 2, includes the immediate postwar reestablishment of civil government and the southwards expansion of the network of government and mission stations. During the first decade (1950-60) of the final period, the most isolated southern parts of the province were brought under regular government control. Government inputs increased rapidly in this final period, new institutions proliferated, and the contemporary form and problems of Chimbu as a highland province emerged (see Chronology of major events). The continuing importance of the progressive movement of the colonial 'frontier' in Chimbu, originally dependent upon the priority of the north in the Lae-Goroka-Hagen axis of coast-highlands communication and transport and upon the terrain and population
   Govt 1955
   RC no date
3. Kup
4. Mingende: 1934
5. Koglai
6. Kundiawa: 1934
7. Gogme
8. Gembogl: 1959
9. Torombambou: 1934
10. Neragaima
11. Koge: 1947
13. Chuave: 1953
14. Dirima
15. Gumine: 1954
16. Omkalai
17. Yobai
19. Nomane
20. Wangoi
23. Bomi: Swiss Miss.
24. Karimu: 1961
25. Karepa

Government Stations
Roman Catholic missions
Lutheran missions
Other mission

1933-1940
1940-1950
1950-1960

Map 21
characteristics of the province itself, is most evident today in the obvious differences in opportunity, access and performance between districts.

2.3 **Chronology of the colonial period**

1930 Penetration of the Karimui area by Leahy and Dwyer.

1933 Taylor, Spinks and the Leahy brothers pass through central Chimbu area.

1933-34 Missionaries arrive. Stations established at Dimbi, Denglagu, Kerowagi and Ega. Two Catholics killed. Government builds Chimbu-Wahgi Post (Kundiawa).

1935-42 Police posts established at Chuave, Goglme and Awagl. First village officials appointed. First health and education services started.

1942-46 Civil administration suspended, replaced by ANGAU. Many workers recruited for wartime work in eastern highlands.

1949-50 Start of Highland Labour Scheme recruiting.

1953 Opening of vehicular road to Goroka.

1954 Promotion of smallholder coffee growing begun.

1957 Expansion of formal primary education.

1959 Election of first Chimbu local government council (Waiye). Others formed by 1965, with exception of Salt-Nomane (1970), and Bomai-Mikaru (1973). [See Chapter 8, Table 8.1]

1961 Kondom (of Waiye) elected to Legislative Council.

1964 Kundiawa Coffee Society formed and processing factory purchased. First House of Assembly elections.

1966 Chimbu achieves District status.

1968 Second House of Assembly elections.

1972 Third National elections Chimbu Area Authority formed.

1973 Self Government

1975 Independence

Provincial Government Drafting Committee formed.

2.4 Following the exploratory patrol of Taylor, Spinks and the Leahys (1933) from the eastern highlands through the
heavily populated Chimbu-Wahgi region, both the Catholic and Lutheran missions moved in rapidly to establish stations at Dimbi (Mingende) and Denglagu, and Kerowagi and Ega (Kundiawa) respectively. The killing of two missionaries in 1934 resulted in the closure of the region to further 'uncontrolled' movement by foreigners, and the establishment of a small government post at Kundiawa. For the next decade this was rarely staffed by more than two officers, with a small force of policemen.

2.5 Confronted by widespread intergroup warfare, the administration was primarily concerned to create and maintain an inner zone of peace in the vicinity of its stations, which soon included satellite police posts at Chuave, Goglme and Awagl, and the areas around the missions, and along the network of foot and bridle paths which linked Chimbu with Bena Bena in the east and Mt Hagen to the west. 'Pacification' was not accomplished easily, and this neutral term does little justice to either the difficulties faced by the government officers, or the vigorous response of the Chimbu themselves, who, after initial surprise, were not slow to test the strength of the invading strangers. A.F. Kyle describes a not uncommon event in the mid-1930s:

Next morning a patrol set out through China Sina [Sinasina] to Nimai. The fighting men of all groups were found drawn up on a hill top. Orders to disarm were ignored, the men shouting and waving their weapons, and telling the patrol to come and fight. The Patrol had split into 2 parties. Each party was attacked, natives rushing forward, shooting arrows, and diving for shelter. These tactics were kept up for some time, in spite of casualties caused by return fire. 5 men are known to have been killed (Patrol Report, 20.5.37).

2.6 The complex of small, autonomous groups linked horizontally by multiplex ties of marriage, kinship, trade and exchange, but recognising no superordinate organisation or authority, did not however unite in opposition to the invaders. By 1940, the combined power of the rifle, group punishments, skilful 'divide and rule' tactics, and such positive sanctions as the advantages of trade had established a central area or corridor of peace.
2.7 For communication and control village officials, at first bosbois (overseers) and headmen, later luluais and tultuls, were appointed. Some prominent leaders were sent to the coast. Mission stations paralleled, and competed both with each other, and with the government stations. Foreign national differences were imported, and relations between German and Australian nationals reflected international tensions in the late 1930s. During World War 2 missionaries of German origin were detained and deported to Australia.

2.8 Very little development-oriented activity was possible before the War. Too few staff were available and the establishment of control was the pressing priority. Nevertheless this required better communications and considerable effort was invested by both administration and people in road-making, an activity which had, in government eyes, the added advantage of providing an alternative outlet for the energies of a generation of men used to constant warfare. Large groups mobilised enthusiastically and, for small expenditures in shell, the achievements were considerable.

2.9 The presence of foreign stations also created small islands of demand for labour, food and firewood. The outsider's dependence upon the resident population for such necessities of life was in many ways far greater then than at later periods. As early as 1936, it was estimated that Kundia was purchasing a ton of locally produced vegetables a day, and by 1938 government personnel were consuming over 200 pigs a year. So pronounced was this dependence that local shortages in the vicinity of Kundia sometimes resulted in the entire station personnel moving temporarily to Chuave or Goglme.

2.10 Steel tools rapidly replaced those of stone during the period, and by the end of the War the Dom stone axe quarry, so important previously, was no longer worked.¹ Salt-making, near the Wahgi to the south, continued a little longer, but that pre-colonial industry and trade also collapsed in the face of imported substitutes. The large quantities of shell imported from the coast by both government and missions were the medium of exchange, along with

¹The quarry is illustrated in Vial, 1940.
new manufactured items, for all transactions between Chimbu and foreigners. Pumped into the socio-economic system, where they circulated as important valuables in ever-increasing quantities, the result was inevitable. Values fell, and though shell remained the major currency in Chimbu until the 1950s, the rapid monetisation following wage labour and cash-cropping spelled the end of what may with some justice be called an age of shell.

2.11 Between 1942-46 civil administration was suspended and replaced by ANGAU. Although most parts of Chimbu were little affected by the War except negatively, others, especially from the east, experienced heavy recruitment for short term work in airfield construction and porterage in the eastern highlands. Some roadwork continued within Chimbu, and vegetables were grown at Kerowagi for airfreighting elsewhere to military bases (Bowman, 1946). Immediately following the War, civil administration was re-established and both government and missions pushed southwards along the Wahgi, particularly into the Gumine region. Although Schaefer's statement that 'Fighting is now completely finished' (Simpson, 1954:167) now appears premature in the light of recent events, it nevertheless summarises succinctly the situation in the north at the beginning of the 1950s. Development, however gradual, was now considered as the major task.

2.12 From 1950 the trajectory of change in Chimbu has largely been determined by the scarcity of land suitable for commercial agriculture. In both the eastern and western highlands, significant enclaves of foreign plantation agriculture were established due to the availability of suitable land, stimulating the growth of the two major highland urban centres of Goroka and Mt Hagen. Chimbu was, and has remained, peripheral to these developments. Within the province differential access firstly to government services of all kinds and secondly to land suitable for coffee cultivation, has been an important factor determining widely varying rates of change and, of increasing importance now, present and future economic opportunities.

2.13 While the widest gap exists between the densely settled north and the sparsely settled south (Karimui for instance was first visited as early as 1930, but a patrol post was only established in 1960 and a council as late as
1973), important disparities are emerging within the north. Although some locations were clearly more advantageous than others prior to 1933, the relative uniformity of pre-colonial resource exploitation combined with the segmentary socio-political organisation were significant in preventing the emergence and consolidation of any formal social stratification. The evolution of more specialised land use patterns, monetisation and linkages with the national and international economies have however completely changed the circumstances within which Chimbu society operates.

2.14 The basic pattern of present Chimbu participation in the national economy was established in the 1950s. Government recruitment of labourers for coastal plantations under the Highland Labour Scheme began at the start of the decade and, lacking employment opportunities within the province and spurred by almost twenty years of steady inflation of values in their social economy (affecting most importantly shell, plumes and pigs, and hence bridewealth), thousands of Chimbu men signed two-year contracts and travelled to work elsewhere in the country. The opening of a vehicular road from Kundiawa to Goroka in 1953, the widening security of long distance travel, and the preference of many for non-contract labour in later years meant that increasing numbers have continued to choose both short and long term migration as their only avenue to economic advancement.

2.15 From 1953 coffee was promoted by the Department of Agriculture, Stock & Fisheries (DASF) as a smallholder crop in those parts of the province with suitable land. Following the first sales in the late 1950s, planting increased and the crop rapidly became the most important means by which the majority of Chimbu could earn money while remaining resident at home. Despite the general importance of coffee, the holdings of most growers are minute, poorly maintained and probably of low productivity. Average incomes are therefore extremely small. The crop was essentially grafted onto the pre-colonial land use system without significant structural change, and the innovation was, in Apter's phrase (1965) 'traditionalised'. In contrast to production, the purchasing and processing of coffee have required radically new institutions including most importantly the largest cooperative in the country. The chequered history of this sector of the new economy is described in Chapter 9.
2.16 However small individually, cash incomes from coffee within the province paved the way for a number of significant changes. With taxation possible, the administration established local government councils throughout the region starting with the Waiye council in 1959. When Chimbu achieved District status in 1966 (it had previously been a sub-district of the Eastern Highlands and administered from Goroka), only the southern parts, Salt, Nomane, and the Bomai-Karimui area, were still without council representation. The council system has had a mixed history in Chimbu, including amalgamation and fission (see Chapter 8, Table 8.1). Councils played the major role in the considerable growth of social infrastructure between 1960 and 1975. However, popular support for them has now largely been eroded and much questioning, both locally and nationally, about the future of the system was under way by 1975.

2.17 Although the Chimbu had eagerly sought imported substitutes for their stone, wood and bone technology from the beginning of the colonial period through the exchange of local products, land and labour, the establishment and growth of retail trading was dependent upon the general availability of cash resulting from coffee production. In the late 1940s Kundiawa boasted a single foreign-owned store, and a few other smaller ones were run as sidelines by mission stations in rural areas. During the middle to late 1960s however, retail trading boomed as thousands of villagers opened tiny stores. In parts of the province these reached densities of 1 per 100 persons. Direct competition between Chimbu and foreign-owned stores continued in rural areas until the early 1970s when most of the foreign owners withdrew. Urban trading and most wholesaling has remained in the hands of expatriates.

2.18 The monetisation of Chimbu society and economy is not however restricted to the modern sector of cash crop production, selling and buying. Money began to appear in many 'traditional' ceremonial and wealth exchanges in the 1950s, and throughout the latter part of the colonial period the amounts demanded, and given, in bride and matrikin payments, and accident and death compensations, has risen steadily despite constant complaints and generally vain attempts by councils to restrict or otherwise regulate them. Attempts to withdraw entirely from such customary exchanges have been made, particularly during the initial enthusiasm generated by innovations in the early 1960s, but these proved temporary (Brookfield, 1968).
2.19 Chimbu participation in national level politics began in 1961 when Kondom, the influential leader from Waiye (Brown, 1967), was elected to the Legislative Council. Of the four Chimbu Open electorates during the first House of Assembly (1964-68), three - Chimbu, Chuave and Kerowagi - were represented by Chimbu men, Waine Siune, Yauwe Wauwe Moses and Siwi Kurondo respectively. Gilmour, previously a government officer, represented Gumine (Criper, 1965). In the second House, all six Open electorates were held by Chimbu representatives, and S. Kurondo (Kerowagi) was appointed Ministerial Member for Forests. Fr Nilles, a Roman Catholic missionary resident in Chimbu since 1937, gained the Regional seat (Hatanaka, 1970). The third and final national elections of the colonial period gave Chimbu seven Open seats, and one Regional seat (Standish, Kuabal, forthcoming). With the formation of a National Coalition, Chimbu emerged with one minister (I. Okuk, first Agriculture, subsequently Transport and finally Education).

2.20 Despite several explicit demonstrations within the Province against early self-government between 1972 and 1973, when self-government was achieved no further open opposition occurred. Nevertheless, an apparent increase in tribal fighting in rural areas at this time was undoubtedly closely related to the general atmosphere of uncertainty. The cautious acceptance of independence two years later was perhaps because self-government had brought little significant change in rural peoples' daily lives.
Chapter 3

Society, population and demography

The social setting

3.1 There are no sharp cultural breaks or boundaries in the highlands but rather, a continuum extending from east to west. From the perspective of either the Eastern or Western Highlands, the centrally located Chimbu Province forms a cultural watershed, since its peripheral groups have closer affiliations to cultural traditions of groups lying outside the provincial boundaries than to those at the opposite ends of the province. Nevertheless cultural differences within Chimbu are not marked and are generally less pronounced than linguistic ones.

3.2 Some 13 languages\(^1\) and considerably more dialects are spoken in Chimbu Province. Their approximate boundaries are shown on Map 3.1, and the number of speakers in Table 3.1. The impression of linguistic diversity given by the number of languages can be exaggerated. Nine of the 13 are relatively closely related (Table 3.1), and their combined speakers include the majority of Chimbu. The largest language of this group, Kuman, is at least partially understood by many Chimbu and is used, with Pidgin,\(^2\) by the provincial radio station. The other four languages, Kumai (a Wahgi dialect), spoken in the Kup census division, Siane in the Nambiayufa region, and Daribi and Pawaian in the far south, are less closely related.

\(^1\) The exact number varies according to the criteria of differentiation used, and it is probable that the number will be reduced with further research. Thus Shelton (personal communication, 16 December 1975) suggests that Golin and Marigli might be combined, and Irwin (1973:1) describes Nomane as a dialect of Chuave.

\(^2\) Nearly 28 000 Chimbu over the age of ten understood Pidgin according to the 1971 Census.
Map 3.1
<table>
<thead>
<tr>
<th>Language</th>
<th>Sub-family</th>
<th>Family</th>
<th>Stock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wahgi (Kumai)</td>
<td></td>
<td>Wahgi</td>
<td></td>
</tr>
<tr>
<td>Kuman (Chimbu proper)</td>
<td>66 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nagane *</td>
<td>1 000</td>
<td>Central</td>
<td></td>
</tr>
<tr>
<td>Dom</td>
<td>9 300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Golin (Marigl)</td>
<td>26 700</td>
<td>Chimbu</td>
<td></td>
</tr>
<tr>
<td>Nondiri</td>
<td>2 700</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salt-Yui</td>
<td>8 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sinasina</td>
<td>19 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chuave</td>
<td>24 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nomane</td>
<td>4 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Siane</td>
<td>8 000</td>
<td>Siane</td>
<td>East Central</td>
</tr>
<tr>
<td>Daribi (Mikaru)</td>
<td>6 000</td>
<td>Teberan</td>
<td></td>
</tr>
<tr>
<td>Pawaian</td>
<td>1 500</td>
<td>Pawaian</td>
<td></td>
</tr>
</tbody>
</table>

* Sources: Wurm 1975:468-9, 501-4. Franklin (1975:859-61) discusses further the position of Daribi and Pawaian. The number speaking the Wahgi dialect (Kumai) is taken from Deibler and Trefry (1965:9).

* b Nagane is spoken only by some members of the Inaugl tribe in the upper Chimbu valley and is being superseded by Kuman (Wurm 1975:517, footnote 6).
3.3 Despite the ability of most neighbouring language speakers to understand each other, linguistic differences are of local social and political importance. Thus the Siane speakers of Nambaiyufa have recently separated from the Elimbari Local Government Council to form their own Council, and discussion is currently under way among Dom speakers who seek to form a separate Council based upon their language group.

3.4 One exception to the general pattern of local variation on a common set of shared themes should be noted. As Wagner (1971:30) writes, 'the Chimbu and the people of Karimui are physically, culturally and traditionally distinct peoples; their languages have little in common and their settlement patterns, social systems, ceremonies and methods of cultivation are radically different'. This exception, though perhaps overstated, is important, not so much in itself, but in emphasising the fact that any cultural difference is potentially significant.

3.5 Context and interest determine whether similarity or difference will be stressed in any particular situation. Thus when arguing for access to land in the Karimui-Bomai region, a northern Chimbu will almost certainly emphasise a common relationship if not shared identity, in the same way as will a Karimui who wishes to attract northern Chimbu and development to the south. Should however the issue be the unity of the Chuave area in relation to council structure, it is equally certain that Siane will stress their common identity in opposition to more western 'Chimbu'.

3.6 Claims or denials of shared cultural and ethnic identity should therefore be understood as potential political symbols, as weapons in the armament of political discourse. This does not mean that differences in house structure, dress, or marriage and ceremonial custom are not real. They clearly do exist, and convey intricate and important meanings. What cannot be predicted for the province as a whole is which ones will be selected as significant in any given situation, nor how they will be interpreted. Kasaipwalova's warning to Papua New Guineans not 'to depend on anthropological studies to define our history and our culture and our future' (1973:454) is apposite in this context.

3.7 Throughout Chimbu, people belong by birth, adoption, and other modes of affiliation to an hierarchical series of
social groups which vary in the number of levels in the series, in the size of groups within each level, and in the functions performed by different groups (Brown 1960, 1972; Salisbury 1972; Wagner 1967). At the highest level the largest groups recognizing any political unity, occupying a single territory, and co-operating in ceremony are usually known as tribes.

3.8 The number of levels below the tribe may include phratries, clans, subclans and further subdivisions. Tribes range up to 3000 members, while clans may average 600-700 in central Chimbu but only 50-80 in the south. Tribes are groupings with territorial and ceremonial functions, while clans and smaller groups are primarily concerned with the regulation of marriage and the organisation of exchanges.

3.9 This segmentary structure of Chimbu social units has important implications. In the past the combination of war, disease, and other demographic fluctuations resulted in complex processes of group growth, decline, alliance and fission. Under colonial rule the dynamic nature of these processes slowed as administrative measures committed group names to writing, assigned individuals to specific groups, froze group territorial boundaries, and protected the claims of weaker groupings to specific territories.

3.10 Somewhat paradoxically then, one of the effects of the colonial period was to reduce the flexibility of the pre-colonial system. This effect was probably more pronounced in Chimbu than in some other highland provinces due to the comparative absence of major penetration by an expatriate economic sector located within the province. It was further compounded by the uneasy compromise sought by colonial government between pre-colonial forms of organisation and introduced institutions, with the implicit understanding that the former would gradually give way to the latter. Thus although specific economic and political policies were directed toward, and in some cases have resulted in, greater individualisation (for example, by head taxes, individual legal responsibility, and a common electoral roll), everywhere the units of traditional social organisation were utilised as the basic building blocks for introduced institutions such as rest house areas, census units, groups represented by village officials, and council wards.

3.11 This practical acceptance of government officers in the field of the need for working with the pre-colonial
organisational base may be underestimated by academics and others (Kerpi 1976, James 1975), who have recently called for new policies officially recognising and encouraging development through such traditional forms. The point is that because of the ratio of government staff to Chimbu population, officers had no alternative but to work through, if not with, the existing organisational structure. Recognition of this is important for understanding the conditions determining both the structure's continuity and adaptation. It is also significant that no one level of grouping is definitive in terms of co-operation, exchange, or warfare. Functions are differentiated according to the kind of occasion, whether it be the pooling of wealth for a bride payment, the production of a surplus of vegetables for exchange, or the holding of a pig festival.

3.12 The functional variation between levels suggests that policies which seek to identify only one level in the hierarchy are unlikely to succeed. Further, it must be stressed that although a wide umbrella of co-operation and co-ordination is provided by the group, the unit which actually produces and consumes is the family or household. Every household is linked to a number of others, both within and outside its immediate neighbourhood, through ties of kinship, marriage and friendship. Through these links move, in a multitude of day-to-day interpersonal transactions, all the factors of production, agricultural produce itself, and most other items of property. Thus the obligations and rights of an individual Chimbu are not restricted to, though they are concentrated in, relationships with fellow group members. These cross-cutting links provide channels for changes in membership as well as flows of goods and assistance.

3.13 No level has a formal structure of fixed status and rank. Leadership is primarily achieved by prominent participation and the exercise of managerial roles in production, exchange, and decision-making. Intergenerational continuity of leadership was probably rare in the past due to the lack of property accumulation and the emphasis on individual ability. With longterm cash crops and monetisation, and most importantly access to modern economic opportunities determined by scarce education, it is possible that economic

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3For example, the Land Titles Commission's policy vis-a-vis central Chimbu subclans (Hide, 1973:44).
differentials will become more pronounced, and it now appears that there are advantages in having a leader for one's father.

3.14 Relationships between groups of similar size and structural levels are everywhere competitive, and expressed in different ways ranging from exchanges of goods, women and money to intergroup fighting. In exchanges, despite the managerial activities of leaders, gifts primarily move across group boundaries between individuals according to their specific links of kinship and friendship.

3.15 After about 20 years of relative peace, the inter-group fighting which resurfaced in the late 1960s has not abated. The reasons are complex. Kama Kerpi (1976), writing of tribal fighting in Kup, his own region of Chimbu, says 'The root causes of clan war are deeply embedded within ... society', and suggests that the fighting between 1973 and 1975 was '... undoubtedly a collective show of protest against social tensions ... derive[d] from massive economic and political changes'.

3.16 The resurgence of fighting appears to be related initially to the beginnings of decolonisation and the changing role of the expatriate government officers at the end of the 1960s, when official sanctions against tribal fighting were no longer so effective, and particular disputes festered without solution. Recent contributing factors also include the economic recession in the early 1970s and subsequent inflation, and preparation by Australia to grant self-government. Whether or not causally related, at this time also there appeared to be a re-emphasis on ceremonial exchanges and other aspects of traditional culture.

3.17 The consequences of fighting locally have become more severe than in the past with the destruction of cash crops, cattle projects, schools and other scarce development investments. At the national level, through instant reporting by the media, the fighting has also had a negative effect on other Papua New Guineans' perception of the province and hence their willingness to work there.

3.18 The report of the Committee Investigating Tribal Fighting in the Highlands made 60 recommendations which covered the total social context of highland fighting and its explicit causes, and suggested a wide range of
policy options and solutions. However, many can be implemented only in the long term. For example, it is recognised that only improved economic opportunities will reduce present frustrations. Further, the lack of co-ordination in the province between agencies of the government on the one hand, and between government and people on the other, has inhibited implementation of other recommendations, except piecemeal in some cases (Paney et al., 1973).

3.19 The persistence of intergroup fighting after more than 40 years of colonial rule demonstrates that the fundamental organisation of Chimbu rural society remains little changed. Although new institutions such as councils and co-operatives have provided a measure of higher-level organisation, they have remained imported institutions heavily dependent on external sources for staffing, policy-direction, and regulations. Their organisational form, functions and technical requirements have all been defined from outside local society. Their one major link into the underlying society has been the selection of representatives from various levels within it. Other, less formal, associations such as the Sinaminga Bung, and the Chimbu Coffee Growers' Association, have appeared sporadically in recent years, but have not yet created any new organisational forms. Against this background, we turn to an examination of Chimbu's population and demographic structure.

**Population and demography**

3.20 Two aspects of population change will affect the future development of Chimbu: the density of its population in relation to its resources, and the present and future rates of population growth. However, given the data available it is virtually impossible to make useful predictions on either aspect.

3.21 The discussion which follows relies on three types of data source: the nationwide population censuses of 1966 and 1971; the quasi-annual DDA\(^4\) censuses of rural areas conducted

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\(^4\)Department of District Administration. This designation is used for convenience, as the Department has undergone a number of changes since 1945. Between 1945 and 1955, such censuses were carried out under the direction of the Department of District Services and Native Affairs.(Cont'd)
by the administration; and local level surveys conducted by research workers in various parts of Chimbu. Both the national censuses and the DDA censuses contain data which are unreliable because of the sampling and survey procedures followed, whereas the small local surveys are micro-studies and their results cannot be interpreted as representative of Chimbu as a whole.

3.22 Problems associated with the use of the 1966 and 1971 censuses are discussed in the text which follows, and additional explanation is set out in Appendix 1 at the end of this chapter. Detailed discussions of the problems of rural censusing and of the shortcomings of the DDA censuses are given in McArthur 1966, Brewer and Whittington 1969, and Young 1973:128-31; Appendix 1 includes additional discussion relating to rural censuses in Chimbu Province.

3.23 In the nationwide population censuses of 1966 and 1971 only a 10 per cent sample of Papua New Guinea's rural village sector, which comprises all traditional settlements, was covered. This fact is particularly important in Chimbu where 95 per cent of the population lives in rural areas. In the selection of the sample, rural populations were divided into strata differentiated on bases of geographical location, tribal grouping and staple foods; within strata, clusters of 'villages' grouped into 'neighbourhoods' were enumerated. In a province such as Chimbu where local population densities vary widely, it is likely that in some strata the cluster chosen was not representative of the total population. Moreover, of the Chimbu subclans sampled in 1971 only 76 per cent were also enumerated in 1966, thus intercensal comparisons must be unreliable.

3.24 Further inaccuracies occur in data on age and issue, where information collected was often based on earlier village censuses carried out by the administration. Although enumerators were instructed to use local 'vital events' to

4(Continued)

Following departmental reorganisation in 1955, the new Department of Native Affairs was responsible for the village censuses. Further changes in 1964 resulted in the establishment of the Department of District Administration. This Department has now been merged with the Department of the Prime Minister.

5In Chimbu, where scattered settlement patterns predominate, 'villages' are interpreted as subclans.
aid age assessment if no records were available, they often accepted dates of birth recorded in administration village books, and thus perpetuated previous errors. Examination of data on age for both the 1966 and 1971 censuses shows that the population is concentrated in certain age groups, a characteristic noted in McArthur's (1964:342; 1972:290-1) analysis of age data from administration censuses. When the sizes of age cohorts in 1966 are compared with those corresponding in 1971 they show in most cases a marked decline, but the rate of decline varies between consecutive groups. For example, in 1971, males aged between 35-39 were 90 per cent of those aged between 30-34 in 1966; those aged between 40-44 only 74 per cent of those between 35-39 in 1966, and those between 45-49 were 82 per cent of the 40-44 group of 1966. This alternation in rates suggests that people were wrongly assigned to age groups. Two 1971 groups, the 25-29 cohort and over-65 cohort, were larger than those of 1966.

3.25 Even if enumerators attempted to use the calendar of vital events they tended to round off estimated ages from the most important event recognised. For example, in central Chimbu, the first vital event used to assess the ages of the older people was J.L. Taylor's patrol of 1933. A person stating that he was still being breast-fed at that time would have been aged between 39-42 in 1971, but his age would probably be entered as 40, putting him in the 40-44 rather than 35-39 age group.

3.26 The recording of information on issue is unreliable because women frequently do not mention the birth of children dying in infancy and, in Chimbu, where the practice of adoption within the extended family is widespread, it is often difficult to discover the true mother of each child unless the enumerator stays in the village for a long period. Data on age and issue are particularly important in the analysis of both fertility and mortality patterns and this is further affected by out-migration. Levels of out-migration from Chimbu are high, and children born to Chimbu parents resident in other provinces at the time of the censuses would not be recorded as Chimbu-born. Since out-migration affects mainly the young adult age-groups this factor is important, although less so in 1966 when most Chimbu women who left the province were only going to settle in adjacent rural areas of the Eastern and Western Highlands, than in 1971 when whole Chimbu families were migrating to towns and resettlement schemes in other provinces. It must
be stressed, therefore, that all analysis which follows here is subject to qualifications posed by limited and unreliable data.

3.27 The population census of 1971 estimated that the population of Chimbu Province was 160,245 (Table 3.2), or 6.4 per cent of the national total. Population density is discussed in greater detail in Chapter 5. It may be noted here that in 1971 the crude density of population, 26 persons per km², was over five times the national average. Because of the mountainous terrain the population is not evenly distributed - in parts of the Chimbu river valley concentrations reach almost 300 per km² (see Map 5.2, p.95).

Table 3.2
Population of Chimbu Province, 1971

<table>
<thead>
<tr>
<th>Sector</th>
<th>Indigenous No.</th>
<th>Indigenous %</th>
<th>Non-indigenous No.</th>
<th>Non-indigenous %</th>
<th>Total No.</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural village</td>
<td>151,536</td>
<td>94.57</td>
<td>-</td>
<td>-</td>
<td>151,536</td>
<td>94.57</td>
</tr>
<tr>
<td>Rural non-village</td>
<td>5,082</td>
<td>3.17</td>
<td>218</td>
<td>0.13</td>
<td>5,300</td>
<td>3.30</td>
</tr>
<tr>
<td>Urban:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kundiawa</td>
<td>2,123</td>
<td>1.32</td>
<td>256</td>
<td>0.16</td>
<td>2,379</td>
<td>1.48</td>
</tr>
<tr>
<td>Kerowagi</td>
<td>987</td>
<td>0.62</td>
<td>42</td>
<td>0.03</td>
<td>1,029</td>
<td>0.64</td>
</tr>
<tr>
<td>Total urban</td>
<td>3,110</td>
<td>1.94</td>
<td>298</td>
<td>0.19</td>
<td>3,408</td>
<td>2.13</td>
</tr>
<tr>
<td>TOTAL CHIMBU</td>
<td>159,729</td>
<td>99.68</td>
<td>516</td>
<td>0.32</td>
<td>160,245</td>
<td>100.00</td>
</tr>
</tbody>
</table>


3.28 Chimbu's high rural population densities have meant that it is the only highland province in which land has not been alienated for plantation development. Its small urban centres offer the only opportunities for wage employment within the province, thus the majority of rural Chimbu must remain dependent on their own limited resources.

3.29 No data on population estimates are available before the colonial period, but as present densities cannot have
developed in a short time it can be assumed that Chimbu has been densely populated for centuries. High population densities in the highlands are believed to have developed after the introduction of the sweet potato, a high-yielding tuber with considerable tolerance for altitude and poor soils. Recent excavations in the upper Wahgi valley at Kuk suggest that the sweet potato may have entered New Guinea at least 1200 years ago (Christensen 1975:35), dispelling the previously held view that its introduction was associated with Spanish and Portuguese explorers no earlier than 300 to 400 years ago (Watson 1965:302). The earlier date would allow for the growth of highland populations to their present densities.

3.30 Within Chimbu, oral traditions among the Kuman-speaking tribes indicate a fairly recent dispersal from Womkama in the upper Chimbu valley to the more open corridor of the upper Wahgi. This suggests that the present high population densities in the mountainous northern parts of the province have existed for some time. The first written descriptions of Chimbu, by early explorers, also emphasise the great concentrations of population:

For New Guinea the density of the population in the area between Bena Bena and Mount Hagen is remarkable. It is impossible to give a reliable estimate at this juncture, but it was noticed that wherever the patrol had occasion to halt along the track as long as 30 minutes, not less than 1000 natives gathered around us. Probably there are 150,000 people there. (Taylor 1933:116).

Taylor's estimate of the size of this population was to prove a gross understatement.

3.31 After colonial administration was established in Chimbu in 1933, population counts were carried out by the administration but initially only in the more accessible areas. Not until after 1950, when patrol officers had carried out preliminary censuses of most Chimbu clans, are estimates of the total population possible. The census carried out in 1952-3 by the administration estimated Chimbu's population at approximately 140,000. From then on,

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6 Kuman speakers believe that they came into existence in Womkama.
data on births, deaths, age structures, migrations in and out and absenteeism were collected more or less annually for the *de jure* population of each group. Brewer and Whittington (1969:150) have pointed out that although a considerable amount of information was thus gathered, these censuses lacked simultaneity, involved only a bare minimum of characteristics, and were in a format unsuited to summarisation. The accuracy of these censuses is also doubtful, but gross totals give some indication of rates of population growth and differing mobility patterns. By 1963 Chimbu had a population of about 161,600, of whom perhaps 10,000 were living outside the province (NGAR, 1962-3:150).

3.32 The nationwide sample census of June 1966 was carried out two weeks after Chimbu officially became a separate District. This provided the first data on educational and employment characteristics of people in Chimbu, and the location of those who had migrated from the province. Over 90 per cent of the indigenous population then living in Chimbu were Chimbu-born, and almost nine per cent of all Chimbu-born people were living elsewhere (Table 3.3). Five years later, in 1971, the second sample population census revealed that the number of Chimbu people migrating to other areas had increased dramatically. A comparison of the 1971 figures with the adjusted totals for 1966\(^7\) shows that the population within Chimbu rose during that period, although slowly due to out-migration (Figure 3.1). The proportions of indigenous and expatriate sectors of the population remained approximately the same.

3.33 Since 1971 out-migration from Chimbu has continued, probably at an increased rate, making it difficult to predict population totals for 1975 or future years. But population projections based on the 1971 census have estimated that in 1976 the indigenous population of the province will be about 163,600, an increase of 0.9 per cent per annum, and by 1986 will have reached 172,900 (National Health Plan 1974:Appendix 3.4). Under present conditions of high population density and pressure on existing resources, any future increase in population size represents a potential

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\(^7\)Between 1966 and 1968 the official boundaries of Chimbu Province were changed, therefore a detailed comparison of the two Censuses is only possible if the figures for either 1966 or 1971 are adjusted. In Table 3.3 adjustments have been made to the 1966 figures (see Appendix 1 for further explanation).
### Table 3.3

Population of Chimbu Province, and absentees, 1966 and 1971

<table>
<thead>
<tr>
<th></th>
<th>1966a</th>
<th>1966b</th>
<th>1971</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Indigenous</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>population:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>born in Chimbu</td>
<td>150</td>
<td>90.3</td>
<td>151</td>
</tr>
<tr>
<td>born elsewhere</td>
<td>15</td>
<td>9.5</td>
<td>2</td>
</tr>
<tr>
<td>Non-indigenous</td>
<td>322</td>
<td>0.2</td>
<td>322</td>
</tr>
<tr>
<td>TOTAL</td>
<td>167</td>
<td>100.0</td>
<td>154</td>
</tr>
</tbody>
</table>

Chimbu living elsewhere: 14 506 8.8 13 195 8.7 22 513 12.6

TOTAL BORN IN CHIMBU: 165 488 100.0 151 288 100.0 179 257 100.0

<table>
<thead>
<tr>
<th></th>
<th>1966a</th>
<th>1966b</th>
<th>1971</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1966a</th>
<th>1966b</th>
<th>1971</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
</tbody>
</table>
| b Figures adjusted to take account of boundary changes in 1968, for comparison with 1971.


Fertility problem. Far more detailed information on the factors affecting population growth – fertility, mortality, and rate of migration – is needed before the dimensions of this problem may be analysed.

3.34 The fertility of the Chimbu people can be estimated both from data collected by DDA and data collected during the national censuses. In both cases analysis depends on information given by mothers on the numbers of children they have borne, and the dates of birth of these children. Since most Chimbu women are illiterate, and in their
INDIGENOUS POPULATION, CHIMBU AND PNG

(1966-1971 comparison)

CHIMBU

1966

1971

PAPUA NEW GUINEA

1966

1971

Fig 31
traditional culture measure time in ways unfamiliar to Western observers, they often misinterpret questions involving estimate of age, and these dates must be accepted with considerable reservations. The main inaccuracies which occur are age assessment of both mothers and children, recall lapse on the part of older women, and the failure of mothers to mention the birth of children dying soon after birth.

3.35 Because population densities in Chimbu are high, observers often assume that birth rates must also be extremely high. Chimbu themselves make these assumptions: 'We Chimbu are like ants' and 'We Chimbu have many children'. However, DDA and national census data suggest otherwise. Estimates of birth rates made from DDA data collected at various times between 1951 and 1962 range from 35 to 45 per 1000. These are high figures, but not excessively high in comparison with those from other developing countries (Brown and Winefield 1965:181). The rate calculated from DDA data in 1971 was only 28 births per 1000.

3.36 Van de Kaa, in an analysis of both DDA data and the results of the 1966 census, showed that Chimbu had a relatively low rate of fertility in comparison with other parts of the country (van de Kaa 1971:177, 182). He obtained figures of between 34.3 and 39.1 per 1000 from revised DDA figures, and an estimate of 42.5 from the census. The equivalent national figures were between 43 and 45 per 1000. He suggests that the lower rate in Chimbu may be because 'population densities in this highland district are very high, and it is not impossible that this may have influenced the wishes regarding the number of children desired somewhat'. Other reasons suggested are the traditional methods of birth spacing due to the imposition of a post-partum taboo, the settlement patterns whereby men occupy houses away from their wives and young children, and the traditional belief held by men that too much contact with women will weaken them. If these are indeed major factors influencing fertility rates in Chimbu, they are of great significance. In the last ten years changes in all these factors indicate that fertility rates may be expected to rise in the future.

3.37 Table 3.4 presents an analysis of data from the 1971 census, to indicate Chimbu fertility patterns, using the same methods as those employed by van de Kaa in 1966. These methods were developed by Brass et al. (1968) for use on African population data with inaccuracies similar to those
Table 3.4

Fertility

<table>
<thead>
<tr>
<th>Age group</th>
<th>Number of women</th>
<th>Births</th>
<th>Crude parity (P)</th>
<th>Births last year</th>
<th>ASF K(1)</th>
<th>Estimated parity (P)</th>
<th>P/ ASF</th>
<th>Corrected ASF</th>
<th>Corrected births last year</th>
<th>Corrected fertility</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19</td>
<td>5 111</td>
<td>468</td>
<td>0.0916</td>
<td>150</td>
<td>0.029</td>
<td>1.366</td>
<td>0.040</td>
<td>2.29</td>
<td>0.034</td>
<td>174</td>
</tr>
<tr>
<td>20-24</td>
<td>6 641</td>
<td>7 557</td>
<td>1.138</td>
<td>1 468</td>
<td>0.221</td>
<td>2.706</td>
<td>0.743</td>
<td>1.53</td>
<td>0.256</td>
<td>1 703</td>
</tr>
<tr>
<td>25-29</td>
<td>6 880</td>
<td>15 738</td>
<td>2.288</td>
<td>1 661</td>
<td>0.241</td>
<td>2.965</td>
<td>1.965</td>
<td>1.16</td>
<td>0.280</td>
<td>1 927</td>
</tr>
<tr>
<td>30-34</td>
<td>5 125</td>
<td>16 162</td>
<td>3.154</td>
<td>1 276</td>
<td>0.249</td>
<td>3.093</td>
<td>3.225</td>
<td>0.98</td>
<td>0.289</td>
<td>1 480</td>
</tr>
<tr>
<td>35-39</td>
<td>4 806</td>
<td>18 364</td>
<td>3.822</td>
<td>815</td>
<td>0.170</td>
<td>4.246</td>
<td>0.90</td>
<td>0.197</td>
<td>0.197</td>
<td>945</td>
</tr>
<tr>
<td>40-44</td>
<td>4 832</td>
<td>19 895</td>
<td>4.117</td>
<td>450</td>
<td>0.093</td>
<td>3.429</td>
<td>4.869</td>
<td>0.85</td>
<td>0.108</td>
<td>522</td>
</tr>
<tr>
<td>45-49</td>
<td>4 119</td>
<td>18 183</td>
<td>4.414</td>
<td>213</td>
<td>0.052</td>
<td>4.124</td>
<td>5.229</td>
<td>0.84</td>
<td>0.060</td>
<td>247</td>
</tr>
</tbody>
</table>

Crude birth rate = total births in last year/total population = 43.8 per 1000
f(1)/f(2) = 0.131
M = 29.77
(4) = (3)/(2)
(6) = (5)/(2)  #ASF: age specific fertility rate
(8) = φ(7)x(6) where φ = 5[Σ(6) in preceding intervals]
(9) = (4)/(8)
(10) = (9)*x(6)
(11) = (9)*x(5)
(12) = cumulative correction factor x (8)

present in Papua New Guinea. Brass uses the ratio of estimated parity: crude parity for the 20-24 age group to obtain corrected figures for births in the last year, age specific fertility rates, and the total fertility rate. He considers that this group will almost all have borne children, and their information will be the most accurate because they will have given birth fairly recently. But in Chimbu, although girls normally marry early, first marriages often do not survive; and medical evidence points to late puberty in highland communities (Malcolm 1966:16-20). Many of the 20-24 age group have not yet borne children, and therefore the correction ratio applied is that calculated from the 25-29 age group.

3.38 On the basis of these calculations the birth rate for indigenous women resident in Chimbu in 1971 was 44 per 1000, and by the time a woman had reached the end of her reproductive period she had on average borne six children. These figures agree well with estimates made in 1972-73 from a demographic field survey conducted in the Eastern Highlands where, in Agarabi-Gadsup, the birth rate was 42 per 1000 and the total fertility also six (Young 1973:66-7). The fertility rate of Chimbu women in 1971 therefore does seem to be higher than in 1966.

**Mortality**

3.39 Data for estimating mortality in Papua New Guinea are even more inaccurate than those available for fertility. The main inaccuracies seem to be that the deaths of infants dying soon after birth are often not reported, and the deaths of elderly people, whose existence may never have been recorded, are not reported. As Brass et al. (1968:105) suggest, recording a death may depend on the apparent

---

8 Brass's method of fertility assessment depends on information given by women, grouped in five-year age groups, on the total number of children they have ever borne and the number of births which occurred in the year immediately preceding the census. The crude parities calculated from these figures are then corrected by a factor K designed to take account of discrepancies in the data due to age-misreporting and recall lapse; ratios of these estimated parities to the crude parities are then calculated (Column 9 in Table 3).
importance of the decedent in the eyes of the respondent. The last factor may be one reason for the high masculinity ratio of Papua New Guinea's population, since the death of female infants is more likely to be ignored than the death of male infants.

3.40 Mortality data also are available only from the DDA and national censuses. Using DDA data, van de Kaa (1971:125-6) concluded that inaccuracies in recording infant and child mortality were so great that no meaningful estimates of these rates could be made. But he did make estimates based on mortality patterns of later years, and obtained figures for Chimbu of between 17.8 and 18.3 per 1000 (1971:138). Other analyses of DDA data have produced very variable results: Brown and Winefield (1965:181) using data collected between 1951 and 1962 for central Chimbu obtained crude death rates of between six and 25 per 1000, while the 1971 figures for the whole of Chimbu Province give a rate of 13 per 1000. Table 3.5 analyses data from the 1971 census using methods of mortality estimation developed by Brass et al. (1968:104-27). These methods suggest an estimated infant mortality rate of 190 per 1000. Consideration of appropriate life tables which are selected using data on childhood mortality, can allow estimation of the mortality pattern of the whole population. Van de Kaa (1971:108-14), after examining the results obtained from different 'families' of life tables, concluded that the 'West' model tables are the most appropriate for Papua New Guinea data, and therefore these are consulted here.

3.41 The pattern of Chimbu mortality, as it appears in Table 3.5, conforms most closely to a population mortality pattern of levels 11 and 13 (U.N.1967:86-7). These levels of the life table give life expectancies of between 45-50 years for women and between 42-47 years for men. The crude death rate is 17 per 1000. It should be noted that as these life tables are derived from data for Western countries, life expectancies for women exceed those for men, whereas in Papua New Guinea men usually live longer than women because of high female mortality in childbirth.

3.42 When these results are compared with those obtained by van de Kaa from 1966 data, it seems that mortality rates in Chimbu are falling. In 1966 he calculated that only 73.5 per cent of the population reached exact age two (1971:136), whereas in 1971 the comparable figure was 79.3 per cent. Projections made from 1971 data for the National
### Table 3.5

**Mortality**

<table>
<thead>
<tr>
<th>(1) Age group</th>
<th>(2) Number of women</th>
<th>(3) Issue dead</th>
<th>(4) Total issue</th>
<th>(5) Proportion dead</th>
<th>(6) K</th>
<th>(7) Proportion dead x K</th>
<th>(8) nqx</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19</td>
<td>5 111</td>
<td>77</td>
<td>468</td>
<td>0.165</td>
<td>1.156</td>
<td>0.191</td>
<td>q(1)</td>
</tr>
<tr>
<td>20-24</td>
<td>6 641</td>
<td>1 439</td>
<td>7 557</td>
<td>0.190</td>
<td>1.092</td>
<td>0.207</td>
<td>q(2)</td>
</tr>
<tr>
<td>25-29</td>
<td>6 880</td>
<td>3 412</td>
<td>15 738</td>
<td>0.217</td>
<td>1.038</td>
<td>0.225</td>
<td>q(3)</td>
</tr>
<tr>
<td>30-34</td>
<td>5 125</td>
<td>3 409</td>
<td>16 162</td>
<td>0.211</td>
<td>1.021</td>
<td>0.215</td>
<td>q(5)</td>
</tr>
<tr>
<td>35-39</td>
<td>4 806</td>
<td>4 518</td>
<td>18 364</td>
<td>0.246</td>
<td>1.030</td>
<td>0.253</td>
<td>q(10)</td>
</tr>
<tr>
<td>40-44</td>
<td>4 832</td>
<td>4 694</td>
<td>19 895</td>
<td>0.240</td>
<td>1.009</td>
<td>0.242</td>
<td>q(15)</td>
</tr>
<tr>
<td>45-49</td>
<td>4 119</td>
<td>4 326</td>
<td>18 183</td>
<td>0.238</td>
<td>1.008</td>
<td>0.240</td>
<td>q(20)</td>
</tr>
</tbody>
</table>

Life table level accepted: West Model, level 11 to 13
Life expectancy: female = 45 to 50 years
male = 42 to 47 years

\[
\frac{P_1}{P_2} = 0.080
\]

\[
\frac{m}{m} = 28.5
\]

**Source:** Bureau of Statistics, Population Census, 1971: Chimbu Province.
Health Plan anticipate a continuation of this trend, and we may assume that mortality rates in Chimbu now (1975) are lower than they were in 1971.

**Population growth**

3.43 Crude birth and death rates only measure the natural increase at a single point in time. With the acceptance of modern medicine, or a change in the methods of birth control, the rate can vary within a short period, and so cannot show the trend of population growth. Earlier estimates of population growth in Chimbu seem to support the conclusions that fertility rates were lower and mortality rates higher than they are now. Brookfield and Brown (1961:73) state that according to DDA data, tribes near Kundiawa in the early 1960s were increasing only at a rate of about 1.3 per cent annually. Brown and Winefield (1965:198) support this evidence with data from the period 1960 to 1963, and state that, 'None of our Chimbu measures shows the population to be growing rapidly or about to do so'.

3.44 Between 1962 and 1964 the DASF carried out an intensive survey of land and population in Chimbu to determine pressure on land resources. The results, using DDA data, bear out those of Brookfield, Brown and Winefield. In the initial survey, DASF obtained annual rates of growth for all groups of 1.2 per cent; when a re-survey was made in 1969, the annual growth rate between 1962 and 1969 was 1.6 per cent, and in the final re-survey in 1974 the yearly growth rate for the whole period from 1957 to 1974 was 1.4 per cent (DASF 1964; Smith 1971; CPO 1975). All these rates are low compared with those obtained for other highland areas. For example, in the Agarabi-Gadsup census divisions of the Kainantu District, DDA data give annual increases between 1952 and 1972 of 2.9 per cent, approximately double the Chimbu rate (Young, 1973:44).

3.45 The results of the national sample censuses of 1966 and 1971 allow the first comparison of the DDA census growth rates with those of other large scale surveys. Table 3.6 shows that between 1966 and 1971 the indigenous Chimbu-born population in Papua New Guinea increased at a rate of 1.6 per cent per annum. This was the lowest rate of increase in the country, shared with Southern Highlands, East Sepik and East New Britain provinces, and well below the national average of 2.5 per cent. However, as children born to out-
<table>
<thead>
<tr>
<th>Province</th>
<th>Residents</th>
<th></th>
<th></th>
<th>Indigenes in own province</th>
<th>Indigenes outside own province</th>
<th>Increase in total born in province</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Indigenes</td>
<td>Expatriates</td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western</td>
<td>2.8</td>
<td>5.1</td>
<td>2.8</td>
<td>2.5</td>
<td>12.4</td>
<td>3.0</td>
</tr>
<tr>
<td>Gulf</td>
<td>1.1</td>
<td>4.6</td>
<td>1.2</td>
<td>0.9</td>
<td>8.4</td>
<td>2.1</td>
</tr>
<tr>
<td>Central</td>
<td>5.2</td>
<td>9.5</td>
<td>5.8</td>
<td>4.7</td>
<td>9.2</td>
<td>4.9</td>
</tr>
<tr>
<td>Milne Bay</td>
<td>1.8</td>
<td>-1.3</td>
<td>1.8</td>
<td>1.8</td>
<td>8.0</td>
<td>2.1</td>
</tr>
<tr>
<td>Northern</td>
<td>2.6</td>
<td>-0.4</td>
<td>2.6</td>
<td>2.3</td>
<td>7.0</td>
<td>2.7</td>
</tr>
<tr>
<td>S. Highlands</td>
<td>0.9</td>
<td>11.6</td>
<td>0.9</td>
<td>1.0</td>
<td>11.9</td>
<td>1.6</td>
</tr>
<tr>
<td>W. Highlands*</td>
<td>2.6</td>
<td>10.4</td>
<td>2.6</td>
<td>2.1</td>
<td>2.6</td>
<td>2.1</td>
</tr>
<tr>
<td>Chimbu*</td>
<td>0.7</td>
<td>9.8</td>
<td>0.7</td>
<td>0.7</td>
<td>11.3</td>
<td>1.6</td>
</tr>
<tr>
<td>E. Highlands</td>
<td>3.2</td>
<td>7.0</td>
<td>3.3</td>
<td>3.0</td>
<td>9.8</td>
<td>3.3</td>
</tr>
<tr>
<td>Morobe</td>
<td>3.4</td>
<td>11.5</td>
<td>3.5</td>
<td>2.8</td>
<td>7.6</td>
<td>3.0</td>
</tr>
<tr>
<td>Madang</td>
<td>2.3</td>
<td>5.9</td>
<td>2.3</td>
<td>2.0</td>
<td>11.9</td>
<td>2.7</td>
</tr>
<tr>
<td>E. Sepik*</td>
<td>1.3</td>
<td>2.8</td>
<td>1.3</td>
<td>1.1</td>
<td>11.4</td>
<td>1.9</td>
</tr>
<tr>
<td>W. Sepik*</td>
<td>1.6</td>
<td>1.4</td>
<td>1.6</td>
<td>1.6</td>
<td>1.7</td>
<td>1.6</td>
</tr>
<tr>
<td>Manus</td>
<td>3.8</td>
<td>2.7</td>
<td>3.8</td>
<td>3.6</td>
<td>9.6</td>
<td>4.4</td>
</tr>
<tr>
<td>New Ireland</td>
<td>3.5</td>
<td>1.5</td>
<td>3.5</td>
<td>3.5</td>
<td>7.8</td>
<td>3.8</td>
</tr>
<tr>
<td>W. New Britain*</td>
<td>5.1</td>
<td>19.1</td>
<td>5.2</td>
<td>2.3</td>
<td>3.2</td>
<td>3.6</td>
</tr>
<tr>
<td>E. New Britain*</td>
<td>0.9</td>
<td>1.8</td>
<td>1.4</td>
<td>0.7</td>
<td>15.2</td>
<td>1.6</td>
</tr>
<tr>
<td>Bougainville</td>
<td>4.7</td>
<td>52.8</td>
<td>5.9</td>
<td>3.4</td>
<td>14.2</td>
<td>3.7</td>
</tr>
<tr>
<td>PAPUA NEW GUINEA</td>
<td>2.5</td>
<td>9.5</td>
<td>2.7</td>
<td>?</td>
<td>?</td>
<td>2.5</td>
</tr>
</tbody>
</table>

* 1966 figures adjusted to new boundaries.

migrants would not be included as Chimbu-born, these rates are understated.

3.46 Although we can accept that until recently the Chimbu population was growing fairly slowly, we must assume that with increasing fertility and decreasing mortality, the rate of increase in recent years has been faster. Even if the annual rate remained at 1.6 per cent, the Chimbu-born population in Papua New Guinea would double in about 40 years. Under present conditions of land tenure, subsistence agriculture, income expectation and technology, such an increase could not possibly be supported by the resources of Chimbu Province. It is only because the Chimbu have already sought their own solution to the problem by migrating to other areas that the pressure on existing resources is tolerable. As Table 3.6 shows, the annual growth rate of the indigenous population resident in Chimbu between 1966 and 1971 was in fact only 0.7 per cent.

Migration

3.47 In pre-colonial times the Chimbu migrated only to adjacent areas with which they were closely linked by kinship. Brookfield and Brown (1963:78) state that inter-marriage had been occurring between people from the upper Chimbu valley and the upper Asaro for at least three generations before contact, and similar connections existed between Chimbu and the Gende from Bundi. Close kin of married couples from densely populated, mountainous parts of Chimbu often exploited such ties to move into lower lying areas. Migration of this type, which is still important, has been called 'spontaneous migration' (Ploeg 1975). The source regions include the Marigl river valley, and high altitude areas beyond the limit of coffee cultivation such as the upper Chimbu and upper Koro valleys. Common destinations are lower areas near Kup in Chimbu, or Banz and Minj in the Western Highlands. The reasons prompting such moves are increasing density of population locally, and the wish to find land for cash cropping.

3.48 In many cases migrating groups have not paid cash for the land on which they have settled, and, even if they have, their security of tenure remains uncertain. In some cases subsequent evictions have taken place. For example, in 1964 a group of people from Oldale Rest House area in the Gumine District were invited to settle on land near Minj in the
Western Highlands by landholders there. During the next four years tension arose, and in 1969 they returned to Oldale (Provincial Office, Kundiawa, File 12–1–4). Their return created problems because their home area was densely populated and some migrants had already transferred their land rights to family members who remained behind. It is possible that in the future similar problems may arise with the group of Gumine people who have settled near Bomai airfield (see Chapter 5). But, despite the vulnerability of such migrants, spontaneous migration is certainly helping to relieve population pressure in some parts of Chimbu, and is providing the opportunity to earn cash for a few, whose only alternative would be subsistence farming.

3.49 Other types of out-migration from Chimbu have resulted from contact with outsiders, and have usually involved selected types of people rather than whole families. Since before the Second World War the men from Chimbu have been used as an unskilled labour force in other parts of the country. In the late 1930s Chimbu carried cargo to the Western Highlands goldfields, and in 1942–44 many men worked on new airfields in the Eastern Highlands, or as carriers into the Ramu and Markham valleys. In 1949 the first Chimbu men were recruited under the administration-sponsored Highlands Labour Scheme for work on coastal plantations. Between 1949 and 1958 they formed 65 per cent of all recruits passing through the Scheme's attestation centre in Goroka (Department of Labour records, 1950–75). After 1958, when recruitment spread to the Western and Southern Highlands, the percentage of Chimbu labourers decreased. In 1974, only 16.8 per cent of the men going through the attestation centre at Goroka were from Chimbu. Most then came from more isolated parts of the province – Karimui, Bomai, Salt and Nomane.

3.50 Although recruitment of migrant labour from Chimbu has declined, the rate of out-migration of young adult men has continued to increase. By 1966 Chimbu migrants were living in every province of the country. The experiences of those who worked on coastal plantations in the 1950s provide a fund of stories for discussion in Chimbu settlements, prompting many younger men to follow in the footsteps of their elders. Most have found jobs themselves on plantations or in towns, and increasing numbers move around casually for
varying periods of time visiting their wantoks. More recently a new type of Chimbu male migrant has emerged. He is the young educated man who as yet can find suitable work only in larger towns. Chimbu's limited urban development means that many are forced to go to other provinces and will probably remain outside Chimbu for their entire working life. The 'drain' of such skilled people to other areas impoverishes the province, and will hamper future development.

3.51 From the data of the 1966 and 1971 censuses it is possible to trace the destinations of Chimbu migrants. In 1966 most had moved to the Eastern and Western Highlands, where a high proportion of migrants were in rural non-village areas (Table 3.7 and Map 3.2). Other major destinations were rural non-village centres in Central, East New Britain and New Ireland Provinces, but in both Central and Morobe Provinces many migrants were also in the towns. Chimbu in rural non-village and urban areas were predominantly men, but women were beginning to move in small numbers to towns in provinces adjacent to Chimbu. For example, the sex ratio (proportion of men to women) of Chimbu residents in Goroka was only 1.7, but in Port Moresby it was 18.2.

3.52 The rate of out-migration of Chimbu increased at over eleven per cent annually between 1966 and 1971, the largest increases in movement being to West New Britain, Morobe, Western Highlands and Bougainville (Table 3.8, Map 3.3). Apart from Central and Morobe Provinces, where people were moving mainly to Port Moresby and Lae, most Chimbu still went to rural non-village centres, which by 1971 included a large number of resettlement blocks in West New Britain and the Western Highlands. Many moving to these blocks were women, who formed almost 40 per cent of migrants in West New Britain. The increase in the rate of female migration was a major feature of the intercensal period, the other main change being the increase in the percentage going to towns.

3.53 Although the DDA censuses give only crude estimates of the percentages of absentees from any one community at a particular time, they do show which parts of Chimbu Province

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9 Wantok: Pidgin – one who speaks the same language. The term has come to have wider meaning in areas outside the tribal boundaries. For example, in Port Moresby, Chimbu who may speak different languages become wantoks.
### Table 3.7

**Chimbu living in other provinces, by sector of residence by sex, 1966**

<table>
<thead>
<tr>
<th>Province</th>
<th>Rural village</th>
<th>Rural non-village</th>
<th>Urban</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
<td>Male</td>
</tr>
<tr>
<td>Western</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>Gulf</td>
<td>8</td>
<td>8</td>
<td>16</td>
<td>18</td>
</tr>
<tr>
<td>Central</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>300</td>
</tr>
<tr>
<td>Milne Bay</td>
<td>-</td>
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CHIMBU MIGRANTS, 1966
Table 3.8
Chimbu living in other provinces, by sector of residence by sex, 1971

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experience the heaviest losses through out-migration. Map 3.4 shows that in 1971 the heaviest out-migration\(^{10}\) was from upper Chimbu, Sinasina and Wikauma, but comparatively few men were absent from the Chuave or Kerowagi Districts, or the less densely populated parts of Gumine such as Salt and Nomane. The figures for Karimui are surprisingly high, reflecting the heavy participation of Karimui men in agreement labour at that time.

3.54 Census and DDA figures can give only a broad picture of the main migration streams. They do not indicate the reasons behind the choice of destinations, the degree of permanency of such movements, the extent to which migrants continue to depend on the resources of their home province, or the characteristics of migrants as opposed to non-migrants. This information can only be obtained by detailed micro-studies of small groups. Two such studies have been made of Chimbu migrants in Port Moresby. Salisbury and Salisbury (1972) have reported on the strategies of urban adaptation of Siame migrants, and Whiteman (1973) analysed relationships in 20 Chimbu families in the city. In 1974-75, Young (forthcoming) carried out a survey in five rural Chimbu communities located with differing accessibility to the Highlands Highway, Kundiawa, and other towns\(^{11}\) (Map 3.5).

3.55 In Young's survey, male and female respondents related their total migration experiences and those of absent members of their families. In the preliminary analysis reported here the main questions examined are the changing patterns of migration through time; the degree of permanency of movement; characteristics of migrants and non-migrants; the wantok networks outside Chimbu and their effect on migration; and the variation of these factors among the five communities surveyed.

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\(^{10}\) Out-migration is here measured as the ratio of absentee males outside the province to the total male population aged between 16 and 45 by census division. This measure is used because so-called absentees within the province are frequently only temporarily away.

\(^{11}\) This survey was conducted as part of a study of the role of small towns in patterns of rural-urban migration in the country.
MIGRATION RATES, 1971

% men 16-45 by Census Division

Map 3.4
**MIGRATION SURVEY: SAMPLE CENTRES**

**Sample centres**
- Index Fare 1975
  - Burukngaumo: 10, 20
  - Ema1: 30, 70
  - Angango: 60, K 1.00
  - Korul: 80, K 1.50
  - Bomkan: 140, K 2.00

**ACCESSIBILITY**
- Highlands Highway
- Other roads
- District boundaries

*Map 3.5*
3.56 Table 3.9 shows that in all groups a very high percentage of the men interviewed had at some time moved away from the village. In contrast, most women had never lived away from the village after marriage. Among men, migration was highest from Burukngaumo (Waiye CD), and for women, from Bomkan in Mitnande. On the whole, men who had never moved were either teenagers, or over the age of 45 (Figure 3.2, Table 3.9).

3.57 By combining all migration histories and listing all locations ever visited (Table 3.10), the relative importance of moves to rural and urban areas can be assessed. With the exception of Bomkan, urban areas, particularly Port Moresby, Lae, Mt Hagen and Goroka were most important as destinations for male migrants. Women from Angangoi, Bomkan and Korul tended to go to rural or rural non-village centres. Mobility indices, which may be calculated either as the average number of moves for all respondents, or as the average number of moves for all who had moved, show clearly the differences in male and female mobility. Men of the Korul group had the highest mobility index and men of Burukngaumo the lowest.

3.58 Although the size of the total sample covered in Young's survey (about one per cent of the resident indigenous population in Chimbu) is too small to be representative of Chimbu as a whole, the results indicate clearly that individual rural groups tend to develop distinct preferences for certain destinations. The movement patterns often

---

12 No strict time limits were imposed to define 'moved away' as opposed to 'never moved'. This was to allow consideration of the purpose behind the move, so that the difference between a stay of a few months working on a coffee plantation in the Wahgi Valley might be differentiated from an extended, unplanned stay with friends in town. In effect, all moves, apart from short term visits of a few weeks’ duration, were counted.

13 The term 'village' here means subclan in the case of Burukngaumo and Korul; or group of subclans living close together in the case of Emai, Bomkan and Angangoi. Chimbu settlement patterns are described in Chapter 5.

14 'Never migrated' in Figure 3.2 is defined as never away (for men) and never away since marriage (for women).
### Table 3.9

**Migration characteristics of sample populations, Chimbu**

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<th>Sample community</th>
<th>Angangoi</th>
<th>Bomkan</th>
<th>Burukngaumo</th>
<th>Emal</th>
<th>Korul</th>
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</tr>
<tr>
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<td>% no move + one move</td>
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* i.e. for marriage

**Source:** Young, field data, 1974-75.
MIGRATION SURVEY 1974-75: MIGRATION EXPERIENCE OF RESPONDENTS

(All of labor sample)

**ANGANGOI**

**BOMKAN**

**BURUKNGALIMO**

**KORUL**

**EAAM**

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<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>Goroka</td>
<td>19</td>
<td>4</td>
<td>15</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Arawa-Panguna</td>
<td>11</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>9</td>
</tr>
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<td>Daru</td>
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<td>-</td>
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<tr>
<td>Popondetta</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
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</tr>
<tr>
<td>Wau-Bulolo</td>
<td>7</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Kavieng</td>
<td>-</td>
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<td>-</td>
<td>-</td>
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<td>Kundiawa</td>
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<td>1</td>
<td>6</td>
<td>3</td>
<td>7</td>
</tr>
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</tr>
<tr>
<td>Minj</td>
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<tr>
<td>Wabag</td>
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<td>-</td>
<td>-</td>
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<td>Yonki</td>
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<td>-</td>
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</tr>
<tr>
<td>Maprik</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Kerowagi</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>94</td>
<td>6</td>
<td>65</td>
<td>16</td>
<td>51</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Moves to spouse's village</th>
<th>Other: Number of moves</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>127</td>
<td>73</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Mobil ity index (all movers)</th>
<th>Number of non-movers</th>
<th>Mobil ity index (total)</th>
<th>Number of single movers</th>
<th>Mobil ity index (excl. single movers)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4.3</td>
<td>24</td>
<td>3.2</td>
<td>1</td>
<td>4.4</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>3</td>
<td>1.4</td>
<td>47</td>
<td>2.8</td>
</tr>
<tr>
<td></td>
<td>4.9</td>
<td>3</td>
<td>3.5</td>
<td>26</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td>4.2</td>
<td>2</td>
<td>2.1</td>
<td>103</td>
<td>3.9</td>
</tr>
<tr>
<td></td>
<td>4.0</td>
<td>1</td>
<td>1.5</td>
<td>103</td>
<td>3.9</td>
</tr>
<tr>
<td></td>
<td>1.7</td>
<td>3</td>
<td>3.3</td>
<td>47</td>
<td>2.9</td>
</tr>
<tr>
<td></td>
<td>4.5</td>
<td>6</td>
<td>1.5</td>
<td>1</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>1.6</td>
<td>3</td>
<td>3.6</td>
<td>57</td>
<td>3.1</td>
</tr>
<tr>
<td></td>
<td>5.5</td>
<td>6</td>
<td>1.3</td>
<td>74</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Mobility index = number of moves/number of movers.

Source: Young, field data, 1974-75.
reflect early experiences of members of the groups moving as agreement labourers, for example, the migration of men from Angangoi and Emai to Central Province, and of Korul men to Wau and Bulolo. Because people prefer to continue going to familiar places, early migration streams may be perpetuated, although the conditions of employment or the reasons for travel may have changed. For example, Korul people still go to work at Wau and Bulolo, although none have gone there as agreement labourers since 1964. In 1974 four migrants from Korul were living there, and others used Wau as a base in transit to Port Moresby, staying with their wantoks and taking advantage of the cheaper air fares on this route.

3.59 Migration patterns from Chimbu have changed greatly through time (Table 3.11). The pre-1950 pattern has been mentioned (para. 3.47). Movements to plantation areas such as the rubber region in Central Province did not start until the 1950s, but these destinations have become less popular in recent years, and have been replaced by the large towns of Port Moresby and Lae. Towns adjacent to Chimbu, such as Goroka, have remained attractive throughout the period.

Table 3.11

<table>
<thead>
<tr>
<th>Move to selected destinations by men initially leaving at different time periods: all groups combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Destination</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Central Province</td>
</tr>
<tr>
<td>No.</td>
</tr>
<tr>
<td>%</td>
</tr>
<tr>
<td>Goroka</td>
</tr>
<tr>
<td>No.</td>
</tr>
<tr>
<td>%</td>
</tr>
<tr>
<td>Moresby</td>
</tr>
<tr>
<td>No.</td>
</tr>
<tr>
<td>%</td>
</tr>
<tr>
<td>Lae</td>
</tr>
<tr>
<td>No.</td>
</tr>
<tr>
<td>%</td>
</tr>
</tbody>
</table>

Source: Young, field data, 1974-75.
3.60 The *wantok* networks, shown by the location of absentees from each community (Map 3.6), also have important individual variations. For example, the largest group of Angangoi absentees, both men and women, were living in the Western Highlands on land acquired through kinship ties, whereas many Bomkan were working on one plantation in the Eastern Highlands, or living together in a single house in Goroka. Clearly, information on these networks is basic to an understanding of present migration streams, and to prediction of future movements. The *wantok* system not only influences migrants' destinations, but also assists them with accommodation, food, and information on arrival. The Salisburys (1972:61-3) provide an excellent account of the operation of the system among Siane in Port Moresby.

3.61 Although most respondents in Young's rural survey had migrated at some time or other, few moved on to other plantations or towns without first returning home. That is, most were 'circular' migrants. Table 3.12 shows that over 87 per cent of all moves by men were circular, the characteristic being most marked in Korul and least in Bomkan. A decrease in circular migration during the 1960s coincided with the decline in popularity of agreement labour which guaranteed repatriation, but most migrants still return home after each move.

3.62 The persistence of circulation is important because it indicates that most migrants do not intend to remain away permanently, but will alternate between their homes and elsewhere. They retain strong ties with their kin, maintain their rights to land, and have interests in cash cropping in Chimbu. The studies by Whiteman and the Salisburys also considered the reasons why many migrants return home, or intend to. Whiteman thought that emotional ties to kin and land, and dislike of the heat of the coast, were involved, but that probably the most important reason among the Port Moresby migrants at least was a desire to work for oneself rather than for an employer: 'in Chimbu a man who works hard can see the results for himself in prestige and perhaps more wives' (1973:145). The Salisburys reported that while at least some urban migrants may successfully adapt to urban situations, 'their strategies of choice ... continue to aim towards ultimate success in a rural context and are conditioned by the alternative courses of action open to them in their villages' and 'people feel the worth of rural life and want to return, bringing the advantages of the town with them' (1972:59). Thus it must
LOCATION OF ABSENTEES, 1974-75

Map 36

Locations:
- Angangoi
- Bomkan
- Burukningamo
- Emai
- Korul

Distances:
- 0 kilometers
- 100 kilometers
- 200 kilometers
- 300 kilometers
### Table 3.12

Circulation index: males only, by year of first move

<table>
<thead>
<tr>
<th></th>
<th>Angangoi</th>
<th>Bomkan</th>
<th>Burukngaumo</th>
<th>Emai</th>
<th>Korul</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 1945</td>
<td>100.0</td>
<td>90.0</td>
<td>88.9</td>
<td>97.1</td>
<td>100.0</td>
<td>96.4</td>
</tr>
<tr>
<td>1945-49</td>
<td>100.0</td>
<td>-</td>
<td>100.0</td>
<td>89.5</td>
<td>100.0</td>
<td>97.0</td>
</tr>
<tr>
<td>1950-54</td>
<td>94.7</td>
<td>82.9</td>
<td>94.3</td>
<td>76.3</td>
<td>88.6</td>
<td>88.3</td>
</tr>
<tr>
<td>1955-59</td>
<td>92.9</td>
<td>82.7</td>
<td>76.9</td>
<td>94.1</td>
<td>100.0</td>
<td>90.5</td>
</tr>
<tr>
<td>1960-64</td>
<td>81.4</td>
<td>63.1</td>
<td>76.0</td>
<td>85.7</td>
<td>93.4</td>
<td>80.4</td>
</tr>
<tr>
<td>1965-69</td>
<td>78.9</td>
<td>78.6</td>
<td>87.0</td>
<td>75.0</td>
<td>79.6</td>
<td>79.8</td>
</tr>
<tr>
<td>1970-present</td>
<td>76.0</td>
<td>88.9</td>
<td>90.9</td>
<td>96.0</td>
<td>95.5</td>
<td>89.1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>88.5</td>
<td>80.4</td>
<td>86.0</td>
<td>88.9</td>
<td>92.4</td>
<td>87.8</td>
</tr>
</tbody>
</table>

Circulation index = \( \frac{\text{total moves to/from sample group}}{\text{total moves by movers from group}} \times 100 \)

**Source:** Young, field data, 1974-75.
be emphasised that migration, at least in its present pattern, offers no solution to Chimbu's population problems. It cannot be assumed that Chimbu living outside the province are no longer dependent on Chimbu resources.

3.63 Almost all respondents in Young's survey were people then resident in village communities, but each community also had a large number of absentee.\textsuperscript{15} If any Chimbu have migrated permanently, they will belong to the absentee category. Figure 3.3 shows that absentees, both men and women, were mostly between the ages of 20 and 34; they were also more highly educated than their rural-dwelling age-mates (Table 3.13) and certainly some of them would be most unlikely ever to return to live in Chimbu. Since they are largely from the young adult age groups, their absence creates abnormally high dependency ratios.\textsuperscript{16} At the time of the 1971 census the dependency ratio for the indigenous population in Chimbu was 1.6, compared with a national average of 1.3.

**Future population growth in Chimbu**

3.64 From the data available, our main findings are:

-- rates of population growth in the historical past were fairly low, due to high mortality and relatively low fertility;

-- fertility is now increasing and mortality declining, hence the population may be expected to grow at an increased rate;

-- population density in Chimbu is higher than in any other province in Papua New Guinea;

-- in parts of Chimbu, population density reaches levels which impose a severe strain on resources;

\textsuperscript{15} 'Absentees' are defined as all men living outside the subclan and all women living outside the groups with whom the subclan traditionally intermarries.

\textsuperscript{16} Dependency ratio: \( \frac{\text{population aged 0-14} + \text{population 45+}}{\text{population aged 15-44}} \)
MIGRATION SURVEY 1974-75: ABSENTEES BY AGE AND SEX

Fig 33
### Table 3.13

Level of education of male residents and non-residents, Chimbu survey, 1974-75, population aged 15+ (% of sample)

<table>
<thead>
<tr>
<th>Education</th>
<th>Angangoi</th>
<th>Bomkan</th>
<th>Burukngaumo</th>
<th>Emai</th>
<th>Korul</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>non-resident</td>
<td>non-resident</td>
<td>non-resident</td>
<td>non-resident</td>
<td>non-resident</td>
</tr>
<tr>
<td>None</td>
<td>86.8</td>
<td>68.8</td>
<td>46.5</td>
<td>71.4</td>
<td>29.5</td>
</tr>
<tr>
<td>Pidgin</td>
<td>6.6</td>
<td>6.3</td>
<td>32.4</td>
<td>9.5</td>
<td>9.1</td>
</tr>
<tr>
<td>Standard 1 - 3</td>
<td>4.4</td>
<td>1.6</td>
<td>7.0</td>
<td>4.8</td>
<td>4.5</td>
</tr>
<tr>
<td>Standard 4 - 6</td>
<td>2.2</td>
<td>4.7</td>
<td>8.5</td>
<td>4.8</td>
<td>31.8</td>
</tr>
<tr>
<td>Form I - II</td>
<td>-</td>
<td>1.6</td>
<td>2.8</td>
<td>1.6</td>
<td>6.8</td>
</tr>
<tr>
<td>Form III - IV</td>
<td>-</td>
<td>14.1</td>
<td>1.4</td>
<td>-</td>
<td>9.1</td>
</tr>
<tr>
<td>Vocational-Tech.</td>
<td>-</td>
<td>1.6</td>
<td>-</td>
<td>7.9</td>
<td>2.3</td>
</tr>
<tr>
<td>University</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Teachers' College</td>
<td>-</td>
<td>1.6</td>
<td>1.4</td>
<td>-</td>
<td>6.8</td>
</tr>
<tr>
<td>Tech.-Nursing</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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</tr>
<tr>
<td>Other</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Young, field data, 1974-75.
-- the Chimbu people are conscious of the pressure of population on resources and are actively seeking to alleviate its effects through out-migration;

-- although Chimbu are prepared to move to other parts of the country, few are willing to relinquish their customary land rights, hence most are 'circular' migrants;

-- only the well-educated Chimbu have become permanent absentees, but at least some are needed in their home areas to provide the impetus for future development.

Recommendations

3.65 It would appear that the following recommendations must be adopted if serious social, economic and environmental problems are to be averted:

-- the rate of population growth should be reduced below present levels;

-- current resources for subsistence and cash cropping should be increased by more intensive land use and rationalisation of land tenure;

-- more Chimbu should be given the opportunity to settle in other parts of the country; and

-- a register of vital events, particularly births and deaths, should be begun in Chimbu as a matter of urgency.

Control of population growth

3.66 Since mid-1973, family planning clinics have been available at most rural health centres, but most have operated only in the latter half of 1975 (Table 3.14). Previously, family planning was not available except at Kundiawa hospital, the only hospital in the province with fully-qualified medical staff, and at Sigimaru hospital at Karimui, a centre with unique opportunities to contact most of the population through regular anti-leprosy patrols.

3.67 In general the policy has been not to promote family planning actively, but to give information to mothers when they attend the monthly infant welfare clinics. Those
Table 3.14

Family planning - new users, 1973-75

<table>
<thead>
<tr>
<th>Rural health centre</th>
<th>1973</th>
<th>1974</th>
<th>1975 (to August)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerowagi</td>
<td>16(8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chuave</td>
<td>14(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gembogol</td>
<td>5(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kundiawa</td>
<td>63(15)</td>
<td>169(85)</td>
<td>94(11)</td>
</tr>
<tr>
<td>Wandi</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sinasina</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mingende</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sigimaru</td>
<td>7</td>
<td>38(7)</td>
<td>82(1)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>70(15)</td>
<td>207(92)</td>
<td>217(25)</td>
</tr>
</tbody>
</table>

Number of tubal ligations shown in brackets.

Source: Department of Health, Chimbu Province.

expressing interest are then referred to the monthly clinics at their nearest rural health centre. Women who wish to use family planning methods must first consult their husbands. Attitudes toward family planning seem generally favourable; cases have been reported of women with only two or three children requesting contraceptive devices because land is short and the prospects for their families poor. Most women who go to Kundiawa hospital for tubal ligations have had at least five children. One aid post orderly, at Gaima in Dom census division, has received instruction in family planning techniques and now distributes contraceptive pills when requested. Between July and September 1975 he gave pills to 36 women.

3.68 Despite the increase in clinics, the number of women practising modern family planning techniques in Chimbu is only about 0.15 per cent of the women of child-bearing age. Clinics are too recent to have had any effect on the rate of population growth, and it may be that active
promotion of family planning in Chimbu would meet with little success while the educational levels of Chimbu women are so low. However, if the national government adopts a firm policy toward birth control, then Chimbu is one region where it should be strongly promoted.

**Improving the use of existing resources**

3.69 This solution may hold the best hope for the future of Chimbu, but would require radical changes in the agricultural economy, including intensification of land use, the introduction of high-yielding crop varieties, improved methods of soil management and conservation, the introduction of intermediate technology and establishment of certain small-scale industries using local raw materials, and possibly consolidation of land holdings (see Chapters 5 & 9).

**Increased out-migration and resettlement**

3.70 Migration and resettlement are the solutions which the Chimbu themselves favour and until now have had the greatest effect on total population numbers. Migration at its present rate cannot be considered as the ultimate solution to Chimbu's population-resources problem. Between 1966 and 1971 the rate of migration from Chimbu increased rapidly, and most migrants were able to find employment in towns and plantations. This rate of increase was probably maintained until 1973, since when employment opportunities for people with low levels of education have been much more limited.\(^{17}\) Since the level of education and training in Chimbu is low compared with other provinces, fewer Chimbu find employment in towns. Some provinces and towns are already exerting pressure to force unemployed people to return home, and such pressure will certainly increase, perforce reducing the flow of Chimbu migrants to towns. Further, as more plantations are bought by the government and returned to the people, fewer plantation jobs will be available to migrant workers. Chimbu people are themselves coming to realise these trends, and now talk more in terms

\(^{17}\) Due to a 'mini-recession' in the early 1970s, the attainment of self-government, and the 'localisation' program, which caused the departure of a number of expatriates and reduced employment opportunities for unskilled workers.
of acquiring land elsewhere (see Chapter 5, p.114 ff.).

3.71 Any real assessment of population stress on resources, and the nature of demographic trends, cannot be made without adequate data. Chimbu, and indeed the whole country, requires more data collection at local levels. An important contribution to this end can be made by keeping registers of vital events, especially births and deaths, and a record of migrants. Local government councils would be suitable institutions to maintain such records, which might be transmitted periodically to a provincial centre, such as the province's government or administrative headquarters. It should be the responsibility of all community members, especially students and council committee members, to assist in the accurate maintenance of such records. It must be stressed, however, that such registers will be of limited use without more adequate census data for the base population.
Appendix 1

Population data: the DDA censuses and the censuses of 1966 and 1971

DDA censuses

Censuses of the rural highlands populations were undertaken by patrol officers from soon after initial contact, and attempted complete enumeration of rural dwellers. The first DDA censuses in Chimbu were carried out in the 1930s, but in the early years of contact only those groups living close to the government stations were counted. After 1950, coverage of all the more densely-populated areas must have been almost complete, and the data collected at approximately annual intervals remained standard for the next 20 years.

In 1972-73 the DDA census format was simplified to try to reduce patrolling time. Considerable detail was omitted: no attempt was made to accurately record ages; no details of births and deaths were recorded; and no distinction was made between absentees living elsewhere in the province and those in other provinces. Given the qualifications about census data made by McArthur (1966), these omissions are perhaps less serious than they seem.

When DDA introduced the new format for village censuses, annual patrols were discontinued as too time consuming. Instead, the Bureau of Statistics was asked to design a sample survey system which would enable estimates to be made of rural population growth rates and migration rates during shorter patrols.

The new sample survey, known as the Village Population Survey (DDA 1974) was carried out for the first time in 1975. Data similar to those in the former DDA census are collected from a ten per cent sample of all villages included in the Village Directory. It is anticipated that all sample villages will be censused annually for at least two years, after which some will be eliminated from the sample and
replaced by others. Twenty per cent of the sample villages will also be visited at six-monthly intervals to attempt to collect information on births and deaths of children dying in infancy, and more detailed information on migration.

It is too early to assess the effectiveness of the new system. Villagers are finding the sampling system confusing compared with the former comprehensive censuses, and it appears that enumeration is carried out far too rapidly to obtain accurate results. It is likely that data acquired under the new system will be less accurate than those obtained by the former method: in Chimbu at least, only a few people attend the meeting with enumerators, with one or two people acting as informants for the sample group.

Ultimately, the only way in which accurate population surveys can be carried out in the rural villages is through prolonged stay in the village, or through an organised system of vital registration.

The censuses of 1966 and 1971

Chimbu was gazetted as a new District on 21 June 1966, and enumeration for the first nation-wide census began shortly afterward. Not surprisingly, the boundaries of the new District were unclear to many residents. The resulting confusion is illustrated by the statistics for Eastern Highlanders living in Chimbu: 14 116 men and women were stated to be living in rural villages in Chimbu in 1966, but their District of birth was given as the Eastern Highlands (as indeed it was when they were born). By 1971 only 273 people from the Eastern Highlands were in Chimbu rural villages. Almost certainly the birthplace of people in the Chuave and Nambaiyuwa areas was wrongly recorded in the first population census.

The boundaries of Chimbu were changed again in December 1968 by transferring the Upper Jimi region to the Western Highlands, and by a minor adjustment of the boundary between Bomai Census Division and the Western Highlands. In terms of adjustments to make the two censuses comparable, the change in the Bomai area may be ignored since this region is virtually unpopulated. The transfer of the Upper Jimi region, however, made a significant difference. In this report, the following adjustments of the 1966 figures have been made in order to estimate annual rates of
population growth between 1966 and 1971:

(a) Population of Upper Jimi aged 5 years and over in 1971: 11,834 (adjusted from village DDA counts)

Census survival rate: .918

Estimated population of Jimi in 1966: 11,834

Adjusted indigenous population of Chimbu: 166,923 - 12,889

(excluding Upper Jimi) 154,034 (See Table 2)

Total Chimbu population in 1966: 154,356

(b) Estimated number of Eastern Highlanders living in Chimbu in 1966, based on 1971 proportions: 720

Number of Chimbu wrongly enumerated as to birthplace: 13,645

Annual rate of population growth as shown in Table 3.9 are all based on these adjusted figures.¹

¹The East and West Sepik, and East and West New Britain were also affected by intercensal boundary changes between 1966 and 1971. In Table 3.9 the 1966 figures for these provinces, and for Chimbu and the Western Highlands have all been adjusted before growth rates were calculated.
Chapter 4

Physical environment

Location

4.1 Chimbu Province is located in the mountainous interior of Papua New Guinea's main island (Map 1.2). The province lies between Latitudes 5° 45' and 6° 50' South, and Longitudes 144° 30' and 145° 15' East. This is one of the country's smallest provinces: its area of 5880 km² represents only 1.2 per cent of the national territory.

Geology and terrain

4.2 Chimbu lies athwart the central cordillera, a formation of high mountain ranges rising to over 4000 m and intermontane basins whose floors lie about 1500 m above sea level. The main structural elements, trending northwest-southeast (Map 4.1), have been described by Bain and Mackenzie (1974; 1975) and Bain, Mackenzie and Ryburn (1975). From north to south, these are:

- the New Guinea Mobile Belt, the 'zone of interaction between opposing crustal plates, the Australian plate to the south and the Pacific plate to the north' (Bain and Mackenzie, 1974:16). The southern limit of the Mobile Belt is the Bismarck Fault Zone, a highly disturbed zone 20 km wide with at least 3000 m of vertical displacement over its width (Bain et al., 1975:95);

- the Kubor Anticline, a range of 'rugged mountains rising to rocky peaks up to 4000 m above sea level' (Bain and Mackenzie, 1975:7); and

- the Papuan Fold Belt, consisting of subparallel folds and faults in a zone some 50 km wide (Bain and Mackenzie, 1974:15).
4.3 The central cordillera is geologically complex. Sedimentary strata of limestone, mudstone, siltstone, sandstone, greywacke and shale have been intruded, metamorphosed, folded, faulted and tilted. The region has been submerged at several periods in its history, and at other times volcanism and glaciation have been significant. The initial period of mountain formation is thought to have begun 15 to 20 million years ago, but a more important period of strong block-faulting and uplift occurred two or three million years ago (Haantjens, 1970:7). Although minor earth tremors, subsidence and displacement are experienced periodically, Haantjens considers that 'at present the area appears to be in a stage of relative stability' (1970:7).

4.4 In both the Bismarck and Kubor ranges topography is rugged and irregular, ranging in elevation from 1600 m to over 4000 m, and culminating in Mt Wilhelm (4509 m), the country's highest peak on Chimbu's northern border. Mt Wilhelm, and peaks in the Kubor Range over 3000 m, have been glaciated.

4.5 The Marigl Divide, which is the watershed of the Kubor range, separates regions of markedly different topography to its north and south. In the north is a mountainous zone extensively dissected by several major rivers, whereas a lower and more open region extends southwards.

4.6 Topography within the northern region is intricate (Map 4.2). The Bismarck and Kubor mountains are separated by a deeply-dissected east-west corridor 10-60 km wide, which is structurally part of the Mobile Belt. The corridor is walled on the north by the Porol range, a prominent lime­stone escarpment. Its crest rises between 600 and 800 m above the valley floor, while its north-facing dip slope falls sharply at an angle of 35° to 45° for more than 600 m to tributaries of the Chimbu river. Still within the northern region, but south of the corridor, the Wahgi river flows in a deep winding gorge through the Kubors to its junction with the Tua on Chimbu's eastern border. The Wahgi and its tributaries are part of the vast drainage system which ultimately flows into the Purari and the Gulf of Papua.

4.7 Three principal rivers, the Chimbu, Koro and Mai (Marifutiga) flow from the Bismarcks into the Wahgi. The upper Chimbu valley is an open basin encircled by
Table 4.1

Chimbu Province: altitudinal zones by area and % area of census division

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<th>% Area</th>
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steep-walled side valleys, but narrows in its middle reaches near Gembogl until the river passes through a sharp gorge in the Porol range to its junction with the Wahgi. Two large tributaries, the Singga on the west and the Kwi on the east, flow from dissected valleys abutting the Porol range into the Chimbu river. The Koro, near the province's western border, flows south to the Wahgi in a valley which is steep and narrow near its headwaters, but widens out into the only area of gentle terrain in all northern Chimbu as it approaches the Wahgi. This is the eastern end of the Wahgi lowlands, just before the river enters its gorge through the Kubors. The Mai river rises on the slopes of Mt Kerigomma and joins the Wahgi further downstream to the east. Its upper valley too is narrow, but unlike the Koro, the lower Mai drains heavily dissected terrain before joining the gorge of the Wahgi.

4.8 South of the Marigl Divide, the Kubor ranges descend to a basin and plateau region which is sharply incised by the Tua and its tributaries. The extinct volcanoes, Mt Au (Suaru), Mt Karimui and Crater Mountain, rise prominently above the surrounding country. In the extreme south the parallel limestone ridges of the Papuan Fold Belt form a zone of difficult, heavily-eroded terrain which extends beyond the border of the province. The most extensive region of low elevation in Chimbu lies between these limestone ridges and the Kubor foothills. The area between the junction of the Wahgi and Tua rivers, a basin of lower, undulating country, is an eastern extension of this region.

4.9 Table 4.1 shows the area of the altitudinal zones illustrated in Map 4.2, and the percentage area of each zone by census division (see also Chapter 5). Those areas above 2400 m are unsuitable for cultivation, and 2000 m may be taken as the limit for coffee cultivation.

4.10 The topography of the province has been classified by Speight and Scott (unpublished data) into four terrain types: plain-lands, undulating terrain, hills and barrier terrain. We have mapped the distribution of the terrain types within Chimbu Province as fully as Speight and Scott's

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1The terrain types are derived from the classification of twenty attributes of land-form patterns as seen on air photos. The types are relatively homogeneous when all
data permit (Map 4.3). Table 4.2 shows the estimated percentage area of each type by census division for those parts of the province mapped by Speight and Scott. We estimate that perhaps 40 per cent of the whole province may be classed as barrier terrain, 15 per cent as hills, 15 per cent as undulating, and 30 per cent as plain-lands. However, over 60 per cent of the northern region is barrier terrain, and 85 per cent of the hilly category in the province occurs here.

4.11 The recent origin of the central cordillera, combined with high elevation, and rapid erosion under humid tropical conditions, have resulted in a dynamic and unstable landscape in Chimbu. The rivers are swift, and their steep-sided valleys, many of which are under cultivation, erode constantly, creating serious difficulties for road and bridge construction. Local relief in the southern region is less than 50 m over wide areas, but in the Wahgi and Chimbu river valleys may be as much as 1000 m.

Access

4.12 Chimbu's central location on the mainland does not give it any specific advantage at present. The valleys of the central cordillera are separated from the lowlands and

1 (Continued)

attributes are considered together, but may vary considerably in any one attribute. In general, plain-lands have slopes less than 3-1/2°, undulating land has slopes of about 15°, hills vary in slope between 21° and 25°, and slopes on barrier terrain are greater than 26°. The major implications of the classification are that areas of barrier terrain constitute a barrier to transportation, involving great difficulty or expense; and the hazard of soil loss consequent on clearing and intensive cultivation increases with increasing slope (Speight and Scott, personal communication, July 1975).

2 It should be noted that the figures shown in the column 'Total Area' are those calculated from the base map used by Speight and Scott, and not the more recent base map available for this report. We have calculated the province's area as 5880 km², 173 km² less than is shown in Table 4.2.
Barrier terrain
Hills
Undulating terrain
Plain-lands

Map 4.3

Map 4.3
Table 4.2

Chimbu Province: distribution of terrain types by census division

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<th>Terrain types: % area of census division</th>
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<td>Undulating %</td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* See note 2, p.75.
coasts by high mountains to the north and a broad belt of hostile terrain to the south. Within the highlands, Chimbu forms a mountainous obstacle between the broader open valleys to its east and west.

4.13 Although Chimbu's location and environment impose severe constraints on its present development, it is noteworthy that these very circumstances were advantageous in pre-colonial times. Hughes, whose study of neolithic trade in inland New Guinea encompassed much of Chimbu, found 'a network of trade routes' through the highlands which 'extended from coast to coast' (1973:119) and also that

the main flows of trade goods conspicuously move across the strike of the central cordillera between areas of the greatest environmental contrasts, emphasising the importance of two factors on the resources used for trade - proximity to the sea and the vertical zonation of altitude (1973:100).

4.14 Since colonial contact, however, the highlands have been peripheral, Chimbu more so than its neighbours. The recency of 'discovery' and of the development effort in the interior partly account for this, but environmental conditions have been a major factor impeding the improvement of access within and beyond the province. Chimbu's location, environment and difficulties of access thus place severe constraints on the expansion of the modern economy here.

Mineral resources

4.15 According to Bain and Mackenzie (1974; 1975) Chimbu has no known economic mineral deposits. They report an abundance of pyrite near Gumine and Genabona (Dom), and the possibility of copper mineralisation at Mt Karimui (1974:18-9). The extensive beds of limestone and sandstone, and large gravel deposits, have potential for further development (see Chapter 9). In the Bismarcks north of Chimbu Province a large low-grade copper deposit at Yandera is being investigated by a mineral exploration company (1975:30), and if proved, may provide significant short-term employment for Chimbu. Stone which was quarried for axe-heads, and salt
springs have been superseded by imported manufactured equivalents.

**Climate**

4.16 Climatic data for Chimbu Province are scanty. Such records as do exist are either irregular, available for short periods only or otherwise unreliable, thus only broad generalisations are possible. Rainfall data are available for a fairly representative scatter of locations (Map 4.4), but the only temperature records for the whole province are those for Kundiawa (Fig. 4.1). Records of rainfall and temperature could well be kept by selected primary schools and all post-primary schools, provided arrangements were made to continue readings during vacations. Only a few mission stations report climatic data and all should be encouraged to do so, as they are well distributed in the province.

4.17 Chimbu's climate is a function of its location in equatorial latitudes, modified by its altitudinal range. The main consequence of the latitudinal position is a broadly two-season pattern of climate, resulting from the annual transition of circulation systems across the equator. Altitude is the main determinant of temperature conditions. However, this broad pattern is frequently modified by the dominance of local terrain conditions producing considerable variation in climatic elements over relatively small areas.

4.18 Chimbu's two main seasons are delineated by annual rainfall distribution. The wet season is concentrated in the period December to March or April, after which a fairly sharp transition to the dry season occurs. May-September is the driest period, with a variable transitional season from about October to December bridging the dry and wet periods. This seasonal pattern is more apparent in areas between 1500 m and 2500 m above sea level, but even at Karimuï and Bomai, the only stations reporting at lower altitudes, a drier season occurs during the middle months although it is somewhat obscured by the much heavier rainfall here (Map 4.4)

4.19 Annual rainfall, and its seasonal regime, appear to be adequate for the cultivation of Chimbu's subsistence and
Mean annual rainfall in millimetres:

- Bomai: 4855
- Kundiawa: 2224
- Gumine: 2444
- Chuvave: 2330
- Omkalai: 2026
- Mingende: 2091
- Kerowagi: 2811
- KegLSugl: 2284
- Karimui: 3386
- Kundiawa: 1893

Map 4.4
cash crops. Annual totals vary from an average of 2000 mm (about 80 inches) to almost 5000 mm (200 inches). In the most closely settled areas annual rainfall varies from about 1800 to 2800 mm. From observation, it would appear that rainfall decreases from northern Chimbu southward to the corridor separating the Bismarcks from the Kubors, then gradually increases again further south. The heavy falls at Bomai and Karimui are probably due to their location on the 'weather side' of the Kubors during the season of southeast trades and to the presence of unstable humid air at other times. The corridor's lower rainfall may be due to a rain-shadow effect in that it is partly sheltered by the Kubors during the southeasterly season, and by the Bismarcks during the other months of the year.

4.20 While available statistics give some indication of the spatial variation in rainfall, variation over time is more difficult to assess. Certain years are wetter than others but it appears that actual droughts are extremely rare. On the other hand, rainless periods of perhaps several weeks may occur every dry season, causing considerable stress for crops, and for rural communities which lack water supply installations.

4.21 Mean annual temperatures at Kundiawa (1495 m) range from a minimum of 14.6°C to a maximum of 26.1°C. Monthly variation in both mean minimum and mean maximum temperatures is slight—within 2°C throughout the year. However, as Fig. 4.1 shows, the extreme mean minimum and maximum temperatures vary about 5°C from the means.

4.22 Seasonal variation in temperatures is also insignificant. Although the months November to March are theoretically warmer, heavier cloud cover during this period tends to moderate temperatures slightly. Relative humidity is perceptibly higher in the morning and evening hours than at mid-day, and in the wet season compared with the rest of the year, but it rarely reaches discomfort levels. Brookfield (1964:31) reports that in upper Chimbu light frosts are of regular occurrence above about 2600 m, but that cultivation extends beyond this altitude, especially on the spurs; the gullies are vulnerable to cold air drainage.

4.23 Strong winds are infrequent in Chimbu. Neither the southeast trades nor the northwest circulation systems
TEMPERATURE CHARACTERISTICS, KUNDIAWA

Fig. 4.1
penetrate far into the central cordillera. On the other hand, the climate of the enclosed valleys is undoubtedly affected by local circulations, especially slope and valley winds, which operate independently of all but the most dominant of general conditions (Brookfield and Hart, 1966: 11). Vertical exchange of air between night and day in the valleys produces temperature inversions and inversion fogs in the early morning, and later the rapid formation of cumulus on the surrounding mountains. One consequence is that the valley centres are thus much drier than the sides.

4.24 Climate in Chimbu cannot be considered in isolation from the province's terrain and altitude. On the whole, the climate imposes few constraints on the human use of the environment. The most critical considerations are temperature conditions which are a function of altitude and of vertical air movement according to the arrangement of valleys; and erosion resulting from the frequency and intensity of rainfall, which is related to slope conditions and soil types.

Soils

4.25 No comprehensive soil survey of the province has been made, although soils of the region north of the Marigl Divide were sampled by the CSIRO Division of Land Research in 1957 (Haantjens, 1970), and the distribution of volcanic soils in Chimbu is currently under investigation (Pain and Wood, personal communication, December 1975). A few soil analyses have also been made from locations at Karimui and Bomai (Simpson, personal communication, December 1975). However, lack of data permits no more than a generalised description and some hypotheses about Chimbu's soils.

4.26 Haantjens has generalised the soil types of the northern sector into a number of broad groups or associations. He reports that with the exception of soils derived from limestone and mudstone, parent rock type appears to have had little influence on soil formation in this region. The predominant soils are humic brown clays with a fairly high humus content in the topsoil. Such clays are found on a great variety of rock types, given stable slope conditions. The humic brown clays as a group are so widespread in the
highlands that Haantjens considered them to 'approach the concept of zonal soils' (1970:85), that is, soil formation is controlled by climatic factors rather than by parent rock type. Soils formed under conditions of high altitude, extreme slope or poor drainage differ from the humic brown clays and are discussed below.

4.27 Pain and Wood, however, are of the opinion that the humic brown clays are derived from volcanic ash erupted from the extinct volcanoes in the south, Mt Karimui, Mt Au and Crater Mountain (personal communication, December 1975). They report deposits of volcanic ash up to six metres deep in places, although the depth varies according to slope conditions. However, they consider that most slopes up to 25° to 30° are likely to hold ash deposits. Given the relative youthfulness of Chimbu's landscape and the fact that brown clays are found on parent rock of igneous, metamorphic and sedimentary origin under a wide range of micro-climatic conditions, a volcanic origin would seem more likely than Haantjens' theory of a zonal soil. Furthermore, it may account for the continued productivity of Chimbu soils under intensive cultivation, with very little improvement except by fallowing assisted by Casuarina planting.

4.28 Other apparently fertile soils occur in the south on the lower slopes and outwash fans of the old volcanoes. These soils appear to have good humus levels derived from the heavier vegetation cover in this lower, wetter region but it is not yet known how rapidly they deteriorate under intensive cultivation. The present population is so thinly scattered here that land can be cropped once or twice and left for extensive periods before being recultivated. However, with the growing demand for resettlement opportunities in this region it is crucial to understand the reaction of the soils to more intensive land use.

4.29 It is likely that soil structure alters more rapidly and soil nutrients are depleted more quickly under the climatic conditions in Karimui. Simpson took soil samples in several locations under various stages of cultivation, forest cover, thinned forest, and fertilised gardens (personal communication, November 1975). Analysis indicated that the soils from locations which had been fallowed after traditional cultivation or which were under coffee or cattle, were low in essential plant nutrients such as
phosphorous, potassium and calcium, but that the nutrient status of newly planted gardens was satisfactory. These results suggest that leaching is a problem to consider seriously in any plans for agricultural development of the area.

4.30 Soils formed from limestone, the rendzinas, are perhaps the most fertile in the northern sector, but may also have been enriched by ash deposits. The rendzinas are often shallow and interspersed with boulders, but are friable and well-drained, and invariably under close cultivation.

4.31 Soils found on mudstones tend to be thin, skeletal, poorly-drained and low in nutrients. Their agricultural potential is low. Much of the mudstone in Chimbu has been steeply tilted, with unstable slopes prone to frequent slipping and severe erosion. Thus any ash deposit on these surfaces is likely to have been lost, which may account more satisfactorily than Haantjens' classification for the absence of the rich brown clays on mudstones.

4.32 In the high regions of north Chimbu, smaller areas of alpine peat, lithosols and podsolised soils, with little or no agricultural potential, occur.

4.33 Haantjens found that in general the soils of the region are characterised by low to very low amounts of available phosphorous, although nowhere in the northern sector was nitrogen deficiency serious. The widespread practice in Chimbu of planting Casuarinas probably contributes to the favourable nitrogen balance. The humus content of the topsoils was found to be generally high and to increase with increasing rainfall. It should be noted, however, that the CSIRO survey was largely made at elevations above 1500 m, and under the warmer temperatures at lower altitudes breakdown of organic matter is more rapid.

4.34 Overall, the quality of most Chimbu soils would appear to be satisfactory. The main problem in the northern sector is that of erosion, aggravated by the necessity to cultivate on steep slopes. Conservation measures are practised in places, but the widespread custom of allowing pigs to graze in old gardens often destroys more than the soil retention techniques conserve. It is
recommended that bodies such as councils and schools, as well as agricultural extension workers, combine their efforts to promote the wider use of soil conservation measures in the northern region.

4.35 In the southern region the main problem is ignorance. It is simply not known how soils in this climatic regime will respond to crops of various kinds under more intensive cultivation, which would be required if the region were to be developed for resettlement. It is recommended that soils in the Karimui-Bomai region be monitored at least twice yearly for a minimum of ten years under subsistence and potential cash crops and a range of cultivation/fallow patterns, to provide estimates of yields, soil depletion rates and other conditions. Such monitoring should be undertaken immediately, while the proposed road to Bomai is under construction and before any formal resettlement scheme is undertaken.

Vegetation

4.36 The original vegetation of virtually the entire province was forest, although little now remains in a wide swathe between 1500 m and 2500 m above sea level. In this zone, intensive settlement, cultivation and the use of fire have suppressed the former forest in all but remnant pockets.

4.37 Robbins (1970) and Saunders (1970) have described the forest zones which reflect the influence of increasing altitude, especially lower temperatures and greater cloud cover, in both structure and composition of the vegetation communities. Below 1000 m, 'a tall, structurally complex and floristically very mixed lowland rain forest' is characteristic. Such forest is extensive in the lightly settled region of southern Chimbu, although it is possible that much is no longer primary forest. Regeneration of cultivated clearings is more rapid in this warmer, wetter region, and the small population here means less interference with the process of regeneration. The lowland rain forest is a rich source of useful products, including fauna, but its inaccessibility prevents greater exploitation.

4.38 Between 1000 m and 3000 m above sea level the original vegetation was a two-tiered lower montane forest. Conifers and oaks (Castanopsis, Lithocarpus) are frequently...
dominant up to about 2400 m, but are then replaced by southern beech (*Nothofagus*). However, in the Bismarcks a mixed forest with no outstanding species is more typical. Little of the lower montane forest is now found in Chimbu within the limits of cultivation, below about 2500 m, except in isolated patches of difficult terrain, but forest continues from 2500 m to the tree line at about 3600 m. Within this zone, a transition to montane forest occurs around 3000 m. This single-layer forest is fairly low (10-12 m), twisted and moss-covered. Saunders (1970:125) points out that, although of no commercial interest, it has a valuable function as a protection forest. The montane forest is also an important hunting ground for birds and furred animals. It is certain that most remaining forest in northern Chimbu is degraded, and that in the closely-settled zone between 1500-2500 m, restoration of the forest cover is unlikely to occur.

4.39 Alpine scrub and alpine grassland extend above the tree line for perhaps a further 400 m. The only other naturally treeless areas are minor poorly-drained pockets which support *Phragmites* swamp, and several areas of montane grassland at about 3000 m between the Chimbu valley and the Asaro range. The largest of these are the Pompameiri and Kruagumpa grasslands. Robbins considers they may be a response to cold air drainage into the high valleys, and perhaps to the use of fire.

4.40 Where cultivation is possible the forest has now been replaced by gardens, garden regrowth, induced communities of grasses and shrubs, and deliberately planted useful trees. In Chimbu, the most conspicuous of the latter is the *Casuarina*. Brookfield and Brown report an awareness among the Chimbu of the *Casuarina*’s role in restoring soil fertility [by providing humus and fixing nitrogen] (1963:51). The practice of planting *Casuarina* in gardens near the end of a cultivation cycle has been deliberately promoted since pacification and is now widespread. *Casuarina* has been extensively planted in the lower lands between Kup and Mingende, an area which informants report was treeless only a decade ago. Other characteristics of the cultivation zone are elaborated in Chapters 5 and 9.

4.41 The traditional uses of the forest are numerous and continue, but people are now obliged to search more widely
for certain forest products. It appears that people from central Chimbu are increasingly trading with Bomai and Karimui people for these items, and also with neighbouring groups beyond the province in the Jimi and Bundi regions.

4.42 Forest resources on a scale suitable for commercial exploitation occur in the south where the most extensive species is *Araucaria*, along the southern flanks of the Kubor mountains, and in the high country between the Chimbu river and the Eastern Highlands, the Marafunga area. All these regions lack roads which would permit utilisation of the forests. Although developmental roads through Marafunga to Asaro, and from Karimui to Lufa have been under consideration for some time, and have even been built in sections, neither route seems likely to be completed for some years.

4.43 In places, more commercial small-scale use of timber resources is feasible, based on portable sawmills and portable systems of wood preservation. These might be operated by local government councils and vocational schools. No timber treatment plant has been installed in Chimbu, but given the shortage of accessible timber resources and the high cost of imported building materials, it is recommended that regions where forest depletion has been almost total, as in the central Chimbu valley and Sinasina, be assisted to acquire wood treatment plants to extend the life of timber used for housing and other rural purposes such as schools and aid posts (Department of Forests, 1974; Levy, 1975).

4.44 The Forestry Department in Chimbu is staffed by one officer, three assistants who maintain nurseries at Kundiawa, Kerowagi and Chuave, and some labourers. The nurseries raise seedlings of *Pinus patula*, *Eucalyptus robusta* and *E. seligna*, and *Casuarina oligodon*, for free distribution to villagers on request. The Forestry officer reports that although many villagers want seedlings for commercial projects, the intention of the tree distribution programme is to establish woodlots for village housing and firewood. It is also hoped to encourage schools to establish woodlots for their firewood needs. Little extension work is done by Forestry in the matter of erosion control, particularly in such hazard areas as watersheds and landslip-prone slopes, although the Department has reforested margins of the Highlands Highway, which are
subject to landslides, for the Public Works Department.

4.45 We consider that the Forestry Department should play a vital role in landscape protection and resource utilisation in the province. Until road construction permits the utilisation of forested regions for commercial purposes, the Forestry Department in Chimbu should concentrate its efforts on extension work to improve conditions in rural communities by protecting the environment, making more effective use of a scarce resource, promoting the cultivation of useful trees, and spreading awareness of the importance of tree culture.

4.46 In order to carry out its programme, Forestry and Agriculture should improve co-ordination of their programmes. The Forestry Department is at present grossly understaffed for a province such as Chimbu.

4.47 We recommend that Chimbu be allocated more trained forestry officers, in particular for Gumine and Gembogl Districts. We recommend that an intensive campaign be mounted, in liaison with the agricultural officers, to undertake erosion control, reforestation, and the promotion of useful trees for timber, and products such as fruit and nuts. It is further recommended that Forestry be assisted to carry out a campaign to educate and inform rural people of the environmental problems associated with deforestation, and of the economic and nutritional opportunities associated with tree planting.
Chapter 5

People and land

5.1 The most serious problem faced by the majority of Chimbu is a shortage of land. This shortage is both absolute, in that land of any kind is scarce in the north, and specific, in terms of land suitable for the cultivation of both subsistence and cash crops. Land shortage is not a new problem. Although recognised soon after colonial contact, the scarcity of land has long affected the development of northern Chimbu society and its institutions.

5.2 The relationship between people and land has many dimensions, historical, symbolic, legal, economic and ecological, all of which imply different meanings and evaluations. We are concerned in this chapter with land as the prime factor in the livelihood of most Chimbu people, that is, with land as the major resource on which the Chimbu depend and from which they derive food and other materials for subsistence and both traditional and modern exchange. We describe the distribution of land at the level of census divisions, the articulation of land and people through settlement patterns, the allocation of land through customary tenure, the tenure of the small proportion of land alienated during the colonial period and the question of resettlement. Our focus on land as a resource, while specific, accords with our terms of reference. In no way does it imply that Chimbu regard or use land as a mere commodity.

Population distribution and density

5.3 As described in Chapter 4, Chimbu Province can be divided broadly into two distinct parts: a rugged, heavily populated, northern half extending from Mt Wilhelm to the southern borders of the Marigl, Salt and Elimbari census divisions, and a lower, southern half which includes one census division of medium population density (Nomane), and five very lightly populated divisions (Bomai, Karimui, Daribi, Pio and Tura). In the north nearly 50 per cent of the land
is higher than 2000 m and less than three per cent is lower than 1200 m. These proportions are reversed in the south (Table 5.1).

### Table 5.1
Altitudinal zonation in north and south Chimbu

<table>
<thead>
<tr>
<th>Altitude zones (m)</th>
<th>North Chimbu</th>
<th>South Chimbu</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area (km²)</td>
<td>Per cent</td>
</tr>
<tr>
<td>&gt;2400</td>
<td>781</td>
<td>27.3</td>
</tr>
<tr>
<td>2000-2400</td>
<td>611</td>
<td>21.3</td>
</tr>
<tr>
<td>1600-2000</td>
<td>944</td>
<td>33.0</td>
</tr>
<tr>
<td>1200-1600</td>
<td>451</td>
<td>15.8</td>
</tr>
<tr>
<td>&lt;1200</td>
<td>75</td>
<td>2.6</td>
</tr>
</tbody>
</table>

**Source:** Table 4.1.

5.4 Although the two parts of Chimbu are approximately equal in area, 94 per cent of the population lives in the north, whereas the south supports only six per cent. Population density in the north (61 persons per km²) is 15 times higher than that in the south (four persons per km²). Besides this major contrast between north and south, there are marked differences in the population densities of the census divisions within each region (Map 5.1). In the 14 northern census divisions, density ranges from 39 persons per km² in Marigl to nearly 140 in Sinasina (Table 5.2). In the south, Pio and Tura are almost unoccupied with more than two km² of land per person, while Nomane, with 17 persons per km², is a transitional area between the northern and southern ranges of density.

5.5 These figures highlight the extent to which any land, irrespective of quality, is scarce for the majority of Chimbu who live in the north of the province: in the north there are less than two hectares of any land per person. This can

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1 DDA Census, 1971-72. This includes absentees.
<table>
<thead>
<tr>
<th>Census Division</th>
<th>Total population (1971-72)</th>
<th>Total area (km²)</th>
<th>Area below 2400 m (km²)</th>
<th>Crude population density below 2400 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waiye</td>
<td>12 158</td>
<td>92</td>
<td>92</td>
<td>132</td>
</tr>
<tr>
<td>Dom</td>
<td>7 443</td>
<td>63</td>
<td>60</td>
<td>118</td>
</tr>
<tr>
<td>Yonggamugl</td>
<td>10 568</td>
<td>118</td>
<td>76</td>
<td>90</td>
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<tr>
<td>KUNDIWA</td>
<td>30 169</td>
<td>273</td>
<td>228</td>
<td>111</td>
</tr>
<tr>
<td>Sinasina</td>
<td>17 354</td>
<td>126</td>
<td>122</td>
<td>138</td>
</tr>
<tr>
<td>Gunanggi</td>
<td>8 018</td>
<td>87</td>
<td>82</td>
<td>92</td>
</tr>
<tr>
<td>SINASINA</td>
<td>25 372</td>
<td>213</td>
<td>204</td>
<td>119</td>
</tr>
<tr>
<td>Nomane</td>
<td>4 656</td>
<td>281</td>
<td>277</td>
<td>17</td>
</tr>
<tr>
<td>Salt</td>
<td>10 733</td>
<td>203</td>
<td>196</td>
<td>53</td>
</tr>
<tr>
<td>Marigl</td>
<td>15 941</td>
<td>411</td>
<td>373</td>
<td>39</td>
</tr>
<tr>
<td>Wikauma</td>
<td>9 311</td>
<td>184</td>
<td>78</td>
<td>51</td>
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<tr>
<td>GUMINE</td>
<td>40 641</td>
<td>1 079</td>
<td>922</td>
<td>38</td>
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<tr>
<td>Kup</td>
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<td>241</td>
<td>147</td>
<td>40</td>
</tr>
<tr>
<td>West Koronigl</td>
<td>10 384</td>
<td>122</td>
<td>87</td>
<td>85</td>
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<tr>
<td>East Koronigl</td>
<td>11 904</td>
<td>253</td>
<td>142</td>
<td>47</td>
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<tr>
<td>KEROWAGI</td>
<td>31 973</td>
<td>616</td>
<td>376</td>
<td>52</td>
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<tr>
<td>Niglkande</td>
<td>8 221</td>
<td>88</td>
<td>40</td>
<td>93</td>
</tr>
<tr>
<td>Mitnande</td>
<td>14 149</td>
<td>286</td>
<td>49</td>
<td>50</td>
</tr>
<tr>
<td>GEMBOGL</td>
<td>22 370</td>
<td>374</td>
<td>89</td>
<td>60</td>
</tr>
<tr>
<td>Chuave</td>
<td>9 382</td>
<td>202</td>
<td>167</td>
<td>47</td>
</tr>
<tr>
<td>Nambaiyufa</td>
<td>8 095</td>
<td>145</td>
<td>138</td>
<td>56</td>
</tr>
<tr>
<td>Elimbari</td>
<td>11 834</td>
<td>241</td>
<td>234</td>
<td>49</td>
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<tr>
<td>CHUAVE</td>
<td>29 311</td>
<td>588</td>
<td>539</td>
<td>50</td>
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<tr>
<td>Karimui</td>
<td>3 379</td>
<td>390</td>
<td>390</td>
<td>9</td>
</tr>
<tr>
<td>Tura</td>
<td>97</td>
<td>771</td>
<td>769</td>
<td>-</td>
</tr>
<tr>
<td>Pio</td>
<td>189</td>
<td>649</td>
<td>649</td>
<td>-</td>
</tr>
<tr>
<td>Daribi</td>
<td>2 965</td>
<td>504</td>
<td>504</td>
<td>6</td>
</tr>
<tr>
<td>Bomai</td>
<td>959</td>
<td>422</td>
<td>422</td>
<td>2</td>
</tr>
<tr>
<td>BOMAI-KARIMUI</td>
<td>7 589</td>
<td>2 736</td>
<td>2 734</td>
<td>3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>187 425</td>
<td>5 879</td>
<td>5 092</td>
<td>32</td>
</tr>
</tbody>
</table>
be compared with the estimated four hectares of arable land necessary to provide a family with a reasonable cash income from agriculture (Howlett, 1973:121).

5.6 These crude population figures however measure only the ratio of population to total area of land, taking no account of factors such as altitude, terrain, soil quality or tenure. While revealing, they therefore provide only an approximate picture of the availability of land suitable for cultivation within each census division.

5.7 A more accurate representation of the relative availability of cultivable land is obtained by excluding all land over 2400 m (Table 5.2, Map 5.2). While some cultivation at greater altitudes does occur, most importantly in the upper Chimbu valley, it is not general. Crops which can be grown above this limit mature far more slowly than at lower altitudes. On land under 2400 m, the overall population density in northern Chimbu rises to 84 persons per km², with density in individual census divisions ranging from 43 to 289. Most significantly, several census divisions with medium-range crude population densities (i.e., on total land area) such as Niglkande and Mitnande, emerge as extremely disadvantaged. Similar results were obtained by two studies made in the early 1960s, of the availability of agricultural land in selected parts of the province.

5.8 Brookfield and Brown (1963) surveyed 26 groups at a much lower level than census divisions in the Gembogl, Kundiawa and Kerowagi Districts, finding crude population densities ranging from 33 to 162 persons per km² (1963:122, Table 10). These densities were then taken as percentages of the calculated maximum number of people each group territory could support, at the present level of agronomic technology, to give a 'density of occupation' index showing how closely 'different groups approach their calculated maximum density' (1963:119). Their index is therefore a far more sensitive indicator of pressure upon agricultural land than either crude density or the approximate figure used here of land under 2400 m. Within the area surveyed, their admittedly 'reconnaissance estimate' (1963:121) found that most groups in the upper and middle Chimbu valley

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2 Using extensive information on the different land types available, the length of time each is cultivated, and the amount of cultivated land needed to support a person.
POPULATION DENSITY BELOW 2400 M

Persons per km²

- 200-300
- 120
- 90
- 60
- 30
- 0

Map 5.2
(i.e. in Mitnande and Niglkande census divisions) were short of land, while pressure was significantly less among groups along the Wahgi to the west (1963:72, Map 6 and p.122, Table 10).

5.9 The second survey, using additional data and some of the same criteria, but including a wider area of the province, was made by the then Department of Agriculture, Stock and Fisheries (DASF 1967). Densities on cultivable land were found to range from 54 persons per km² in the Nauru, Endugwa, and Bandi communities in Waiye and Dom census divisions, to 183 in the Gumine, Mul and Dirima communities in the Marigl division. ³

5.10 Although these two studies disagree somewhat concerning which groups in particular are subject to the most acute shortage, these differences are probably to be accounted for by different boundary definition. In terms of the purposes of the present study, they confirm the overall range in densities while suggesting that the extremely high figures for Mitnande and Niglkande on land under 2400 m should be interpreted cautiously in terms of cultivable land. They do nevertheless highlight the great lack of land suitable for coffee in these two divisions.

5.11 A further major constraint upon Chimbu agriculture is terrain. Reference to Table 4.2 (p.77) shows that with the exception of West Koronigl, the amount of flat terrain in all northern census divisions is negligible. Waiye, Sinasina, and the two Koronigls have the least hostile terrain in the north, with Dom and Kup occupying an intermediate position with high percentages of 'hilly' but less 'barrier' terrain than the remaining northern census divisions. The southern census divisions are characteristically far less rugged.

Settlement patterns

5.12 Despite a wide range of local variation, there are three major forms of rural Chimbu settlement pattern, each distinctive to a region within the province. Certain common

³These densities have been recalculated using more recent population figures (1971-74) given in Smith's update of the original study (Smith, 1975).
features are shared by all three types. Everywhere the living quarters of men and women are segregated, either in separate and distinctive types of houses in the north, or in different storeys or sections within the same house in the south. Insofar as houses are constructed of 'bush' materials with a limited life span, and their location is related to major garden sites, all three forms show marked cyclical changes through time, varying between relative nucleation and dispersal.

5.13 East of the Chimbu river in the north the predominant village form usually consists of an agglomeration of several hamlets. For example, a typical Nambaiyufa village 'stretches some 500 yards along the ridge, and contains three, or probably four 'men's houses' and a 'street of about fifty low walled huts where the women and children sleep ... Two miles away along the same ridge is the nearest village, while two miles away on parallel ridges are other villages' (Salisbury, 1962:11-12). Pig houses are scattered outside each village near gardens. During the period between the triennial pig festivals, an increasing number of people sleep in these dispersed houses. For the festival, all village houses are rebuilt and the trend of dispersal is reversed.

5.14 West of the Chimbu river, settlement is dispersed in formless house clusters in the periods between pig festivals. During the culminating year of the festival, large temporary ceremonial 'villages' are built, dominated by a series of long low shelters surrounding a central ceremonial ground (Brown and Brookfield, 1967).

5.15 In the sparsely populated south in the Karimui-Bomai area, Daribi clans of 60-80 people occasionally live together as a single unit in two-storey long houses, the top storey occupied by the men. As gardens are moved further away from this central house smaller groups or individual families gradually disperse into smaller, single-storeyed houses divided internally into separate quarters for men and women (Wagner, 1967:18-24).

5.16 During the colonial period important changes affected all Chimbu settlements. Some resulted from the relaxation of previous restraints, such as the need for defensive positions during warfare, some from the imposition of new forces. Locational advantages in particular have changed with the siting of such new facilities as schools, aidposts
and roads. Direct and indirect government and mission pressures have influenced the siting of settlements, house styles, and the disposal of sewage and other waste materials. Such influence has ranged from early attempts in the 1940s to persuade people in the north to live apart from their pigs, to complete departures from the past such as rows of plank-walled houses in the Karimui-Bomai area (Wagner, 1967:23-4). In recent years, councils have passed a number of rules concerning settlements though their regulatory attempts have been sporadic, often incompatible with the cyclical demands of pig husbandry and agriculture, and rarely successful.

5.17 The most general trends appear to be toward more permanently occupied settlement sites, and, with the growing use of nails, roofing iron and other non-traditional materials, more permanent houses. These have important implications for the future. If haphazard agglomerations of shanties are to be avoided, attention could be usefully given now to establishing priorities for settlement improvement. Aspects which might be considered include the following: water supplies, sewage and other waste disposal and use, basic settlement plans (including minimum house-to-house distance recommendations to reduce fire risk, and provision for tenure complications), basic house designs, and facilities for treating timber and pitpit 'blind' for longer life. Taking a longterm view, co-ordination with forestry officers should be sought since permanent settlements entirely dependent on firewood to meet energy costs of cooking and heating will probably need to regulate planting and exploitation of timber at the community rather than the individual level as at present (Makhijani, 1975).

Land tenure

5.18 Land in Chimbu is held either under customary tenure, or, as a result of alienation, under leasehold from the government. A third form of tenure, individual title following conversion from customary tenure, affects only four holdings with a total area of less than 100 ha. Over 99 per cent of Chimbu land remains, and probably will continue to do so for many years, under a variety of forms of customary tenure.
Customary tenure

5.19 A considerable amount of information is available on Chimbu customary tenures.\(^4\) Although invaluable for understanding the general principles involved, certain limitations of this body of knowledge need to be pointed out. Firstly, it is drawn from a restricted number of locations in the province. Secondly, it was usually collected as part of other research by persons without fluency in Chimbu languages. Finally, much of it refers to conditions during the 1960s, if not earlier. This latter point is particularly important since, contrary to common understanding, customary tenure does not mean a fixed or unchanging tenure system. There is much reason to believe that, like other aspects of Chimbu culture, customary tenure is constantly adapting to changed circumstances. These limitations affecting our current knowledge of Chimbu tenure are raised, not in order to question the value of that information, but in order to warn against its uncritical use under present circumstances (and, hopefully, to encourage more analysis of the current situation by Chimbu and other Papua New Guineans working within the province).

5.20 Despite important variations between parts of the province, several general characteristics of customary tenure stand out. They were, and largely still are, unrecorded. Claims are dependent upon the extent of people's memories, certain visible but impermanent marks on the ground, and the ability of the claimant and his heirs to maintain them. In the long term, claims were therefore subject to change, which had the advantage of allowing flexibility under pre-colonial conditions of warfare and demographic fluctuations. Genealogies were short, and rights could be acquired by means other than normal patrilineal inheritance. More than a quarter of the land claimed by a small group of men in the upper Chimbu valley studied by Criper in the early 1960s had not been inherited, much of it coming from their wives' relatives (Criper, 1967:73).

5.21 The flexibility of customary tenure continues to operate. In that it achieves the distribution of land among people without rigidly exclusive rules, and does not require specialised administrators or costly procedures, it has many advantages. It also has disadvantages. Uncertainty is built into the system. Boundary marks disappear during long fallow, and claims may lapse when not activated regularly. In the final analysis responsibility for maintaining and securing rights to land is vested in individual men. Uncertainty combines with land shortage to provide the opportunity for disagreement. While most disagreement is contained at low levels in the hierarchy of social groups and leads sooner or later to compromise between the two parties, some cases are vigorously disputed resulting in escalation to formal litigation or open violence (see para. 5.37 ff). Flexibility is therefore an integral part of the system of land tenure. Stability, permanence and enduring family estates in land are not part of the traditional heritage in which the major characteristics were fluidity, tension, and pressure on individuals in each generation to make what they could of changing circumstances.

5.22 The most characteristic feature of Papua New Guinean tenures is that of group or communal rights to land. Statements such as 'Most of the land ... is owned by the clans' (Gunton, 1974:107) are often made, and equally often misunderstood. Especially in northern Chimbu, clans or other groups do not 'own' land in the full sense of the term. In many cases if a clansman wishes to transfer a plot of land to a member of another clan he can do so without first securing the agreement of all fellow clansmen. No general concept of clan or group ownership is therefore applicable, for in such cases the specific rights of individuals to certain areas outweigh the rights of the groups to which they belong. Nevertheless groups do hold certain rights over land, varying in different regions of the province, and according to the type of land, its use and other factors. The existence of some group rights over and above those of individuals can be assumed in all cases, but their exact nature and extent need to be determined by careful investigation in each individual situation.

5.23 The major difference between the densely populated north and other less heavily populated parts of the province lies in the extent to which rights of control and transfer are vested in individuals, which means in the great majority of cases, men. In the north, such individual rights to
arable land are of major importance, and include the power to transfer rights both within and outside lower-level groups (Brown and Brookfield, 1959:23; Cripere, 1967:79). They are less important in the east (Siane), where the rights of an individual over land '... are those of a trustee momentarily exercising control ... [while] the absolute title ... is vested in a corporation which exists perpetually' (Salisbury, 1962:66).

5.24 In the Karimui area individual rights are insignificant for 'land is always treated as the property of the clan as a whole, and any decisions or transactions which may be made regarding it must be made by the clan as a body ... there is no individual land ownership, nor do the component zibi [or groups of brothers] of a clan have any separate rights' (Wagner, 1967:25). The Karimui system is 'predicated upon minimal ties with the land; there is ample land available for all, and therefore its control and distribution pose no major concern for society' (Wagner, 1967:23). Unlike the north, there is no 'struggle for land' at Karimui.

5.25 This generalisation of a relationship between population density and the extent of individual rights needs some qualification. In Karimui and Siane, as in northern Chimbu, individuals hold full rights to their current cultivation, even though the land itself may be held by others. Secondly, not all the land in the north is divided among individual claimants - forest, cemeteries, some men's house sites, and sections within ceremonial grounds are claimed by small groups such as subclans. Arable land is however divided among individuals.

**Fragmentation**

5.26 At the lowest level, land rights in the north are held by individual men, and, in the rare instance, women. At this level the fragmentation of holdings is marked - that is, the holding of any one individual is divided into several plots or parcels of land often separated by considerable distances and usually distributed across a wide range of altitudes and soil types. The extent of fragmentation in two locations in the densely populated north is shown clearly in Table 5.3. The average complete holding in these two areas was only just over 1.5 ha, each of which was subdivided into five to ten or more parcels, with the latter only averaging approximately one quarter of a hectare. Since fragmentation is related to soil quality and use, the best
Table 5.3  
Land holding and use in two Chimbu locations

<table>
<thead>
<tr>
<th></th>
<th>Womkama Upper Chimbu</th>
<th>Mintima Central Chimbu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of landholders</td>
<td>12</td>
<td>17</td>
</tr>
<tr>
<td>Total number of persons(^a)</td>
<td>44</td>
<td>68</td>
</tr>
<tr>
<td>Total area of land (ha)</td>
<td>19.55</td>
<td>29.78</td>
</tr>
<tr>
<td>Total number of plots</td>
<td>93</td>
<td>105</td>
</tr>
<tr>
<td>Average area of land/person (ha)</td>
<td>0.444</td>
<td>0.438</td>
</tr>
<tr>
<td>Average area of land/landholder (ha)</td>
<td>1.627</td>
<td>1.752</td>
</tr>
<tr>
<td>Average number of plots/landholder</td>
<td>7.8</td>
<td>6.2</td>
</tr>
<tr>
<td>Average area of plot (ha)</td>
<td>0.210</td>
<td>0.283</td>
</tr>
<tr>
<td>Average number of plots cultivated/landholder</td>
<td>6</td>
<td>no data</td>
</tr>
<tr>
<td>Average area of land cultivated/person (ha)(^b)</td>
<td>0.235</td>
<td>0.130</td>
</tr>
<tr>
<td>Area of fallow as per cent of total land</td>
<td>54</td>
<td>70</td>
</tr>
</tbody>
</table>

\(^a\) Includes absentees.

\(^b\) Includes pandanus (both locations) and coffee (Mintima only). The higher Womkama figure is probably due to Criper's inclusion of old gardens in his definition of cultivated land (1967:57). Brown and Brookfield give a lower figure of 0.093 ha/food crops only/person, for a larger sample of 93 landholders (1959:26, 29, 31), but Brookfield has recently corrected this figure (for an estimated total population of 870), upwards to 0.18 ha/food crops/person and 0.01 ha/coffee/person (Brookfield, 1973:Table 6.4, p.156). During a nine year period following the original survey (in 1958), Brookfield reports an unchanged area per person under food crops (though the proportions under different food crops changes), but an increase to 0.06 ha/coffee/person by 1967, thus giving a total cultivated area of 0.24 ha/person.

Mintima: Brown and Brookfield, 1959:30, Table 8.
arable land is more subdivided than the lesser-used land (Brookfield and Brown, 1963:103).

5.27 Fragmentation and dispersal also characterise land use. At any one time a household is working a number of plots, usually ranging from five to ten, each at different stages of cultivation. Although the majority of such gardens are on land claimed by the head of a household, he is by no means completely restricted to such personal land. Evidence from both the Chimbu valley and Sinasina shows that as much as one-quarter to one-third of a household's current cultivation may be on others' land (Criper, 1967:75, 77; and Table 5.4), and these borrowed plots are usually scattered in the form of small demarcated sections (giu in the Kuman language, ginibe in Sinasina) in the gardens of others. Temporary rights to cultivate are constantly granted to relatives, neighbours and friends who usually join with the landholder to assist in clearing and fencing the land. While some of these loans may last only for the duration of a single cultivation cycle, some plots permanently change hands thus providing a means of reallocation of land outside the normal pattern of inheritance (Brown and Brookfield, 1959:27-9).

5.28 In terms of traditional goals, dispersed land parcels were probably advantageous in affording each landholder access to most of the variety of ecological zones necessary for the cultivation of both staple and special crops. Further, in the case of war, fragmentation may have facilitated mobilisation for defence in that a threat to any part of a group's territory automatically affected the interests of a considerable number of landholders. The dispersal of cultivation, as distinct from holdings, may also have reduced the risk of losing one's entire subsistence base following localised crop failure or destruction resulting from factors such as climatic severity, pest infestations, and pig or war damage.

5.29 In the case of true shifting cultivation, as practised for instance in the Karimui-Bomai area, the dangers of monoculture are avoided by following a mixed-crop strategy, by replacing the structure of the forest vegetation removed in clearing with a structurally similar array of cultigens, and by interspersing gardens among primary and secondary growth.
Table 5.4

Tenure status of currently cultivated food crop gardens  
(Sinasina, 1972)

<table>
<thead>
<tr>
<th>Land belonging to member of</th>
<th>Garden plots of 67 women</th>
<th>Area cultivated by 9 women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of plots</td>
<td>Per cent</td>
</tr>
<tr>
<td>Own/extended family</td>
<td>255</td>
<td>65.4</td>
</tr>
<tr>
<td>Husband's clan</td>
<td>66</td>
<td>16.9</td>
</tr>
<tr>
<td>Husband's tribe</td>
<td>23</td>
<td>5.9</td>
</tr>
<tr>
<td>Other tribe</td>
<td>46</td>
<td>11.8</td>
</tr>
<tr>
<td>TOTAL</td>
<td>390</td>
<td>100.0</td>
</tr>
</tbody>
</table>


5.30 Northern Chimbu sweet potato cultivation is a monoculture, but unlike modern cereal monocultures it lacks the vast supporting resources of chemical fertilisers, herbicides and pesticides, and other technical services which make such agriculture possible. The dispersal of each family's cultivation may thus provide northern Chimbu with a means of avoiding the very real dangers of putting all their eggs in one basket. In addition, the practice also increases co-operation and interdependence between households.

5.31 Fragmentation and dispersal of land and cultivation are obvious hallmarks of the subsistence orientation of pre-colonial, and to a large extent, contemporary Chimbu production. Equal access and defence needs are advantages defined primarily by traditional goals. Risk minimisation and increased sociability and work-sharing are probably no less advantageous today than in earlier times, particularly when large numbers of active men are unavailable for agricultural work at home due to labour migration. To what extent then do land fragmentation and dispersal constitute problems for the present and future Chimbu economy and society?
5.32 From the perspective of individual Chimbu families, committed to both winning subsistence and participating in the full range of social and ceremonial culture, the answer is a qualified 'not much'. From the point of view of the 'outsider' wishing to see an increase in agricultural productivity, the answer is 'considerable, if not insurmountable'. In the latter view, all the major characteristics of the existing system, minute holdings, sporadic labour inputs, long house-to-garden distances and thus major proportions of available labour time spent in travel and transport, combine to reduce the possibility of achieving increased production. To the extent that this goal is not shared by Chimbu, the less they perceive the internal structure of their land tenure and use system as a problem requiring solution.

5.33 This is not to imply that Chimbu do not want higher incomes. They do. Nor that the relationships between work input and returns to labour are not understood. They are. What is implied is that Chimbu would prefer to achieve, and probably believe they can achieve, sustained increases in production within the existing framework of work organisation, and resource allocation and management. At present, most crucial decisions in these areas - which land to clear, when to plant, how much to plant, how to dispose of the produce - are made by individuals with responsibility first and foremost for themselves and their families. These decisions are not of course made in complete isolation from those of others. Wider obligations constrain everyone, and some decisions - for instance, when to begin preparations for a pig festival - are subject to consensus formation. The fact that responsibility for resource decisions concerning family subsistence is vested primarily in individuals implies that any radical alteration of the existing pattern of land holdings and use could be achieved only under special conditions, in brief, either through coercion, or through mass politicisation and agreement upon fundamentally new goals.

Consolidation

5.34 A further point should be considered. Even if consolidation could be achieved, would it be worthwhile? Would it yield significant enough economic benefits to offset the very major social costs it implies? It is important to distinguish between complete and partial consolidation, the former meaning the rearrangement of all
holdings and plots within a defined social or territorial unit. As regards complete consolidation the experience of the Kikuyu in Kenya should be borne in mind:

Except for the abolition of litigation, the basic features of the pre-consolidation land problems of the Kikuyu country were not fundamentally altered by consolidation. The great majority of the people remain dependent on subsistence agriculture, assisted where possible by the earnings of migrant labour... The mere consolidation of fragments made no difference to the basic fact that there was insufficient land... for the existing population, most of whom were rightholders, or their dependents... The real reason for the failure of consolidation, farm planning and cash cropping to lead to an agrarian revolution was that consolidation and registration consolidated the position of nearly all the landowners and there were too many of them to obtain more than a subsistence living from the land available (Sorrenson, 1967:228, 234, 236).

5.35 The lesson seems clear. Given existing land shortage, wholesale consolidation cannot alter the fundamental equation of inadequate resources supporting too many people. Under such circumstances it would only be worthwhile as part of a massive program including major resettlement and industrialisation, both aimed at moving some people off the land in question and thus allowing consolidation of economic-sized land holdings, rather than subsistence units, for those remaining on the land.

5.36 Partial consolidation might be attempted as an alternative to some present arrangements, particularly in the case of coffee land. In strictly economic terms, coffee holdings are of most importance to Chimbu (with suitable land) for providing cash funds. Several surveys have shown that the coffee gardens are generally minute, fragmented, and receive little maintenance. Yields appear to be low (though information on this vital aspect is almost totally lacking), and available evidence suggests that these pocket-sized plots are everywhere worked by individual families (Table 5.5). Due to considerable diseconomies, they appear to be extremely labour intensive. There is therefore possible scope for small groups of individuals to consolidate their coffee holdings, with the assistance of agricultural
### Table 5.5

**Coffee holdings: some comparative Chimbu figures**

<table>
<thead>
<tr>
<th>Census Division</th>
<th>Group</th>
<th>Date</th>
<th>Sample size</th>
<th>Area under coffee (ha)</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Households</td>
<td>Persons</td>
<td></td>
</tr>
<tr>
<td>Sinasina</td>
<td>Kere</td>
<td>1965</td>
<td>10</td>
<td>43</td>
<td>0.0308</td>
</tr>
<tr>
<td></td>
<td>Gunanggi</td>
<td>1969</td>
<td>64</td>
<td>307</td>
<td>0.0152</td>
</tr>
<tr>
<td></td>
<td>Nimai</td>
<td>1972</td>
<td>67</td>
<td>289</td>
<td>0.0235</td>
</tr>
<tr>
<td>Waiye</td>
<td>Naregu</td>
<td>1967</td>
<td>-</td>
<td>c.1000</td>
<td>0.0600</td>
</tr>
</tbody>
</table>

|                 |       |      | Total       | Per h'hold        | Per person |
| Sinasina        | Kere  | 1965 | 1.3248      | 0.1325            | 0.0308     |
| Gunanggi        | Gunanggi | 1969 | 4.6811      | 0.0731            | 0.0152     |
| Sinasina        | Nimai | 1972 | 6.7887      | 0.1013            | 0.0235     |
| Waiye           | Naregu | 1967 | -           | -                  | -          |

**Sources:**
Hughes, 1966:Appendix 8 (a and b), Kere.
Hatanaka, 1972:93, Gunanggi.
Hide, 1975:8, Nimai.
Brookfield, 1973:156, Table 6.4, Naregu.
advisers, in order to establish larger block(s) capable of being worked more efficiently as single units. Such partial consolidation, it must be stressed, would still require major social and economic reorganisation, in particular the surrender of individual responsibility, which would not easily be sustained. It would also require careful preliminary research, for it might well be that the few hectares which a group of 100 or so persons could consolidate would simply not provide sufficient increased income to cover the necessary costs of labour supervision and financial management.

**Land disputes**

5.37 The frequency and intensity of disputes over land in Chimbu are widely known and well documented (Orken, 1974; Nilles, 1974; Standish, 1974). It must be stressed that such disputes do not account for all fights and other acts of hostility: land should be seen as only one among a number of factors causing open violence (Paney et al., 1973; Kambu et al., 1974; Kerpi, 1976).

5.38 Land disputes are an inseparable part of the system of land holding and use and are not merely responses to recent events. Claims to land can conflict at all levels of the hierarchy of social groups, from individuals as closely related as brothers up to neighbouring tribes. It is necessary to distinguish between minor disputes which generally arise between closely related claimants, are unlikely to involve wider groups of supporting kinsmen, and can usually be settled satisfactorily without recourse to either violence or to formal government arbitration or judicial procedures; and major disputes between groups such as clans or tribes. The latter are often not single 'events', but are part of longstanding intergroup political relationships and are marked by the ease with which they can explode into violent confrontation. As Nilles (1974:136) has noted, these latter cases are the ones which present administrative problems 'because there are no established traditional means of dealing with [them] ... in a peaceful way'. Throughout the colonial period numerous attempts were made to resolve such major disputes, and to establish an administrative mechanism for preventing their escalation. Neither aim was achieved (Hide, 1973).

5.39 In 1973, the Commission of Inquiry into Land Matters
(CILM) recommended the abolition of the existing dispute settlement structure (CILM, 1973:114) and a new national structure, based upon CILM recommendations, was established by the Land Disputes Settlement Act 1975. By late 1975, the new Act had not been implemented in Chimbu beyond the initial steps, in contrast to the Eastern and Western Highlands Provinces where considerable official action had been taken. The policy in Chimbu was said to be deliberately 'low keyed'. A Provincial Land Disputes Committee had been formed, and nine land court magistrates were appointed in August 1975. Two Chimbu Mediators, nominated by the Area Authority, were not appointed until November. No further action under the Act was taken during 1975, although a short training session for Mediators and Land Court Magistrates was planned for late January 1976.

5.40 The implications of these early moves to implementation should be considered. Although the Act allows for the declaration of Land Mediation Areas within a province, and Land Mediation Divisions within such Areas, in Chimbu the Dispute Committee declared the whole province as both one Area and one Division on the grounds that it was compact and all parts were easily accessible. Since no Division may have more than three Mediators, the decision to declare Chimbu Province a Division strictly limited the number who might be permanently appointed to the post of Mediator. Although this decision appears to contradict the CILM's explicit intention that 'There should be a panel of Mediators in each council area, and Mediators chosen for each ward' (CILM, 1973:115; emphasis added) it was based upon experience with the earlier Demarcation Committees. In Chimbu these were usually organised at the council and ward levels, and had very large numbers of members. Moreover, the members expected stipends for their services, a demand which neither the Land Titles Commission nor the councils could afford to meet. The Chimbu Disputes Committee was therefore attempting to avoid some of the problems that beset the earlier demarcation process.

5By December 1975, the Western Highlands Province had appointed nine Mediators and planned for six more. In the Southern Highlands, the province was treated as a single Area, though with several Divisions. No Mediators however had been appointed and plans were to make ad hoc appointments as disputes arose. This decision was apparently due to the very large number of village courts (59 in one district).
5.41 The fact that Chimbu has decided upon an extremely centralised dispute settlement structure raises the question as to whether it will be able to achieve what the Act intended: a prompt and conveniently low-level or informal means of dispute settlement. Can two Mediators alone handle efficiently the disputes arising from a population as large and contentious as that of Chimbu? Given that land disputes require notoriously lengthy hearings, and that mediation, (by its very nature a drawn-out process) rather than judicial decision-making, is intended, it is doubtful that they can. Much however will depend on the category of disputes with which the Mediators are expected to deal.

5.42 If the Mediators are drawn into the many thousands of low-level disputes which are a constant feature of Chimbu daily life, a backlog of unresolved disputes may be expected to accumulate rapidly, as under the Land Titles Commission. With only two Mediators available, and therefore unavailable directly and immediately to the majority of Chimbu, the channels of referral presumably through district or sub-district offices and from there to Kundiawa, will however undoubtedly tend to eliminate some cases. If this does occur, only the more serious disputes will reach the Mediators while the others will be settled by less official means.

5.43 **Land tenure conversion.** In the light of the CILM's recommendation that this form of title be abolished, it is fortunate that very little use was made of the legislation in Chimbu. Only four blocks were converted, all during 1973. Significantly, two were converted by leading Chimbu politicians, one by a leading entrepreneur, and the last by a woman married to a European. Details of the holdings are given in Table 5.6.

5.44 **Alienated rural land.** By comparison with other parts of the country, very little land in Chimbu has been alienated by the government (Table 5.7; this includes urban land, the administration of which is discussed separately in Chapter 10). The amount alienated according to OPAC (1973:Table 4.1) of 2061 ha or only 0.3 per cent of the total land area of the province, does not however include land occupied by roads, nor many of the small plots for aidposts and other
## Table 5.6

**Holdings converted to individual title**

<table>
<thead>
<tr>
<th>Location of holding (Census division)</th>
<th>Area (ha)</th>
<th>Proposed Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Koronigl</td>
<td>69.41</td>
<td>Cattle pasture</td>
</tr>
<tr>
<td>East Koronigl</td>
<td>2.57</td>
<td>Coffee, timber, subsistence</td>
</tr>
<tr>
<td>Yonggamugl</td>
<td>1.76</td>
<td>Commercial/tourist facilities</td>
</tr>
<tr>
<td>Waie</td>
<td>0.69</td>
<td>Residence</td>
</tr>
</tbody>
</table>

Source: Land Files 35-17-2, -5, -6, -8 (Kundiawa).

## Table 5.7

**Chimbu Province, leasehold land**

<table>
<thead>
<tr>
<th>Lease Category</th>
<th>Number of leases</th>
<th>Area (ha)</th>
<th>Annual rental (K.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>12</td>
<td>603.4</td>
<td>238.87</td>
</tr>
<tr>
<td>Mission</td>
<td>48</td>
<td>173.2</td>
<td>-</td>
</tr>
<tr>
<td>Special</td>
<td>68</td>
<td>80.8</td>
<td>229.20</td>
</tr>
<tr>
<td>Business</td>
<td>110</td>
<td>24.3</td>
<td>4030.50</td>
</tr>
<tr>
<td>Residence</td>
<td>22</td>
<td>4.1</td>
<td>280.50</td>
</tr>
<tr>
<td>Residence/business</td>
<td>1</td>
<td>0.2</td>
<td>2.00</td>
</tr>
</tbody>
</table>

Source: Department of Lands, Surveys and Mines, Land Lease Data Bank, District Rental Summary, 1 January 1975.
village-based services. No alienated land within Chimbu is held under freehold; all is leased from the government. The administration of rural leases during 1975 was not effective. We suggest below (para. 10.11 ff.) the need for a thorough review of urban leases, and recommend that this review include rural leases.

5.45 Early recognition of land shortage in the province explains why most pre-war acquisitions were of unoccupied areas of no-man's-land on the boundaries of major groups. These lands were apparently granted willingly to the administration and missions (much mission land was not officially alienated until after the War), in expectation of the advantages of their presence, and for payments of shell, steel tools and other items. While regarded by the administration as immediate and absolute alienation, it is probable that all such transfers were, as far as can be known today, held to be conditional by the Chimbu who surrendered their rights to them. That is, they were conditional in the customary sense that they depended upon the maintenance of certain relations between donor and recipient, and, in the final analysis, on the relative balance of power between the two. The conditional nature of customary transfer underlies the groundswell of dissatisfaction concerning alienated land revealed by witnesses before the CILM in 1973 (12 oral submissions dealt with alienated land).

5.46 Directly or indirectly these criticisms focussed on the fact that original payments, at least by present standards, were small, and that people at the time understood neither the purposes for which the land would be used, nor for how long. Thus since businesses 'usually make a lot of money ... there is ill feeling' (CILMS 754), particularly because after 'the original payment, they do not pay anything' (CILMS 816). Stated bluntly, 'the people say, you are sitting on my land and you have made a mint' (CILMS 780).

5.47 Witnesses from Chuave, Wandi, Gembogl and Kerowagi all suggested that rent should be paid, not to the national government, but rather to the owner of the land or to either the local council or the Provincial Government. Rents, it

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Discrepancies between the OPAC figures and those of the former Department of Lands given in Table 5.7 are presumably due to the latter excluding alienated land used by government departments.
was also argued, should be paid fortnightly or monthly. Witnesses at Kerowagi in fact accused the government of pretending to be the landowner of alienated land, and, by leasing it and making money, deceiving the people. Only three witnesses sought to have alienated land returned to its original owners. Significantly, two referred specifically to unused land (CILMS 768, 799) while the third, from Sinasina, called unconditionally for the return of land used by missions and private enterprise (CILMS 761).

5.48 The general point which emerges from this important evidence is the strong feeling that the user of alienated land should share the proceeds of his enterprise with the original rightholders, not just with the distant government in Port Moresby through the official avenues of rent and taxation. A similar position was taken in reference to mineral rights and exploitation by witnesses at Gumine and Gembogl (CILMS 799, 817). Many expatriate enterprises have long understood, their legal position notwithstanding, that their rights were only conditional, and have made sure that important persons in the vicinity of their leases have been advantaged by the relationship (see Hide, 1973:50). In general however the absence of extensive alienation of land for commercial agriculture, the return of the one tiny expatriate-owned patch of coffee in northern Chimbu (Kunguru, in Yonggamugl), and the long overdue but now impending forfeiture of the 388 ha held by Bena Coffee Lands at Oburamura near Karimui, mean that alienated rural land is not a significant issue in the province. Increasingly the trend will be toward only public utility or service-type leases in rural areas. Nevertheless the recommended review of the present situation (para.5.44) should investigate closely such matters as closed airfields (for instance at Koge and Kup), and determine their best future use.

5.49 In the past the government has followed various policies in obtaining Chimbu land for public purposes such as roadmaking. Recently, as in the case of the upgrading of the Kundiawa-Gumine road, landholders and users have been compensated only for the loss of crops, important fallow trees such as Casuarinas, and other improvements such as buildings, but not for the land itself. While this policy resulted immediately from the need to cut otherwise prohibitive costs, it is officially justified, and reasonably so, on the grounds that roads serve important public functions and are necessary for the development of the province as a whole.
5.50 The way in which compensation payments are made to those suffering loss and or damage could however be improved. During the colonial period it was usual government policy to pay individuals compensation for loss of, or damage to, property resulting from road construction and land purchases. Such sums are usually substantial but when disbursed on a per capita basis are insignificant. Under contemporary conditions of scarce development funds we recommend that government consider allocating the total payments as a collective fund to a specific development project determined by the community (or communities) in question.

5.51 Alternatively the present system, if continued, could include provision for mobile banking services to accompany the payment officer where feasible. This measure could prevent the rapid disappearance of the individually small payments which might otherwise be considered merely as windfall receipts. Feasibility is obviously important. There is no point in one-shot banking of funds by people living 20 km from the nearest bank. However, this suggestion may be linked with the recommendation made elsewhere for mobile banking services (see Chapter 9).

Resettlement

5.52 To date no concerted long-term strategies have been adopted to alleviate land problems in Chimbu, notwithstanding frequent expressions of concern by administrators and politicians, and attempts to identify the dimensions of the problem (Brookfield and Brown, 1963; DASF, 1964, 1967; Smith, 1971; CPO, 1975). The CILM clearly recognised that no single solution can meet such a critical condition but recommended, as one of its six major principles, that the country's land laws should 'favour those who need land most' (1973:13, 15).

5.53 However, there are signs that effective implementation of this policy, at least for the Chimbu, may prove extremely difficult. Officially, land available for leasing is advertised publicly (at Kundia in Chimbu) and applied for by interested persons. Given the extent of land shortage in Chimbu, it is reasonable to expect that Chimbu applicants should receive high priority. This, however, does not appear to be the case. It is strongly believed in the province that Chimbu applicants for land elsewhere, far from encountering a favourable reception, are actively discriminated against. This, it must be emphasised, is the common belief.
Instances from the Eastern and Southern Highlands are cited, the former including a case where Eastern Highland villagers are reported to have been prepared to block the road along which a party of Chimbu were to travel to inspect some land.

5.54 To what extent officials responsible for administering land applications take into consideration the generally held prejudices against Chimbu applicants is not known. What is significant is the belief that they do so, the apparent lack of success of Chimbu applicants, and the consequent discouragement of further applications. By late 1975, this had reached the point where advertisements for land were no longer being displayed publicly in Kunduwa. This situation clearly runs counter to the intent of the CILM, and to the stated policy of the government. Those attending the Chimbu Planning Workshop in December 1975 were very conscious of Chimbu's poor reputation among other Papua New Guineans, but it may prove difficult if not impossible for the government to override such prejudices.

5.55 The CILM recommended to the government an interlinked set of strategies which, if adopted, would help reduce problems of land shortage (1973:128-40). The Commission's proposals fall into two broad categories: policies designed to encourage people to move either into new, less crowded areas or into alternative or supplementary non-agricultural occupations; and policies to reduce or contain land shortage within the affected area. The first category included resettlement, industrialisation, urbanisation and associated activities. The second category included intensification of both subsistence and commercial agriculture, and population control.

5.56 It should be pointed out that implementation of such recommendations requires policy direction and decision making at different levels. Thus, to implement the proposals in the first category, national policy directions are required, whereas for the second category, decision making and responsibility for implementation rest more particularly at the provincial level. However, we consider that the initial stimulus for the national level of policy making must also come from the province. A consensus of the province's leaders on the targets to be achieved, and vigorous political pressure and publicity to ensure national recognition and action, are required. We consider that perhaps the most urgent priorities for Chimbu's provincial leaders should be to campaign for intensification and
increased productivity in subsistence and commercial agriculture (Chapter 9) and population control (Chapter 3); and to actively seek the support of the central government for resettlement lands for the Chimbu. We here consider the question of resettlement.

Chimbu perceptions

5.57 Many Chimbu clearly perceive a limited agrarian future for themselves and their children on their own restricted land resources, and are increasingly looking elsewhere for land. The official belief in the province is that such people are looking for land with economic potential, and do not yet need new land for subsistence:

The needs of the Chimbu people are not for a resettlement scheme in the sense of providing vacant land for displaced or overpopulated Chimbu as there is enough land for basic subsistence living, but more for providing areas of land suitable for economic development.

It is recognised that without the lure of economic potential in [Karimui-Boma], the Chimbu would not be overly interested in taking up any land (Memorandum, Provincial Office, Kundiawa, 4 June 1975).

This may still be the case, but in view of the findings outlined above (paras 5.5 ff.) it may not be long before Chimbu people will also be forced to search for subsistence land.

5.58 Eighteen of 62 oral submissions made by northern Chimbu to the CILM in 1973 concerned resettlement, and only one argued against the idea. Most submissions strongly emphasised a positive government role in the process, asking the government to find suitable land, to provide money for roads and services, and to organise and administer movements of people. While such emphasis is partly due to precedent, and partly to the fact that witnesses were using the hearings to demonstrate publicly their concern for their people before the government's representatives, it undoubtedly also reflects Chimbu awareness of the difficulty of finding available land, and of ensuring long term security once a move has been made. Thus one Kundiawa speaker warned that while resettlement was
a possible solution to land shortage,

... everywhere we come across another problem and that is if we go and try to settle down and improve the land somewhere else then the owner of the land attempts to grab the land back from us and we are left up in the air (CILMS 763).

5.59 For another speaker, the conditional nature of customary land transfers (see above, paras 5.45 ff.) provided the rationale for arguing for resettlement within the province:

[At] Hagen or Goroka or elsewhere we may just be tipped out again but in Bomai, that is part of our district and part of our land and we could just move in ... In the Western Highlands ... when the coffee or whatever I put in is grown, [the owner] will come and say 'You cannot do that. That is my land'. In Bomai there is nobody to chase me out. The wild pigs, wild emus and birds of paradise ... do not have the will to chase me out, or I will use them (CILMS 764).

Besides this speaker, only two others mentioned specific places for possible resettlement: Karimui was mentioned once more (80), Ramu twice (80, 799), and Markham once (799). Both mentions of the Karimui-Bomai area included demands for government assistance in building a road southward from Gumine. During the rural workshops conducted by the Chimbu study team (see Appendix 4) and the Chimbu Planning Workshop held at Kundiawa in December 1975, the problems of land shortage and the need for access to adjacent empty lands at Karimui-Bomai and in the Ramu were also raised a number of times.

5.60 It is probable that the perception of insecurity vis-à-vis the original landowners lay behind several requests that future resettlement involve groups, not nuclear families from different locations (CILMS 763, 788; and see Zorn, 1975:7-8, and Paney et al., 1973:45). At least one witness, however, stated that only individuals should move (814), while two others appeared to suggest that the government should use resettlement as a means of removing 'troublemakers' from the province (819, 828).

* See Appendix 5.
5.61 Two submissions revealed that permanent migration for resettlement is perceived by some as a means not only of providing opportunities elsewhere for a lucky few, but also of easing pressure on resources at home (763, 797). But both witnesses implied that action would be needed to ensure that the rights of migrants were indeed cut off completely when they moved. Thus, one Gumine speaker asked for the redistribution of the land of migrants among those remaining, because 'I would not like to think that the person who has left this area to settle elsewhere is thinking back to the piece of land on which he was [originally] living...' (797). Another Gumine witness extended this point to educated urban migrants, arguing that:

... the Government should make a law that these [educated] people who have obtained jobs in towns should not have rights to the fathers' land, leaving the land to those children who are living on the land. These young people [with] ... jobs in towns should accumulate savings in the banks and later on when they retire they could purchase land in other districts where land is available (799).

5.62 These statements are supported by the findings of Young and Ploeg. In Chapter 3 (para. 3.64) attention was drawn to the pattern of circular migration which has so far been most characteristic of the Chimbu. Ploeg (1975; and see para. 3.47), in discussing the spontaneous migration of Chimbu, pointed out that they move largely to areas close to the province as it would seem that most Chimbu seeking to resettle are unwilling to relinquish ties with their birthplace, and strongly prefer location within easy access of their kin group. In an earlier study of settlers at the Cape Hoskins oil palm scheme, Ploeg thought that the reason why a number of Chimbu lost their leases was

... that resettlement [in New Britain] for them involved the greatest change. It was much more expensive for them to visit their home areas than for Bali or Tolai holders, and they rarely, if ever visited their wantok [fellow Chimbu] in ples [the home region]. Coming from the highlands, the Chimbu also had to adjust to the much hotter coastal climate. Unlike the Dagua they were not united by a network of kinship ties ... (1972:29).
5.63 The qualified comments of others, for example, 'if we find the land is overcrowded ... some of us will have to move to the settlements, if there are any available' (815), would seem to support the interpretation that some Chimbu at least, while recognising the inevitability of some resettlement, still do not regard it as immediately necessary. Indeed, the statement of a Kerowagi leader, 'I do not think people will be happy with resettlement. They would rather stay in their traditional places' (823) may be understood as implying this, though it undoubtedly also reflects the contradictory pressures impinging on Chimbu leaders, who on the one hand must help people do what is in their best interests, while on the other hand are concerned to maintain the strength of their own following.

Resettlement opportunities

5.64 Official resettlement schemes undertaken in Papua New Guinea so far have been designed primarily to provide land to settlers for cash cropping on a smallholder basis, usually in association with expatriate-owned and managed central factories to process the farmers' crops (CILM, 1973:129-34). This type of scheme has been the most successful, but also the most expensive, involving relatively elaborate projects in virgin lands and considerable costs for surveying, subdivision, infrastructure, and subsidies during the establishment stages. R.G. Ward has pointed out that in the ten years following 1961, such resettlement schemes have only 'catered for about three months' increase in population at current rates of growth' (1971:97).

5.65 This inadequacy was recognised by the CILM. With regard to resettlement as a solution to land shortage, the Commission stated 'Resettlement will by no means solve the whole problem, but it will help in some places' and it proposed:

(a) government encouragement of spontaneous migration from more populated to less populated areas within provinces through assistance with services and tenure security; and

(b) more medium cost schemes, but only for settlers from landshort areas (1973:133).

These are the recommendations which appear to hold the most promise for the Chimbu. As noted earlier, the adjacent lands
of Karimui-Bomai and in the Ramu valley, because they are sparsely populated and close to northern Chimbu, are most frequently mentioned by those hoping to find new land (see Map 5.3). However, implementation of these recommendations would be expensive in either area. No road access exists to either region from northern Chimbu, and both regions are environmentally very different from northern Chimbu, thus the necessary technology of both subsistence and cash cropping in the new regions would have to be learned afresh.

5.66 Karimui-Bomai. The possibility of resettling people from upper Chimbu around Karimui and Bomai has been under consideration since the first patrols were undertaken here in the late 1950s. How many Chimbu could the southern region accommodate? The answer is simply not known. An answer cannot be given until an official decision has been made on the type of settlement scheme envisaged (that is, a scheme based on subsistence or combined subsistence/cash cropping), nor until more definitive ecological data are available.

5.67 Simpson (1975) has documented the background of official interest and activity on this question. Estimates of the area available for alienation, and of the numbers who might be resettled, so far have been subjective evaluations made by officers on patrol and without the advantage of extended controlled monitoring of agricultural conditions. Some have considered the prospects extremely favourable: for example, administration personnel in Goroka thought in 1960 that about 40,000 people, or some 25 per cent of the upper Chimbu, could be relocated in the south (Simpson, 1975:51). However, Simpson himself concluded that the Karimui census division 'could not support a large influx of settlers as "suitable agricultural topography" may already be in short supply' (1975:66), but that perhaps 4000 people might be resettled on the Bomai plateau (op. cit.:75). At present, about 7000 additional children are born in one year alone in Chimbu.

5.68 The total lack of road linkages and the limited air services to the south rule out any immediate action to relocate significant numbers from upper Chimbu. However, even when a road connection is provided (see paras. 6.13-6.16) transport costs are likely to be high and to rule out any but low bulk-high value cash crops. In the interests of accommodating the greatest number of settlers, the more intensively land can be used for cash cropping the better.
POTENTIAL RESETTLEMENT AREAS

1 Middle Ramu Valley
2 Wahgi Swamp
3 Karimui-Bomai

- Highlands Highway

Map 5.3
Cash crops now being grown experimentally at Karimui and Bomai, such as cardamom and macadamia nuts, satisfy the first requirement of high value in relation to bulk, but both require fairly extensive tracts of land.

5.69 The amount of land required for adequate subsistence in southern Chimbu is uncertain. Because the communities living here are small, the people have never been forced to cultivate to the limits of the crop/fallow cycles, but in order to settle optimum numbers of families around Bomai and Karimui, information about factors such as the length of time for which land may be safely cultivated, and necessarily fallowed, is essential. Although the volcanic soils initially give high yields, it is unknown how quickly the point of diminishing returns is reached, nor which factors are most critical, for example, soil deterioration or perhaps prolific weed growth. The latter characteristic will obviously demand a higher labour input than northern Chimbu families are accustomed to making. Under the warmer temperatures and considerably heavier rainfall in the south, soil leaching and deterioration may occur much sooner than in the north.

5.70 It would appear, therefore, that environmental monitoring is urgently required before any formal action is taken to alienate land in Karimui-Bomai for settlement schemes. The available time span for such monitoring is already very short — perhaps no more than five or six years. This is the minimum period in which it is anticipated that a developmental road now under construction south from Gumine to Bomai will be completed. It is to be expected that with road access, the present trickle of spontaneous migration, especially from Gumine to Bomai (see below, para. 5.73) will swell considerably, and that people will not wait for the formal processes of alienation and resettlement.

5.71 This likelihood raises the question of security of title. Karimui spokesmen who made submissions to the CILM gave assurances that they would be prepared to grant secure title to Chimbu settlers but the implication was, only under official alienation procedures, for 'If we give [land] to the Chimbus we would sell to the Government and it will be their ground. It won't be ours at all' (784). They emphasised, however, that they would only sell it, not give it for nothing (785). When Fr Kilage (a north Chimbu member of the CILM) stressed the close relationship between Chimbu and Karimui people (he used the term 'brothers'), as a
reason for helping the land-short Chimbu the answer was succinct: 'I have some valuable crops in the land' (785).

5.72 Granted the Karimui were prepared to sell some of their land to the government for Chimbu settlement, would Karimui recognise the transaction as permanent? Apparently yes: 'The people of Chimbu can come down and have sole rights on the land for ever and ever' (791). But, under probing, conditions were attached to this seemingly unconditional statement. The Chimbu, for instance, '... must stay within this boundary [of the settlement area]; they must not move outside into private ground' (791). Further, they must not hunt 'on our land ... We do not want settlers to go hunting outside the settlement area' (791). Finally, important cautionary evidence was given by a Chimbu with long working experience in Karimui:

... I know the customs of the Karimuis ... [they] have allowed the government to take blocks for the Chimbu people to come inside. If the aidpost orderlies or mission workers have made some trouble in the village the Karimui people say, 'This is our ground and you must go back' (791). If there is any trouble over pigs breaking into Karimui gardens or Chimbu men taking Karimui women, we do not want the Karimui people to say it is their ground and Chimbus must go back ... In the past, Karimuis sit down good but sometimes they talk behind the workers' backs and they do not like this (792).

5.73 In this context the experience of the small group of people from the Gumine region who have settled at Bomai is relevant. Building on ties of trade and intermarriage they originally settled with Bomai people around the airfield. However, approximately three years ago, according to their own account, they were forced by the Bomai to leave this site, abandoning the coffee they had established there, and to move perhaps 2-3 km away across the river. Significantly, they have not yet planted coffee at this new site, explaining that they are uncertain what their future there will be. The reason for the Bomai requesting them to move apparently stemmed from sickness for which the Gumine were blamed, and from disputes concerning women. Some measure of the tentative nature in which the Bomai view the relationship is revealed by the fact that while they are happy to marry Gumine women, they have not allowed any of their own women to marry Gumine men.
This example emphasises the difficulty of placing undue reliance upon the attitudes of prospective 'hosts' prior to such settlement. Their experience is founded upon face to face relationships with a small number of individuals from other parts of Chimbu in situations in which, as owners of the land, they are fundamentally in control. Large scale settlement with the government acting as decision maker, and involving the arrival of populations larger than the host groups is a totally new situation, in which control by the hosts is lost. The outcome, and its possible eventual complexities, are not readily foreseen.

One further caveat must be stressed. Simpson (1975:29-32) discusses problems of disease, especially malaria and leprosy, and malnutrition in Karimui and Bomai. These problems are also discussed below (paras. 7.9-7.11 and 7.20). Those Chimbu who are aware of the health problems believe that it is the government's responsibility to solve them, but control of malaria and maintenance of adequate nutrition among any large group of settlers will be demanding in terms of both costs and government personnel. It is therefore important that the estimated costs of providing health services be taken into account in the total costing of any resettlement proposals for this region.

Given this background, and in the anticipation that Chimbu in future will increasingly demand and campaign for additional land, we recommend as a matter of urgency that comprehensive ecological monitoring be initiated at Bomai and Karimui. Simpson (1975:94) has suggested the kind of investigation required. We would add that data should be collected at least twice yearly (during the wettest and driest periods) for a minimum of ten years. It is understood that the Department of Geography at the University of Papua New Guinea has the necessary expertise and equipment, and would only require travelling and field expenses in order to conduct such a survey. However, we suggest that at least one DPI extension officer be included in the survey team to be trained in the necessary techniques. DPI should assume responsibility for the programme in the long term.

Trials of potential cash crops should be undertaken at Bomai, together with monitoring of the coffee and macadamia nuts planted by Chimbu Coffee Co-operative on its land near Bomai airfield. The experimental plots on the DPI station at Karimui require more careful monitoring and recording than have been carried out in the past.
5.78 *The Ramu valley.* Men from upper Chimbu, as well as from Bundi and the upper Asaro, have long had trading contacts with the Ramu valley, although as yet it appears that no highlanders have settled there permanently. It seems probable that present Chimbu interest in the area stems mainly from its proximity to the province, its sparse population, and its potential access to Madang (see Appendix 4). To the people of upper Chimbu, the provision of access to Madang would mean employment opportunities and a possible outlet for produce such as vegetables. It is doubtful, however, if the difficulties of the environment in the Ramu, markedly different from that of upper Chimbu, are fully understood by aspiring Chimbu settlers.

5.79 It was not possible for members of the Chimbu study team to visit the Ramu valley, but the results of two surveys of the region were available to us. A report of a CSIRO survey of the lowland course of the Ramu river undertaken between 1956 and 1958 describes environmental conditions and land use capability over an area of 20 460 km² (Robbins, 1976), and during 1969 the former DASF carried out a survey in the middle Ramu valley to assess its potential as a resettlement area for the Chimbu people (Zijlsvelt, 1970). Both reports draw similar conclusions about the limitations of the region for development. As Zijlsvelt's report has not been published, and because it was carried out specifically to evaluate the area for resettlement, only its findings are summarised here.

5.80 The DASF survey covered an area of 1070 km² of alluvial plains and foothills surrounding the middle Ramu and its tributaries, an area occupied in 1969 by some 1600 people. Their health was reported to be 'relatively poor' and malaria and certain skin diseases 'very common'. The picture presented by the report is not optimistic. Terrain is broken and dissected, hence movement across the grain of the country is difficult, and complicated in sections of the Ramu course by braided stream channels, levees, and both seasonal and permanent swamps. The few climatic statistics available indicate a region with fairly heavy annual rainfall (over 5000 mm), but very unreliable monthly distribution. Monthly rainfall during the wettest period, December–March,

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7 Sea shells, cassowaries, birds of paradise and lowland forest products were the most important items of trade, for which the Chimbu exchanged stone axes, pigs and salt.

8 All following page references are to Zijlsvelt's report.
averages 650 mm, and during the driest period from June to September, about 100 mm. Both temperature and humidity are high throughout the year.

5.81 A major characteristic of the area surveyed is 'the vast areas that are covered with surface water for a period of 4 to 6 months starting in December' (p.13), derived from flooded rivers and creeks, rain, and ground water. The survey reported 'only a few areas where no surface water of any type was observed' (p.16). As a result, 'the majority of the soils are poorly to very poorly drained with high to very high watertables throughout a large part of the year ... and topsoil erosion by running water is severe even under forest' (p.48) on the alluvial plains. Soils overall appear to be fairly poor, moderately to strongly weathered, with considerable areas of coarse stony or gravelly deposits. However, nutrient deficiencies in most of the valley's soils can be rectified by fertilisers (p.50).

5.82 Zijsvelt's report did not state the numbers of people who might be resettled here, but does include an estimate of the area's land use potential, according to eleven land classes, the characteristics of which are summarised in Table 5.8.

5.83 Of the total area surveyed, 23 per cent (classes 10 and 11) is unsuitable for agriculture, and a further 41 per cent (classes 8 and 9) would require stringent and costly flood control and drainage. Of the remaining third, only 4 per cent (classes 1, 3 and 5) appears suitable for mixed subsistence and cash cropping without expensive land preparation, although it is largely under rain forest. The remaining 32 per cent can be used subject to the limitations indicated in Table 5.8.

5.84 The land use potential of the area cannot be exploited by Chimbu, however, until access is provided. At present, the middle Ramu region is linked with Madang by a wartime road to Usino and Dumpu, which then connects with the Markham Highway. Although not yet an all-weather road, this is being upgraded. No road access yet exists between the Ramu and upper Chimbu (see para. 6.13) although well-defined walking tracks connect upper Chimbu and Bundi. The only airfields, at Usino Patrol Post and Brahman Mission, are restricted to light planes and are not on scheduled commercial routes.
<table>
<thead>
<tr>
<th>Land class</th>
<th>Area (ha)</th>
<th>Characteristics</th>
<th>Most suitable use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1340</td>
<td>Flat or gently sloping. Soils well drained, permeable, free of surface water or harmful water tables. High rainfall, relatively short dry season. Largely forested.</td>
<td>Arable crops, tree crops, grazing. Not suitable sugar cane, peanuts, oil palm (dry season too short).</td>
</tr>
<tr>
<td>2</td>
<td>9210</td>
<td>Hilly areas in valley. Soils deep, well-drained, acid, low fertility. Largely forested.</td>
<td>Limited tree crops (e.g. rubber), controlled grazing.</td>
</tr>
<tr>
<td>3</td>
<td>1160</td>
<td>Between Ramu and Maria rivers, generally free of flooding. Soils deep, coarse-textured, of low fertility, liable to be droughty in dry season without forest cover. Largely forested.</td>
<td>Grazing, limited arable and tree crops.</td>
</tr>
<tr>
<td>4</td>
<td>9310</td>
<td>Sloping alluvial and colluvial fans along foothills. Soils mainly shallow, compacted gravel subsols, low fertility, easily eroded.</td>
<td>Grazing.</td>
</tr>
<tr>
<td>5</td>
<td>1940</td>
<td>Rain-forested levee banks or slightly elevated grassy areas, with very occasional flooding. Soils generally fertile, well-drained.</td>
<td>Arable crops, tree crops and grazing.</td>
</tr>
<tr>
<td>6</td>
<td>11390</td>
<td>Poorly drained land, subject to flooding. Could be improved fairly easily by drainage and flood control</td>
<td>Periodical grazing and dry rice. Arable crops, tree crops and grazing dependent on drainage improvements.</td>
</tr>
<tr>
<td>7</td>
<td>4620</td>
<td>Alluvial plains under rain forest. Surface water throughout wet season. Soils clayey, fine-textured, of low permeability.</td>
<td>Wet rice and periodical grazing.</td>
</tr>
<tr>
<td>9</td>
<td>13780</td>
<td>Land along major rivers. Soils sandy, of low fertility, liable to erosion and flooding.</td>
<td>Periodical grazing. Coconuts and limited arable crops after extremely costly flood control and drainage.</td>
</tr>
<tr>
<td>10</td>
<td>15170</td>
<td>Permanent swamps, deep surface water in wet season, high water table in dry season. Soils poor, stony, subject to flooding.</td>
<td>Unsuitable for agriculture.</td>
</tr>
<tr>
<td>11</td>
<td>9290</td>
<td>Land of very rugged topography with weathered, acid soils.</td>
<td>No potential for any kind of land use.</td>
</tr>
</tbody>
</table>

5.85 Mention should also be made of a previously rare but potential hazard in the Ramu region - the possibility of locust plagues. The most persistent and widespread outbreak which has so far occurred in Papua New Guinea spread through the Markham and Ramu valleys in 1975, and is thought to have been triggered by the 1972 drought (Lae Nius, 18 February 1976, 6-7). Among the susceptible crops were edible pitpit, sugar cane, corn, peanuts and pastures. Widespread forest clearance for cultivation and grazing may increase the likelihood of further plagues in the future.

5.86 In summary then, we consider that the resettlement potential of the Ramu valley for Chimbu is fairly low, and given the lack of direct access to the region, not an immediate possibility. Any scheme to develop the Ramu must also give consideration to the Bundi people, whose homelands too are crowded and have limited economic potential. If the road from Keglsugl is extended into the Ramu, the region should be considered for mixed subsistence and grazing, rather than cash crops. If this type of land use is adopted, any resettlement scheme undertaken here should probably be on a group, rather than household, basis for more effective herd management, pasture improvement and erosion control. Some possibility exists for development of the forest resources.

5.87 The Wahgi swamp. To date, the only formal resettlement scheme provided within the highlands has been the extensive smallholding development in the Wahgi valley, where land purchased in the early 1960s was subsequently developed for tea cultivation. Its proximity to Chimbu has attracted more Chimbu settlers than has any other scheme. Over 3600 ha of swamp land with development potential are still available in the Wahgi, and have been under investigation since the early 1970s, when a team of consultants was appointed to investigate its development prospects and utilisation.

5.88 In 1975 the Medlpaa Area Authority made certain decisions concerning the development and use of the swamp lands, including the subdivision of some 17 communal blocks averaging 80 ha, to be allocated to people on a clan or sub-clan basis on the criterion of need; about 600 ha for smallholdings similar to the present settlement scheme; about 400 ha for timber planting by the Forestry Department; and about 1200 ha for company-owned plantation development, with 50 per cent shareholding by nationals (R. Smith, personal communication, October 1975). Altogether, it is estimated that the area can accommodate about 4000 families and an
additional 300 estate employees.

5.89 However, as development costs for the initial drainage works and other infrastructure have been estimated at over K.1 million, not including labour, this project has been deferred for the present, and it is not known when the scheme is likely to be undertaken. Hence the Wahgi swamp cannot be considered a potential resettlement area for Chimbu families in the immediate future.

5.90 The Purari scheme. Turning to the south of Chimbu Province, a scheme is under consideration which, if implemented, will hold some prospect for the relocation of Chimbu people in the future. This is the proposed development of the Purari river basin, which has been envisaged as a 'future megopolis' (Carey, 1975). At present, feasibility studies have been approved for the initial stage only - a hydro-power station on the Purari river near its confluence with Wabo creek. It must be emphasised that investigations are in a preliminary stage only, and a first consideration will be the relocation of several hundred people in the immediate vicinity of the area to be flooded for the reservoir. It should be noted that the Chimbu may be involved indirectly if the scheme is undertaken, as their homelands form part of the drainage system of the Purari basin. Protection of the headwaters to control deforestation, erosion and downstream flooding will be mandatory and may require the prohibition of cultivation on some of the land presently densely occupied in the upper Chimbu. However, it may well be a generation before the Chimbu can hope to find land or employment in the Purari basin.

5.91 This review of potential resettlement lands for the Chimbu has considered only those presently undeveloped regions neighbouring northern Chimbu. Of these, only the Wahgi swamp holds any prospect of providing additional cash cropping land without vast expense and difficulty, but even if a decision is taken now to begin development, it will still be some years before land becomes available to settlers. The other regions totally lack infrastructure, and the infrastructure needed (including access from Chimbu) will be very costly. These latter regions will also demand considerable environmental adjustment by cultivators accustomed
to highland conditions. From the foregoing discussion it would appear then that the options for Chimbu resettlement fall into short, medium and long term categories.

5.92 In the short term, the attitude must be that 'every bit helps'. Reaffirmation is required by the national government that resettlement land should be allocated to those in greatest need of land, and as indicated in para. 5.56, a campaign by the province's leaders to ensure that action is taken is also needed. In effect, we recommend as immediate strategy, action to take up all available slack in existing schemes. A register of all vacant blocks would be required, and Lands officers in Chimbu and other provinces facing land shortage should be notified immediately of such vacancies. Within Chimbu, first priority in the allocation of vacant blocks should be given to people from the most heavily populated areas of the upper Chimbu valley and from around Gumine. The Mt Wilhelm and Gumine council offices would provide convenient venues for publicity and for discussion between the Lands officer and intending applicants. It is perhaps unnecessary to add that applicants should be thoroughly briefed about agricultural and other conditions (including possible prejudices they may face as Chimbu), especially if the resettlement scheme is in the lowlands, so that people are fully aware of the commitment they are undertaking. As a corollary to the short term strategy, we recommend that no further loans be made by the Development Bank for cattle projects within northern Chimbu. This is discussed more fully in Chapter 9.

5.93 In order that additional resettlement land become available within the next five or ten years, the national government should take decisions as soon as possible concerning the development of the Wahgi swamp and the Karimui-Bomai regions. Considerable investigation has already been carried out in the Wahgi swamp, and guidelines have been suggested above for investigating the Karimui-Bomai lands. Again, we would stress the need to allocate land in these areas to the most needy.

5.94 The development of the middle Ramu valley, and the Purari basin, appear to be long term possibilities only. However, if the Keglsugl-Madang road is constructed, it may be anticipated that a stream of informal, spontaneous migration will ensue, and also that some demand may arise for cattle leases in the Ramu valley.
Chapter 6

Physical infrastructure

6.1 The main components of Chimbu's modern physical infrastructure are the transport system based on airfields and roads, articulation with the nationwide telecommunications system, and electric power. Although no part of the province has reticulated water, the issue of water supply is also discussed here. While this chapter is mainly concerned with modern infrastructure, the continuing importance of the traditional close network of walking paths should not be overlooked in an area where people are still predominantly pedestrians.

Air transport

6.2 Modern transport began in Chimbu with the construction of airfields, the first of which was built about 1934 at Kundiawa. At present ten airfields, four of which are mission-owned, are in use in the province (see Map 6.1). A further five airfields on mission land are now closed.

6.3 Chimbu may claim some of the country's most spectacularly located airfields. Omkalai, 'the steepest commercial airstrip in the southern hemisphere', is perched on a shelf with a gradient of 17°, 1000 m above the Wahgi gorge; Keglsugl at 2720 m is the highest airfield in the country; and Kundiawa's aerodrome has been described as 'the nearest approach to an aircraft carrier on dry land'.

6.4 Aircraft played the major role in Chimbu's transport system until the mid-1960s, when improvements to the road system led to the displacement of aircraft for freight movement. In 1971-72, only 95 short tons of freight were uplifted from Kundiawa aerodrome. Passenger traffic remains significant and aircraft are particularly important for medical purposes. Scheduled and charter services provide links within the province and to all major highland centres and coastal towns. However, scheduled services are
ROADS AND AIRFIELDS

Map 6.1

- Ramu power transmission
- Highlands Highway
- Trunk roads
- Feeder roads
- Developmental roads
- Airfields in use 1975

KEGLSUGI
KEROWAGI
Ge
KUNDIWA
OMKALAI
Gu
NARRAIYAL
YOBAL
ROMANE
KARIMUI
HAIA

0 5 10 15 20 25
kilometres
available to only five of the airfields. At Karimui and Bomai in the south, air services provide the only access to other places; in recent years some patrols have been conducted from Karimui by helicopter. Chimbu's nearest port, Madang, is accessible only by air.

6.5 Terrain conditions limit the province's airfields to use by light planes. Continuous upgrading of the road system has meant that the present volume of air freight and passenger movement do not appear to warrant expansion of air facilities. The volume of passengers using Kundiawa averages about 12,000 annually, and is much less for other airfields. Although Kundiawa carries the heaviest traffic and is most centrally located in the province, its future has been in debate since 1972. Kundiawa is seriously short of urban land and closure of its airfield with relocation at Kerowagi would release about ten hectares for other vital uses. The proposal has merit, but is opposed by certain government departments. Our recommendations for Kundiawa airfield are discussed in relation to the future of the urban area in Chapter 10, (pars. 10.18 ff).

Road transport

6.6 Environmental constraints on surface transport and access have been referred to briefly (para 4.14). Although the province's northern region is more rugged, the higher population here has meant that it is better served by surface transport than the south, where perhaps 80 per cent of the area has not yet been penetrated by roads.

6.7 Chimbu has a network of over 700 km of roads, the routes and classes of which are shown on Map 6.1. The Highlands Highway runs for 54 km across the province, through the corridor between the Bismarcks and Kubors. From the Highway, 132 km of trunk roads and 221 km of feeder roads penetrate north and south roughly in a trellis pattern: articulation of these roads has been inhibited by the difficulties of bridging gorges and crossing high ranges, and few loop roads have been completed. The remainder of the road system consists of about 300 km of minor 'developmental' roads which are rarely negotiable in the wet season. None of the roads are sealed, and sections of all roads including the Highway are at hazard from landslides and washaways, particularly in wet weather.
6.8 The Highlands Highway lies close to the route of the first main road in Chimbu, begun after the Second World War to link Kundiawa with Mt Hagen and Goroka, and completed in 1953. When major upgrading of the Highway began in the late 1960s, the section which passed through Kerowagi was re-routed, and since 1973 Kerowagi has been served by a trunk road to the Highway. Chimbu is now linked by the Highway to the Western and Southern Highlands, and more importantly to the coast at Lae, 390 km to the east. Traffic between Lae and Chimbu has to negotiate the Kassam Pass and a long tortuous section between Goroka and Kundiawa which includes the Daulo Pass (2740 m), but west of Kundiawa the route is easier.

6.9 The section of the Highway which passes through Chimbu is heavily used by both through traffic and local vehicles, and by pedestrians. Accident rates are high, and fatalities inevitably lead to tribal conflict in the demand for compensation for the victims. A number of accidents may be attributed to drunken drivers, unskilled drivers, and unroadworthy vehicles, but certain improvements to the Highway would help reduce the accident rate. Sections of the Highway through Chimbu are narrow and winding, and visibility on all sections is poor in fog or rain, both of which occur frequently. We have discussed the use of road markers to identify hazardous sections with the Provincial Works Engineer, who reports that most types of markers can be put to other uses by villagers, and rarely survive more than a few weeks in situ. However, suitably painted boulders would be a simple and inexpensive way of marking edges and improving road safety.

6.10 Safety conditions would be improved further by the construction of parking bays at major PMV stations along the Highway, for example, at the junction with trunk and feeder roads. The construction of shelters at such points for intending PMV passengers, who often wait long periods for vehicles, should be given priority. The suggestions made here will involve minor expenditure and maintenance, but significantly improve conditions for road users.

6.11 In the 1975–76 Works Programme K.1 000 000 has been allocated for further upgrading of the Highlands Highway in
Chimbu, but it is unlikely that these funds will be available for the purposes suggested above. However, local government councils should be able to fund them through the Rural Improvement Programme (RIP) grant. Other expenditure for the province's roads in 1975-76 includes K.237 562 for the Kundia wa–Keglsugl trunk road, and K.200 000 for the Kundia wa–Gumine trunk road. A study by Bouchard on the impact of roads in the Gumine region advised against infrastructure investments 'when the expected economic potential of the region concerned is very restricted' or 'in areas which are already reaching their development capacity' (Bouchard, 1973:122) as is the case in Gumine, as the returns to investment will be marginal. The 1975-76 Works Programme has also allocated K.50 000 for the Nambaiyu–Chuave road, and K.55 000 for roads in Kerowagi District.

6.12 Road maintenance in the province is shared between the Public Works Department (PWD) and local government councils. PWD maintains the highway and trunk roads; feeder roads are maintained by councils from a grant, supplied by PWD, which averages about K.500 per kilometer; and developmental roads are funded by the RIP.

6.13 No roads are yet constructed beyond Chimbu's borders to the north and south, although the National Road Plan envisages highways via Bundi to Madang on the north coast, and through Karimui to Kerema on the Papuan coast. The Kundia wa–Gumine trunk road will eventually become part of the latter route, the proposed Bomai Highway. It is possible that the current allocation for the Gumine road is part of a long-term programme for the Bomai Highway, but unless the Purari hydroelectric scheme is eventually developed it seems unlikely that this route through extremely difficult and unpopulated country will be feasible for many years. The cost of construction on the Madang Highway is estimated at about K.125 000 per kilometer for the 120 km section between Keglsugl and Ramu. This project was shelved in 1972 due to the difficulty of obtaining loan finance, for reconsideration in five years' time.

6.14 Demand from the Chimbu is strong for improved road access both within and beyond the province. The improvement of the road system has led to an increase in ownership and operation of vehicles in rural areas for local passenger and freight services (Ch. 9) and to increasing mobility of
people, who now travel more extensively than was possible when walking or aircraft were the only options. In terms of travel time and cost Map 6.2, which is based on an index of accessibility, gives some indication of ease of access to Kundia, and of the relationship of access to terrain and road classes.

6.15 The trunk roads to Gumine and Keglsugl terminate in heavily populated areas where people are anxious for access to neighbouring regions which they aspire to settle, in Bomai and the Ramu valley respectively. Demand has also been expressed for several links to the Eastern Highlands: from Gembogl via Marafunga to the upper Asaro, from Nambiaiyufa to the lower Asaro, and from Karimui to Lufa. Developmental roads have been started along all these routes from the Chimbu side, but it would appear that enthusiasm to complete these roads is less strong in the Eastern Highlands.

6.16 Proposals have been submitted for a developmental road of about 70 km from Dege to Bomai (Barclay, 1974) to give Gumine people access to new land, but the construction period is estimated at six years and will involve problems of funding and logistics.

Power

6.17 The Electricity Commission (Elcom) supplies power from diesel generators to a government-financed 'Category B' station at Kundia, and to the smaller government stations at Chuave, Kerowagi, Gumine and Gembogl. Government stations at Karimui, Kup and Kamtai are scheduled to have power supply in the next two years. Power elsewhere in the province, at schools, missions and workshops, is available only from privately-operated generators. Notable among these is Toromambuno Mission in the head of the Chimbu valley, which operates the province's only hydroelectric scheme.

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1 Category B stations are those in which the load is expected to grow steadily to the point where they may be taken over and operated commercially by Elcom.
ACCESSIBILITY TO KUNDIAWA, 1975

Time/cost distance index

[Map 6.2]
6.18 It is expected that power from the Ramu scheme will replace the present system in Kundiawa and Kerowagi early in 1976. Map 6.1 shows the route of the Ramu transmission line. On the change-over to Ramu power, Kundiawa will be run as an Elcom station. It is anticipated that potential consumers along the route, such as the Chimbu Coffee Co-operative, Chimbu Developments Limited, Mingende Mission, Kerowagi Local Government Council and Guim Vocational School will also have access to Ramu power, supplied by a feeder line from Kundiawa. The availability of Ramu power will enable generators now used in Kundiawa and Kerowagi to replace smaller units elsewhere in the Province, so that a general increase in capacity will become possible. Ramu power will also increase the industrial potential of Kundiawa and Kerowagi.

6.19 Demand for rural power is widespread, not so much for domestic uses as for purposes such as cool storage and refrigeration to aid the marketing and sale of rural produce (Ch. 9; Appendix 4). Such requirements are unlikely to be met by Elcom for many years. The Ramu scheme is intended to supply power to a network of towns, and Elcom has no plans to extend feeder lines from it into places such as Gumine and Gembogl. The Department of Mines and Energy has recommended studies in four pilot areas of the country (Gazelle Peninsula, Central Province coast, Bougainville and Enga Province) to assess the feasibility of rural electrification based on rural electric co-operatives with power sources such as small hydro systems. Until these studies are complete the likelihood of rural power elsewhere will not be known. However, some consideration should be given to the feasibility of small water-powered generators such as are used elsewhere for individual farms and households.

Water supply

6.20 The issue of water supply for the province has two dimensions: that of supply for the concentrations of population in Kundiawa and Kerowagi, and to a lesser extent the government outstations; and that of supply for the dispersed settlements which are characteristic of most rural areas.

6.21 Although a design for a piped reticulation scheme was prepared for Kundiawa in 1964, the town still relies on roof
catchment for its supply, although the population is now significantly greater. Every year dry spells occur which may last several weeks, and at such times a water tanker operates almost full time replenishing town water tanks. One of the sources for supplementary water is the Chimbu river, which was shown in analyses carried out in 1970 (File 10-7-2:117;127 Kundiaawa) to contain a heavy growth of mixed bacteria and to be highly contaminated with coliforms. Similar results were obtained from other streams near the town. Only one water tanker is available to supplement water for domestic and institutional purposes, and it is also used for road work, as well as being the town's only fire control facility.

6.22 Government outstations and institutions such as high schools which have a heavy consumption of water have all reported water shortages at times during each dry season. However, the problem is most serious in Kundiaawa. It is recommended that the feasibility of providing a secure reticulation scheme to provide adequate potable water for the town's needs be investigated immediately. Any proposed reticulation scheme should be capable of meeting future urban growth and possible demand from industrial users. The province's main industry at present, coffee processing, requires very little water at the factories; all preliminary processing is carried out in rural areas.

6.23 The problem of village water supply is of a different order, although periodic shortages of water, and pollution of rivers and streams, are common to all parts of the province except at the higher altitudes where few people live. Contaminated water is a contributory factor to the high incidence of gastro-enteritis among young children in the province (Chapter 7) but affects the health of all age groups.

6.24 The pattern of dispersed settlement typical in much of the province makes provision of rural water supply more expensive than in clustered village settlements. The two most commonly used schemes in Chimbu are gravity reticulation by means of polythene pipe from small dams, and galvanized iron tanks. The CSIRO Division of Building Research has found that whereas such tanks may last up to 20 to 30 years in Australia, conditions in the highlands reduce their average life to only seven or eight years (CSIRO, 1974),
although life may be extended by various treatments. Polythene pipes are particularly vulnerable to damage by rooting pigs unless adequately buried.

6.25 Village water supplies were first introduced in the province in 1966, following a survey by the DDA. Water projects were sponsored by local government councils for communities prone to water shortage, and also for rest houses, aid posts and similar rural centres where water was required. In subsequent years a few water projects have been established in most council areas, with K.1000 allocated for this purpose from the 1974-75 RIP funds, and K.5000 for 1975-76. It should perhaps be noted that in our discussions with village women, none mentioned the problem of carrying water to households sited on slopes and ridges often a considerable distance above the nearest stream, or seemed to consider a supply of water at the household particularly necessary: vegetables are washed at the nearest stream before being brought home, and very little water is used for hygiene, drinking or cooking. Many communities reserve small springs for their water supply and avoid using larger streams which are recognised as being contaminated.

Telecommunications

6.26 Kundiawa's inclusion in the national telecommunications system, which was installed in the 1960s, has meant a significant improvement in the efficiency of government and business in the province. Kundiawa is Chimbu's only link in the network, which provides direct dialling through an automatic exchange to most major centres in the country as well as overseas connections. The efficiency of the system compared with an apparently declining efficiency and reliability in the postal service, has led to an increasing dependence on telecommunications by both the public and private sectors.

6.27 Communication between Kundiawa and other centres in the province was unreliable until 1975, when all government stations and some vehicles were supplied with single-side band VHF teleradios. The range is fairly limited, however: for example, contact between Karimui and Kundiawa can only be made via a transfer system in Goroka. The new system is
invaluable in emergencies such as tribal fights, breakdowns, and search and rescue operations.

Radio

6.28 The province is served by Radio Chimbu, one of the National Broadcasting Commission's network of short-wave stations. Radio Chimbu was established in 1972, and currently employs a staff of 17 at its studios in the centre of Kundiawa. Broadcasts can be received throughout and beyond the province. Most programmes use Pidgin or Kuman, the language of central Chimbu, or both. Although some programme material such as national news and music is received from the NBC in Port Moresby, Chimbu's station broadcasts a high proportion of locally prepared material including interviews, reports from government departments, summaries of council and Area Authority meetings and other events of general interest. One of the most useful functions of the station is the broadcasting of local news and information in its Tok Save sessions.

6.29 All radio stations were obliged to reduce staff and broadcasting time following the 1975 Budget. In Chimbu, the present allocation is only 57 per cent of the previous schedule. Table 6.1 shows that although the percentage of programmes devoted to news, talks and information has increased slightly from 34 per cent to 38 per cent, the actual time devoted to such programmes is only 64 per cent of the former allocation. Another effect of the Budget cutbacks has been to reduce the mobility of journalists, who can no longer visit rural areas to hold interviews and collect programme material as much as formerly.

6.30 On the other hand, station personnel are concerned that the radio services are not being used to the fullest advantage. Regular times are made available each week for certain government departments, but are not always used. The role of radio in disseminating information and improving public relations should be regarded as a valuable aid to the work of government, and we would hope for more effective use of this resource in future.

6.31 In a region where all other forms of communication are so difficult and unreliable, and in which the population
Table 6.1

Radio Chimbu: percentage of broadcast time devoted to news, information and talk programmes

<table>
<thead>
<tr>
<th></th>
<th>Pre-Independence (Sept. 1975)</th>
<th>Post-Independence</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>minutes</td>
<td>%</td>
</tr>
<tr>
<td>Monday</td>
<td>35</td>
<td>200</td>
<td>35</td>
</tr>
<tr>
<td>Tuesday</td>
<td>40</td>
<td>220</td>
<td>43</td>
</tr>
<tr>
<td>Wednesday</td>
<td>36</td>
<td>195</td>
<td>41</td>
</tr>
<tr>
<td>Thursday</td>
<td>39</td>
<td>210</td>
<td>41</td>
</tr>
<tr>
<td>Friday</td>
<td>36</td>
<td>195</td>
<td>54</td>
</tr>
<tr>
<td>Saturday</td>
<td>31</td>
<td>170</td>
<td>32</td>
</tr>
<tr>
<td>Sunday</td>
<td>17</td>
<td>100</td>
<td>19</td>
</tr>
<tr>
<td>Av. of week's programmes</td>
<td>34%</td>
<td>1290</td>
<td>38%</td>
</tr>
<tr>
<td>Total weekly broadcast time:</td>
<td>63.50 hours</td>
<td>36.25 hours</td>
<td></td>
</tr>
</tbody>
</table>

Source: Radio Chimbu, Kundiawa
is largely illiterate (Table 6.2), radio is a vital means of communication. We consider that the more isolated and less developed provinces should have priority over other provinces in the matter of radio services and facilities, as the type of service they are able to provide under such conditions is unique. For this reason, we recommend that Radio Chimbu's broadcasting schedule be restored to at least its former level.

Table 6.2
Chimbu Province—literacy in the indigenous population (10 years and over)

<table>
<thead>
<tr>
<th>Language</th>
<th>Males</th>
<th></th>
<th>Females</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>English (spoken)</td>
<td>5 409</td>
<td>10.6</td>
<td>1 499</td>
<td>2.8</td>
<td>6 908</td>
<td>6.6</td>
</tr>
<tr>
<td>Pidgin (spoken)</td>
<td>19 504</td>
<td>38.1</td>
<td>8 098</td>
<td>15.2</td>
<td>27 602</td>
<td>26.4</td>
</tr>
<tr>
<td>English (read, write)</td>
<td>4 936</td>
<td>9.6</td>
<td>1 253</td>
<td>2.4</td>
<td>6 189</td>
<td>5.9</td>
</tr>
<tr>
<td>Pidgin (read, write)</td>
<td>7 472</td>
<td>14.6</td>
<td>1 670</td>
<td>3.1</td>
<td>9 143</td>
<td>8.7</td>
</tr>
</tbody>
</table>

Source: Bureau of Statistics, Population Census 1971
Chapter 7

Social infrastructure

Health

7.1 Low rates of population growth in Chimbu in pre-colonial times were due mainly to high mortality rates, particularly among children. By establishing health centres and aidposts in urban and rural areas, government and mission organisations have now brought most Chimbu within easy access of medical care. Mortality rates have declined, and the incidence of debilitating diseases has decreased. However, some problems remain: uneven distribution of facilities; transport and communication difficulties; inadequate finance and staffing; the recent spread of formerly uncommon diseases; and general unawareness of the Chimbu that health problems such as malnutrition exist on a large scale.

Changing disease patterns in Chimbu

7.2 No evidence is available on major diseases and causes of death in Chimbu in pre-colonial times, but patterns must have been similar to those found by early health workers in the province. The prevalent illnesses were respiratory infections (thought to be partly due to poor living conditions), gastro-enteritis and dysentery, malaria, leprosy and malnutrition (kwashiorkor and marasmus). People were killed during warfare and died in famines which frequently followed prolonged periods of fighting. Under traditional custom, the death of some people, for example, lepers, women believed to be witches, and female infants was condoned, and suicide was an accepted response to grief. Malnutrition, while directly responsible for some infant deaths, is now thought to have been indirectly responsible for deaths in later life through the irreparable damage which is caused to the liver (Venkatachalam, 1962:76-8). Infectious diseases prevalent in Western society, such as measles and whooping cough, were unknown to the Chimbu.
7.3 During the first 20 years of colonial administration in Chimbu, disease patterns did not change greatly although occasional epidemics of introduced infections such as influenza no doubt occurred. Early explorers and administrators realised that Chimbu had little or no immunity to many of the diseases in coastal areas, and for this reason argued strongly against early, uncontrolled recruitment of labourers for plantations outside the highlands. When the Chimbu went to the lowlands as recruits under the Highlands Labour Scheme in 1949 precautions were taken both on departure and return to ensure some protection against malaria and tuberculosis (Brookfield, 1960:239).

7.4 Within Chimbu malaria seems to have spread in early colonial times from swampy low lying areas where it was endemic to the upper Wahgi Valley and other high altitude areas (Brookfield, 1961:445). Despite precautions to protect Chimbu moving to coastal areas, some men died of malaria and tuberculosis, and others spread diseases in their home villages when they returned. Epidemics of influenza, pneumonia (Brookfield and Brown, 1963:75), measles, whooping cough and other infectious ailments spread periodically into Chimbu.

7.5 More recently the most serious introduction has been venereal diseases, which became a particular problem in areas of Chimbu near the Highlands Highway. During the reconstruction of the road in 1969-73, the incidence of syphilis increased greatly, partly because the Chimbu population was by then largely immune to yaws and had little resistance to syphilis (National Health Plan, 1974:224). Since then it has declined, but the number of cases of gonorrhoea has increased.

7.6 Despite the spread of previously unknown diseases in Chimbu, the most serious illnesses are still respiratory diseases (including pneumonia), gastro-enteritis, malnutrition and related ailments, dysentery and, among adults, cirrhosis of the liver. In the highlands generally, dysentery is a more serious problem than in coastal regions. Table 7.1 shows the principal infectious diseases in each province for the year ending August 1975.

7.7 A comparison of data collected by Bailey (1966:26) on deaths in Kundiawa hospital in 1962-63 with data collected
Table 7.1

Reported infectious diseases year ending August 1975
(Number of cases per thousand)

<table>
<thead>
<tr>
<th>Province</th>
<th>Diarrhoea (Infant)</th>
<th>Dysentery</th>
<th>Hepatitis</th>
<th>Influenza</th>
<th>Measles</th>
<th>Meningitis</th>
<th>Whooping Cough</th>
<th>Tetanus</th>
<th>Yaws</th>
<th>Venereal Disease</th>
</tr>
</thead>
<tbody>
<tr>
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<td>-</td>
<td>1.9</td>
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<td>-</td>
<td>-</td>
<td>-</td>
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<td>0.1</td>
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<td>West New Britain</td>
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<td>0.4</td>
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<td>East New Britain</td>
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<td>0.1</td>
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</tr>
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<td>10.6</td>
<td>0.3</td>
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<td>1.3</td>
<td>0.02</td>
<td>2.9</td>
<td>0.04</td>
</tr>
<tr>
<td>TOTAL PAPUA NEW GUINEA</td>
<td>11.3</td>
<td>1.3</td>
<td>0.2</td>
<td>10.1</td>
<td>1.7</td>
<td>0.3</td>
<td>0.5</td>
<td>0.02</td>
<td>0.2</td>
<td>3.9</td>
</tr>
<tr>
<td>CHIMBU 1970-71</td>
<td>3.9</td>
<td>1.5</td>
<td>0.1</td>
<td>1.8</td>
<td>0.2</td>
<td>0.2</td>
<td>1.2</td>
<td>-</td>
<td>0.1</td>
<td>6.9</td>
</tr>
</tbody>
</table>

Source: Epidemiology - Monthly Returns, September 1974 - August 1975
by Lambert (1975:31) on the ailments of children admitted to the hospital in 1974 shows little change in the disease pattern in this period. Immunisation campaigns have certainly had an effect on epidemics of whooping cough, which were a major cause of infant deaths in 1963.

7.8 Compared with other highland provinces Chimbu seemed to be less affected by infectious diseases in 1975, but Table 7.1 must be treated with some caution in that the influenza epidemic of 1975 had not yet spread widely in Chimbu, and venereal disease is certainly under-reported. Chimbu has no health extension officer trained in the detection and treatment of venereal diseases, whereas both Mt Hagen and Goroka run regular clinics. For this reason little confidence can be placed in the figures showing an apparent decline in venereal disease in Chimbu between 1970-71 and 1974-75.

7.9 Malaria and leprosy, both present in Chimbu since pre-contact times, are still a problem. Malaria control through the spraying of DDT began in parts of Karimui in 1961 and since then has been extended to all parts of the province. The incidence of the disease has greatly decreased: in 1963, when spraying began in Kundiawa and Kerowagi Districts, parts of these areas had on average over ten cases per 1000, but by 1974 most cases in those areas were people who had contracted the illness elsewhere. A recent survey (Grimmond and Saott, 1975) indicated that Sinasina is the only area where local transmission2 might now be occurring (see Map 7.1). The recommendations of the survey team were that spraying could now cease in Kerowagi and Gembogi Districts, and Kundiawa excluding Sinasina, but should be continued in Chuave and Gumine.3 There was definite local transmission

1Hospital statistics do not necessarily reflect the actual conditions in the province as many sick or diseased people are never taken to the hospital.

2Local transmission: malaria caused by bites from mosquitoes breeding locally.

3Where spraying is discontinued 'passive case detection', i.e. the taking and analysis of blood slides from patients, must be maintained. This depends to a large extent on conscientious work by the Aidpost Orderlies, and an efficient system of uplifting and analysing slides.
INCIDENCE OF MALARIA, OCT. 1975

- **District boundaries**
- **AID POSTS INCLUDED IN SURVEY**
  - * No local transmission
  - ★ Possible local transmission
  - ★★ Local transmission

Map 71
at Kilau, where spraying only began in 1971.

7.10 The malaria situation in Karimui-Bomai is still serious. In 1974 over 7 cases per 1000 were reported in this area and the parasite rate was over 10 per cent, well above the target of 2 per cent, the aim of health authorities for the country (National Health Plan, 1974:190). Although Karimui-Bomai is sprayed two or three times a year, the incidence of malaria does not now seem to be decreasing, probably because of the mobility of the people who spend a great deal of their time in unsprayed bush houses. In view of possible resettlement schemes in Karimui-Bomai the malaria situation there must be kept under strict control.

7.11 Leprosy also mainly affects parts of Karimui-Bomai. In 1974 the estimated prevalence rate for Chimbu Province was 11.9 cases per 1000 (National Health Plan, 1974:214), the only provinces with higher rates being Gulf, Western, West Sepik and Western Highlands. In the 1962 leprosy survey of Karimui and Daribi census divisions the incidence was 60 cases per 1000 and, among the 10-19 age group, 97 per 1000, one of the highest rates then existing in the world (Simpson, 1975:29). Since then regular patrolling has brought the disease under control and many sufferers have been cured, but it is estimated that about half of those with leprosy in Chimbu have not yet been registered.

Current health facilities

7.12 Chimbu Province is now served by a provincial hospital at Kundiawa, twelve rural health centres and 81 aidposts. These are shown in Map 7.2. Kundiawa hospital has a specialised medical and nursing staff, provides dental services and medical technology and has surgical and X-ray facilities. It is not, however, a base hospital, and serious cases are referred to Goroka. Rural health centres, which now provide a comprehensive network within the province, are staffed by health extension officers or senior nursing staff, nurses and medical orderlies. The aim is to provide a health extension officer for each rural health centre, but this has not yet been achieved. Aidposts are staffed by aidpost orderlies. Each rural health centre administers the aidposts within its area, and runs maternal and child health clinics in rural areas. Monthly clinics are held at 105
HEALTH SERVICES, 1975

Rural Health Centres

12 Number of Maternal Child Health Clinics
10 Number of Aid Posts

0 5 10 15 20 25
kilometres

Map 72
locations within Chimbu, mainly based on existing aidposts, but with a few additional centres. In conjunction with the clinics mothers are given information on health education, nutrition and family planning, and those expressing further interest in the latter are invited to come to the monthly family planning clinics held at rural health centres. 4

7.13 During 1975 the provincial health centre in Kundiawa was allocated a full-time nutritionist, and patrols are now being conducted in rural areas in an attempt to make more accurate assessment of the extent of malnutrition. Chimbu also has a training school for nursing aides, which in the future should prove a useful source of trained staff.

Problems with health services in Chimbu

7.14 Facilities and finance. Despite the fact that the Chimbu have better health facilities than they had ten years ago, they are still not as well provided for as people in most other provinces. Figure 7.1 shows that in three out of four indices of development of health facilities, population per doctor, population per nurse and per capita expenditure, Chimbu is badly served. The number of people per aidpost in Chimbu was, as in all highlands provinces, high, but not as high as in the Southern or Western Highlands. But this index is misleading because present policy is to close aidposts in provinces with better provision of higher-order services, and the highest population per aidpost is now in East New Britain, the province with the second highest per capita expenditure. Because of the density of population in Chimbu most people are within easy access of aidposts (Fig. 7.1).

7.15 The Department of Public Health is aware of these regional discrepancies and has proposed that between 1974 and 1978 resources should be devoted to improving facilities and increasing staff in provinces like Chimbu and the Southern Highlands (National Health Plan, 1974:57). At least six years ago plans were put forward for the rebuilding of Kundiawa Hospital, but no definite decision has yet been taken. Meanwhile it is hoped that the health extension services can be increased.

4 See pp. 62-63.
HEALTH SERVICES IN PNG

Fig 71
7.16 **Poor communications and transport difficulties.** Although Chimbu now has a reasonably comprehensive network of rural health centres and is a compact province, poor roads and dispersed settlement patterns make it difficult for health extension staff to contact all areas effectively. Because Karimui-Bomai has no roads, and almost all patrolling must be done on foot, it is impractical to hold clinics at less than three-monthly intervals. Elsewhere clinic schedules are interrupted because nursing staff are unable to obtain transport. In early 1975 the Chuave area had no clinics for about five months because no car was available.

7.17 Not surprisingly, attendances at clinics fall off markedly when such irregularities occur. Table 7.2 shows that only 43.7 per cent of infants under one year old enrolled with the health clinics actually attended, and the proportion for one to five year olds was even lower. Attendance figures for the two mission centres at Mingende and Movi are high; the high figure for the Lutheran centre of Sigimaru in Karimui is because maternal child health clinics are run here in conjunction with the regular leprosy patrols. These figures are not a true indication of the percentage of young children in Chimbu who are regularly examined and inoculated against disease, because only 36 per cent of those under the age of one year, and 26 per cent of those aged between one and five years old were ever enrolled with the health clinics.

**Particular disease problems**

7.18 Most epidemics of the major diseases can be speedily brought under control with the use of antibiotics, and even during the severe influenza epidemic of September-October 1975 most deaths were probably associated with other causes aggravated by influenza. Two major problems require more detailed consideration.

7.19 **Venereal diseases.** All venereal diseases are under-reported in Chimbu. The dangers of these diseases in a society which accepts pre-marital intercourse are very great, and although people who have contracted the diseases are asked to name their possible contacts, lists are by no means exhaustive and the practical difficulties in tracing
Table 7.2

Attendances at maternal and child health clinics
September 1974 - August 1975

<table>
<thead>
<tr>
<th>Rural Health Centre</th>
<th>Infants 0-12 months</th>
<th>Children 1-5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average Att./mth</td>
<td>Att. % enrolment</td>
</tr>
<tr>
<td>Kerowagi</td>
<td>126.9</td>
<td>48.3</td>
</tr>
<tr>
<td>Chuave</td>
<td>44.5</td>
<td>20.8</td>
</tr>
<tr>
<td>Gumine</td>
<td>36.0</td>
<td>26.3</td>
</tr>
<tr>
<td>Movi</td>
<td>60.7</td>
<td>58.2</td>
</tr>
<tr>
<td>Kundiawa</td>
<td>208.8</td>
<td>41.8</td>
</tr>
<tr>
<td>Mai</td>
<td>40.3</td>
<td>38.6</td>
</tr>
<tr>
<td>Gembogl</td>
<td>56.4</td>
<td>26.9</td>
</tr>
<tr>
<td>Wandi</td>
<td>96.3</td>
<td>41.6</td>
</tr>
<tr>
<td>Koge</td>
<td>61.4</td>
<td>33.6</td>
</tr>
<tr>
<td>Mingende</td>
<td>117.4</td>
<td>59.3</td>
</tr>
<tr>
<td>Sigimaru</td>
<td>284.3</td>
<td>51.1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1133.0</strong></td>
<td><strong>43.7</strong></td>
</tr>
</tbody>
</table>

people are enormous. The prevalent form of venereal disease in Chimbu is gonorrhoea, but as obvious symptoms, particularly in women, are few, the disease is difficult to detect. The Department of Health has now started visiting groups such as high school students and informing them of the hazards involved, but far more needs to be done in the way of education.

7.20 Malnutrition. Statistics have shown that for many years malnutrition, or diseases related to malnutrition, have been a leading cause of hospitalisation in Chimbu. Various surveys (Venkatachalam, 1962; Lambert, 1975) carried out to assess the protein and vitamin levels of the average Chimbu diets have concluded that protein intake is generally insufficient, particularly for young children and older people. During the first year of life, when infants are largely dependent on breast milk, malnutrition is not normally marked. It can occur however, and if children are also suffering from gastro-enteritis, can quickly kill. Mothers unfortunately do not always realise until it is too late that their infants are suffering from this disease. Bailey (1966:15) mentions the vicious circle which develops: 'poor appetite - insufficient nourishment - mild malnutrition - worse appetite - worse malnutrition'. Among older children, no longer being breast-fed, the problem seems to be worse. Their diets are protein-deficient and, unlike adults, they may be unable to absorb enough bulk from a largely sweet potato diet to increase their protein intake (Korte, 1974).

7.21 So far no detailed longitudinal studies of nutritional changes in Chimbu have been carried out, but change can be examined by comparing the results of surveys conducted at different times. Lambert (1975:31), while carrying out a micro-study on nutrition in Yobakogl in Sinasina, discovered that the incidence of malnutrition as a reason for hospitalisation had decreased markedly since Venkatachalam's initial survey in 1955-56. During this period, weights and heights of both adults and children had increased. One can therefore conclude that malnutrition, at least in a serious form, is not as severe a problem as it was in the past, but there is no room for complacency. Maternal & Child Health clinics can play an important part in pin-pointing areas with specific nutrition problems, but until clinics see the majority of children under five years of age, the
true extent of the problem cannot be assessed. At present Karimui seems to have a much higher incidence of malnutrition than other parts of Chimbu (Korte, 1974), perhaps due partially to the debilitating effects of malaria and other diseases. However, over 90 per cent of Karimui children are enrolled with health clinics — the reported incidence of malnutrition elsewhere would probably be higher if clinic enrolment were similarly comprehensive.

**Poor reputation of Chimbu**

7.22 Health personnel, like other public servants, do not like being posted to Chimbu Province because of its people's reputation for fighting and non-cooperation, and also because facilities are poor. Most of these difficulties are grossly exaggerated, but problems do arise because of a lack of understanding between health workers from outside Chimbu, and rural people. This type of problem may be more severe for health workers than it is, for example, for teachers, because the life or death of an individual may be involved, and the responsibility of the health workers is therefore so much greater. We recommend, therefore, that greater effort be made to recruit and train health workers from within the province.

7.23 **Recommendations**

1. Government expenditure on health in Chimbu should be increased relative to other provinces.

2. Within the province, the activities of extension workers in all fields should be co-ordinated.

3. Emphasis should be given to the work of the Maternal and Child Health clinics in order to combat the effects of malnutrition, promote family planning, and improve family health.

4. Chimbu Province needs a clinic staffed by properly trained personnel for the diagnosis and treatment of venereal diseases. Extension work for purposes of education, diagnosis and treatment in rural areas should be organised by the staff of this clinic.
Education

7.24 Schools, mission and government, were opened in Chimbu soon after the beginning of the colonial period. Many Chimbu who made the initial break with their traditional society, and travelled to other parts of Papua New Guinea to work were taught Pidgin in these early schools. Although the education system has changed, the Chimbu continue to regard schooling as a main avenue to material advancement. But a concern is growing at the increasing difficulties school leavers encounter in finding employment, and some feel that the education system is failing to fulfil its promises.

7.25 This section traces the development of education in Chimbu, outlines the present situation, and suggests changes which might make schooling more relevant to the needs of the province in the future. Some of these suggestions are of a general nature, and apply not only to education in Chimbu but in Papua New Guinea as a whole.

7.26 The first schools in Chimbu, teaching Pidgin and/or Kote,\textsuperscript{5} were started at mission stations at Mingende and Toromambuno (Roman Catholic), and Ega (Lutheran) in the 1930s. In 1936 the administration also opened a small Pidgin school in Kundiawa with two teachers from Rabaul (NGAR, 1936–37:29). This school lapsed during the War, but was reopened later in the 1940s, and by 1950 had 70 pupils and two indigenous teachers (Patrol Report 3:1950–51). Immediately after the War the administration opened a few Pidgin schools in other parts of the province, for example at Gogo in Elimbari in 1947. Until 1956 these, with additional Pidgin schools at some of the newer mission stations such as Koge, Kumul and Moruma, were the only schools in Chimbu.

7.27 In 1956 the first administration schools teaching in English were opened at Kundiawa, Kerowagi and Chuave (Patrol Report 12:1956–57) and about the same time some of the larger mission schools also changed to the English

\textsuperscript{5}A language from the Finschhafen region of Morobe Province, used by Finschhafen missionaries in the highlands as a medium of instruction in the doctrines of the Lutheran church.
sylabus. But most schools only had elementary classes (Standards One to Three) and until at least 1960 all pupils going beyond these stages had to go either to Kondiu Catholic Primary School in Kerowagi District, or Gon in Kundiawa. Between 1960 and 1967 many more primary schools were opened, firstly in more accessible areas, and later in remoter regions. The first Primary T School6 in Elimbari census division was opened at Karawiri as late as 1966 (Patrol Report 13:1966-67). By 1967 Chimbu had 56 Primary T Schools, 37 of which were run by the missions. Missions also ran a large number of 'Exempt' primary schools which taught mainly in Pidgin or Kote. Later many mission schools not teaching the Territory syllabus were closed, and others were taken over and absorbed into the administration's education system. At present the province has 79 primary schools (44 government, 22 Roman Catholic and 13 others, mainly Lutheran); only nine Lutheran Pidgin schools remain (Map 7.3).

7.28 Until the 1970s Chimbu had few places available to students going beyond primary school level. In 1962 a Junior Technical School, with facilities for about fifty boys, opened in Kundiawa and gave two-year courses combining further academic training with instruction in skills such as carpentry. High school students had to go to other provinces until, in 1966, Kondiu became a boys high school. In 1968 the first administration high school opened at Kerowagi, and, in the same year, the Junior Technical School was renamed the Kundiawa Vocational Centre. During the last few years two more vocational centres, one for boys utilising the facilities of a former road construction camp at Gui, and one for girls at Mingende, have opened. Another vocational centre at Koge Catholic Mission has recently been closed. In 1973 a new boarding high school was built at Chuave, followed in 1974 by a day high school at Muaina in Sinasina.

School enrolment

7.29 Since 1965 enrolment at primary schools in Chimbu has increased from 20 to 28 per cent of the population aged six

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6Primary T School - Primary School teaching the Territory (Papua New Guinea) syllabus, as opposed to the Australian syllabus.
to sixteen but, as in other highland provinces, enrolment is still below the average for the whole country (Map 7.4). Much higher percentages of children from Papuan and Island provinces go to school.

7.30 High school enrolment shows similar patterns (Map 7.5). Although the number of post-primary students in Chimbu has risen from 120 in 1965 to over 1100 in 1975, the level of enrolment is still lower than in many other parts of the country. Moreover, the numbers of Chimbu children at high school have increased rapidly since 1972 with the opening of two new high schools. Until 1972, Chimbu enrolment in high schools was the lowest in the country.

7.31 Within Chimbu, not all children have the same opportunities for education (Map 7.6). In 1975, some census divisions had much higher percentages of children at school than others. West Koronigl (including Kerowagi), Waiye (including Kundiawa), Dom and Nambaiyufa census divisions all had relatively high levels of enrolment but, in some densely populated areas such as Mitnande and Wikauma, or isolated areas such as Karimui-Bomai, only a small number of children were at school. Clearly these areas should be considered first if new schools are planned.

7.32 Another inequality exists in the sex distribution of children at school. In 1975 two-and-a-half times as many boys as girls attended Chimbu primary schools (Table 7.3). In more accessible areas nearer towns, the percentage of girls was higher, but in the more remote areas of Elimbari and Nambaiyufa, less than 20 per cent of primary school children were girls. In Karimui-Bomai the figure was as low as 9 per cent. This is probably a reflection of the attitudes of parents in more isolated areas, who consider that money spent on educating girls is money wasted. The percentage of girls at high school was even lower, mainly because the investment involved is much greater.

7.33 Map 7.6 is not an accurate reflection of educational opportunity in Chimbu because primary schools in some areas had very few Standard Six pupils. Map 7.7 shows the place

7The top level of primary schools, where final results determine entry to secondary schools.
### Table 7.3

**School enrolment 1974-75**

<table>
<thead>
<tr>
<th>Census Division</th>
<th>Primary school</th>
<th>High school intake, 1974</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>Waiye</td>
<td>885</td>
<td>521</td>
</tr>
<tr>
<td>Yonggamugl</td>
<td>625</td>
<td>265</td>
</tr>
<tr>
<td>Dom</td>
<td>503</td>
<td>270</td>
</tr>
<tr>
<td>Sinasina</td>
<td>690</td>
<td>337</td>
</tr>
<tr>
<td>Gunanggi</td>
<td>472</td>
<td>133</td>
</tr>
<tr>
<td>Wikauma</td>
<td>347</td>
<td>128</td>
</tr>
<tr>
<td>MariGl</td>
<td>643</td>
<td>181</td>
</tr>
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<td>Salt</td>
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<td>Nomane</td>
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<td>307</td>
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<tr>
<td>West Koronigl</td>
<td>670</td>
<td>346</td>
</tr>
<tr>
<td>Kup*</td>
<td>490</td>
<td>240</td>
</tr>
<tr>
<td>Chuave</td>
<td>446</td>
<td>190</td>
</tr>
<tr>
<td>Elimbari</td>
<td>441</td>
<td>103</td>
</tr>
<tr>
<td>Nambaiyula</td>
<td>602</td>
<td>121</td>
</tr>
<tr>
<td>Mitnande</td>
<td>445</td>
<td>122</td>
</tr>
<tr>
<td>Miglkande</td>
<td>388</td>
<td>218</td>
</tr>
<tr>
<td>Karimui</td>
<td>128</td>
<td>12</td>
</tr>
<tr>
<td>Bomai</td>
<td>31</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>8909</td>
<td>3678</td>
</tr>
</tbody>
</table>

* Estimate: three out of seven schools closed due to tribal fighting.
** Some pupils from this census division attend primary school in Karimui.

#### High school enrolment, 1975

<table>
<thead>
<tr>
<th>School</th>
<th>Fm I</th>
<th>Fm II</th>
<th>Fm III</th>
<th>Fm IV</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>Kerowagi</td>
<td>129</td>
<td>31</td>
<td>160</td>
<td>40</td>
<td>68</td>
</tr>
<tr>
<td>Kondiu</td>
<td>123</td>
<td>36</td>
<td>96</td>
<td>38</td>
<td>79</td>
</tr>
<tr>
<td>Chuave</td>
<td>97</td>
<td>17</td>
<td>77</td>
<td>21</td>
<td>35</td>
</tr>
<tr>
<td>Muina</td>
<td>100</td>
<td>26</td>
<td>60</td>
<td>41</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>449</td>
<td>110</td>
<td>393</td>
<td>140</td>
<td>182</td>
</tr>
</tbody>
</table>

Source: Annual Returns, Provincial Education Office, Kundiawa
of origin of students entering high school in 1974. Although in theory 30 per cent of all Standard Six pupils in the province were offered high school places, the uneven distribution of Standard Six classes gave some areas a greater chance than others. The whole of Kerowagi District, and Waiye, Niglkande and Elimbari census divisions were allocated a relatively large number of high school places but Mitnande, Wikauma, Gunanggi, Nomane and Karimui-Bomai had very few. Nambaiyuifa, which appeared to be one of the most fortunate areas in terms of total school enrolment, had few high school places because many of the primary schools there are recent and did not have Standard Six classes.

7.34 The lack of Standard Six classes also prevents students proceeding to Chimbu's three vocational schools which in 1974 had places for about 160 students. Although these schools have been willing to take students from any part of Chimbu, in practice most students come from Kerowagi and Kundiau Districts. Obviously children from some parts of Chimbu have less chance of higher education, and people from the underprivileged areas are well aware of their predicament. Great concern was expressed at the rural workshops in September 1975 in Gumine and Gembogl because the government had deferred plans for high schools in these centres (see Appendix 4). Any further extension of secondary education in Chimbu should give priority to these two districts.

School Curricula and Organisation

7.35 With the exception of a few remaining Lutheran Pidgin schools and the Kundiau Dual Curriculum school (to be re-classified as a foreign school in 1976) all Chimbu primary schools follow the Department of Education syllabus. Most instruction is in English, and the emphasis is on academic subjects. The high schools also concentrate on the academic side, although they all produce some of their own food and give some training in agricultural techniques.

7.36 Most pupils at Kundiu, Kerowagi and Chuave High Schools are boarders. Muaina was designed as a day school, but because many students live far from the school it has proved necessary to build dormitories to accommodate some as weekly boarders. The school also provides facilities for all students to do homework on the premises before returning
home. Because Muaina is theoretically a day school, it must take all its students from nearby, which at present gives primary school leavers from Sinasina an advantage over those from other areas who must compete for places at the three boarding schools. It is estimated that in 1976 about 75 per cent of eligible students from Sinasina will be offered places at high school, simply because Sinasina primary schools in 1975 had few Standard Six classes.

7.37 The two boys vocational centres - Gui and Kundiawa - offer different types of training. Gui, which is situated on about 66 hectares of land bordering the Wahgi river at the extreme western boundary of Chimbu, teaches students agricultural practices. The school, which has about 40 pupils, runs cattle and pig projects, has a fishpond, and grows vegetables, most of which are sold to Kerowagi High School; some are sent in bulk to Mt Hagen. It also sells petrol, runs three trade stores and a bulk store. Kundiawa Vocational Centre, which has a much smaller area of land (4.5 hectares) gives four basic courses: mechanics, carpentry, plumbing and agriculture. During their year at the school students select three of these courses. Unlike Gui, the school cannot produce enough food to support itself, but through the sale of trade store goods from its canteen at Kundiawa hospital, and income earned from car-repairing, furniture and coffin manufacture, plumbing jobs and other services, it earns a large enough income to break even. Both schools prefer to take students aged at least 15 and many have left primary school several years before enrolling.

7.38 The girls vocational school at Mingende trains about 40 students in domestic science, dress-making and typing. Many girls have recently completed Standard Six at Catholic primary schools and are unlikely to become wage earners when they leave, although their training enables them to earn some money through making clothes or running a haus kai-kai (cafe) in their own home communities. Some girls who become proficient in typing are employed by the government typing pool in Kundiawa.

7.39 Apart from these more conventional types of post-primary education, two centres offer courses for Standard Six leavers. Gon Primary T School in Kundiawa conducts a skulanka class whose purpose is to raise the academic level
HIGH SCHOOL ENROLMENT, 1974

% of population aged 6-16

0 0.1 0.5 1 10 15 20 25 kilometres

Map 77
of Standard Six students to the equivalent of high school Form II. This experiment will terminate in 1976 because the Department of Education recognises that many Form II leavers are no longer able to find formal-sector employment and feels that the skulanka programme will merely raise false hopes. However the lack of formal-sector employment opportunities indicates that informal-sector activities should be more widely promoted in schools. Classes oriented to the provision of rural services might well be given in skulanka and community education centres. Such classes could include trade store management, repair and maintenance services, food preparation and sale, and the like.

7.40 Kewamugl, a rural community in Kerowagi District, has started an Educational Centre designed to give further instruction to Standard Six pupils and ultimately to provide adult education for their parents. About 40 students who have recently completed primary school attend the centre, and further their education through programmed correspondence courses. The curriculum includes practical projects which involve the students with aspects of rural life. The aim is to demonstrate that life in rural communities can be satisfying, and is preferable to unemployment in towns.

Basic education problems

7.41 The most critical problem is that education policy is a national policy applied throughout the country with virtually no scope for modification to varying regional conditions. The present national education policy is largely irrelevant to the future needs of Chimbu society, particularly as these needs concern school graduates. They are poorly equipped and oriented by the curriculum for life in a rural environment, and few will be able to find wage employment in towns. A number of Chimbu realise this, and have expressed their dissatisfaction with the present system (see Kambu et al., 1974:7). Others consider that the system should be maintained and even augmented as they feel that changes which give less emphasis to creating an elite will further reduce opportunities for Chimbu people. Because of their later start, relatively few Chimbu have reached positions of national prominence.

7.42 Other education problems in Chimbu arise from internal conditions. They include
1. an uneven distribution of facilities;
2. the rapid turnover rate of teaching staff;
3. an imbalance in the number of Chimbu holding more highly-qualified posts;
4. a concentration of the more highly-educated people in towns, patrol posts and missions;
5. difficulties in raising school fees for those living in areas with little cash cropping; and
6. a complete lack of forward planning in education in the province.

Recommendations relating to the present system

7.43 Primary education. The primary school syllabus should be oriented to the life of the rural community. Emphasis in the curriculum should include the theory and practice of agriculture, carpentry and book-keeping.

In Chimbu, enrolment should be at the age of eight or nine, so that when students have completed Standard Six they will be old enough to take their places in the rural community.

Adoption of these proposals will lead to fewer problems with dropouts, and by the time students complete primary schooling they will be physically mature for manual work in villages and will have skills which can be applied in their communities.

7.44 Secondary education. High school students are already fairly mature, but should also be more adequately prepared for rural life. Students in upper forms (Four, Five and Six) should return to their villages for a period before taking their examinations. In this way they will remain part of the rural community and will have an opportunity to learn many

8These proposals have been made by Henry Bi.
traditional practices of which they would otherwise be ignorant.

Ideally, the present four high schools in Chimbu should be re-oriented to become an agricultural high school; a technical high school concentrating on mechanics and carpentry; an academic high school; and a commercial high school.

7.45 *Vocational education.* Vocational schools are needed for agriculture, to teach mature students theoretical and practical methods of improving their agricultural techniques; carpentry and metal-work; and accountancy and technical training, particularly for small businesses.

Some reorganisation of existing vocational and high schools to provide an ideal combination of the above emphases should be considered. As an example, if Kerowagi were to become an agricultural high school, Gui vocational centre might be used as the 'field training school' for practical agricultural work.

Vocational education such as recommended here would produce people with intensive training in one or two fields. Future employers might be persuaded to sponsor students during their studies.

At present many students in the vocational schools are too young, and in the absence of enough jobs cannot find ways to use their skills. If they were enrolled at a later stage their opportunities for employment might be increased.

7.46 *Community education.* Since a surplus of teachers is anticipated in the next few years, teachers might be posted to communities to organise and supervise education in health, agriculture, and other community needs. Such teachers could help to set up small libraries, sell newspapers and broadsheets, and give information on the work of government departments and ways to contact government officials.

Teachers undertaking community work should be fully aware of such possibilities for community assistance
### Table 7.4

Province of birth by education by sex (percentage)

<table>
<thead>
<tr>
<th>Province of birth</th>
<th>No Education</th>
<th>Std 1-3</th>
<th>Std 4-6</th>
<th>Form I-II</th>
<th>Form III-IV</th>
<th>Total Number</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Western</td>
<td>7.9</td>
<td>75.0</td>
<td>78.9</td>
<td>18.8</td>
<td>7.9</td>
<td>6.2</td>
</tr>
<tr>
<td>Gulf</td>
<td>16.7</td>
<td>47.2</td>
<td>16.7</td>
<td>19.4</td>
<td>22.2</td>
<td>33.3</td>
</tr>
<tr>
<td>Central</td>
<td>35.3</td>
<td>45.3</td>
<td>17.2</td>
<td>22.1</td>
<td>18.1</td>
<td>21.1</td>
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<tr>
<td>Milne Bay</td>
<td>13.5</td>
<td>-</td>
<td>13.5</td>
<td>30.0</td>
<td>26.9</td>
<td>45.0</td>
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<tr>
<td>Northern</td>
<td>-</td>
<td>55.9</td>
<td>13.6</td>
<td>11.8</td>
<td>38.6</td>
<td>29.4</td>
</tr>
<tr>
<td>Southern Highlands</td>
<td>40.4</td>
<td>83.9</td>
<td>23.1</td>
<td>7.1</td>
<td>28.8</td>
<td>8.9</td>
</tr>
<tr>
<td>Western Highlands</td>
<td>71.1</td>
<td>91.4</td>
<td>12.5</td>
<td>5.6</td>
<td>11.0</td>
<td>2.4</td>
</tr>
<tr>
<td>CHIMBU</td>
<td>84.6</td>
<td>94.4</td>
<td>11.4</td>
<td>4.8</td>
<td>3.5</td>
<td>0.7</td>
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<tr>
<td>Eastern Highlands</td>
<td>50.3</td>
<td>78.9</td>
<td>26.3</td>
<td>14.3</td>
<td>17.4</td>
<td>5.8</td>
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<tr>
<td>Morobe</td>
<td>22.8</td>
<td>49.5</td>
<td>31.7</td>
<td>35.2</td>
<td>35.3</td>
<td>14.3</td>
</tr>
<tr>
<td>Madang</td>
<td>33.1</td>
<td>68.4</td>
<td>36.3</td>
<td>12.6</td>
<td>23.6</td>
<td>16.8</td>
</tr>
<tr>
<td>East Sepik</td>
<td>24.6</td>
<td>59.1</td>
<td>24.6</td>
<td>22.7</td>
<td>26.3</td>
<td>13.6</td>
</tr>
<tr>
<td>West Sepik</td>
<td>57.1</td>
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<td>7.1</td>
<td>15.4</td>
<td>21.4</td>
<td>46.2</td>
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<tr>
<td>Manus</td>
<td>9.5</td>
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<td>23.8</td>
<td>25.0</td>
<td>23.8</td>
<td>25.0</td>
</tr>
<tr>
<td>New Ireland</td>
<td>12.5</td>
<td>8.3</td>
<td>12.5</td>
<td>50.0</td>
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<tr>
<td>West New Britain</td>
<td>10.0</td>
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<td>10.0</td>
<td>25.0</td>
<td>20.0</td>
<td>25.0</td>
</tr>
<tr>
<td>East New Britain</td>
<td>13.2</td>
<td>18.2</td>
<td>9.2</td>
<td>18.6</td>
<td>36.8</td>
<td>27.3</td>
</tr>
<tr>
<td>Bougainville</td>
<td>11.1</td>
<td>16.7</td>
<td>-</td>
<td>-</td>
<td>27.8</td>
<td>66.7</td>
</tr>
<tr>
<td>TOTAL</td>
<td>83.7</td>
<td>94.0</td>
<td>11.7</td>
<td>4.9</td>
<td>3.9</td>
<td>0.9</td>
</tr>
</tbody>
</table>

**CHIMBU (by district)**

<table>
<thead>
<tr>
<th>District</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chuave</td>
<td>86.9</td>
<td>97.6</td>
</tr>
<tr>
<td>Gumeine</td>
<td>88.4</td>
<td>95.8</td>
</tr>
<tr>
<td>Kerowagi</td>
<td>77.8</td>
<td>88.2</td>
</tr>
<tr>
<td>Kundiawa</td>
<td>85.2</td>
<td>95.1</td>
</tr>
<tr>
<td>Gembogl</td>
<td>73.7</td>
<td>89.4</td>
</tr>
</tbody>
</table>

before accepting such posts.

Community teachers would remain within the Department of Education. Such a system of education would be of benefit to the entire country.

7.47 Other solutions have been proposed by those involved with post-primary education in Chimbu. The manager of Kundiawa vocational centre has suggested that as students now show a greater interest in agricultural courses, staff might carry out extension work with students during and after completion of their studies, to give them a better chance to implement their skills in the villages. For such extension work to be effective students would have to be drawn from areas adjacent to the schools rather than from all parts of the province as at present. Gui vocational centre proposes to adopt this system in 1976, restricting its student intake to Kerowagi District. This system undoubtedly will lead to a wider demand for vocational schools as students from other areas are excluded from the existing establishments. It is recommended that Gumine and Gembogl Districts should establish vocational centres rather than new high schools.

Recommendations relating to internal education problems

7.48 New schools should be located in those areas at present disadvantaged by the present uneven distribution of education facilities (see para 7.31).

7.49 Table 7.4 shows the educational levels of the population of Chimbu Province resident during the 1971 Census. Over 40 per cent of the men born in certain coastal and island provinces had attended high school, compared with less than 0.5 per cent of Chimbu men. Almost certainly, the education levels of Chimbu men living outside their province would be higher. Few jobs for qualified people are available in Chimbu and in any case educated Chimbu seem to prefer employment elsewhere. In a survey of the area

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9Gulf, Milne Bay, Manus, New Ireland, Northern, East and West New Britain, Bougainville.

10See para. 8.63, p.208.
preferences of first-year students at institutes of tertiary education throughout the country (Ward and Weinand, in preparation), Chimbu students were less attracted to their home province than were students from any other province [to their home province] and Chimbu was not a preferred province by people from any part of the country. Such prejudices are obviously difficult to overcome and much responsibility for an improved image rests with the Chimbu themselves, both within and beyond their province (see Chapter 11). It is recommended that young educated Chimbu be actively encouraged to seek employment within the province. Among teachers, some progress can be recorded: 65 per cent of all primary school teachers in the province are now from Chimbu.

7.50 Very few education personnel, from junior teachers to senior administrators, stay more than a year or two in the province. This is partly due to Chimbu's reputation (which is not entirely justified) for violence, non-cooperation, isolation and generally limited facilities, but also because

... the province has been used as a training ground for superintendents, inspectors, adult education officers, curriculum advisors, etc. ... Teachers in Chimbu suggest that new staff appointed to the province be required to stay for a minimum of two or three years before moving elsewhere (H. Bi, personal communication).

In 1975, Chimbu province had 43 promotional positions available in the Department of Education, but received applications from only six coastal teachers; in the last two years the province has had four Superintendents of Education. While the high turnover in teaching staff is partly due to the recent rapid rate of localisation, a situation of serious instability is created which is detrimental to the education process.

7.51 Although inevitably most of the better-educated people are obliged by their positions to live in or near the towns, such concentration is a problem in that society is polarised between the small urban elite and the large rural population. Teachers in rural schools could play a significant role in bridging the gap between the two groups. However, it is essential that they be aware of the conditions
and specific problems of their community. Even so, difficulties arise from mistrust between parents and teachers, and the latter are often accused of attitudes of superiority because they are better educated (see Kambu et al., 1974).

7.52 People from some parts of Chimbu have difficulty raising school fees, particularly high school fees. The current fees vary from K.5 to K.10 annually for primary students, and high school fees range between K.40 and K.75. People of the upper Chimbu valley, Salt-Nomane and Bomai-Karimui regions, with limited cash cropping, have the greatest problem in finding school fees. It is recommended that government policy on school fees be reassessed, and that either a subsidy be granted to families in less developed regions, or a means test for school fees be applied.

7.53 Chimbu Province does not have an education plan. Although rapid turnover of staff in senior administrative positions in the province is partly responsible for the lack of planning, the situation should be remedied as soon as feasible. Most Chimbu with primary or limited secondary schooling will have to find occupations in their own rural communities, hence it is imperative that the education system be adapted to meet these needs, even though most Chimbu have not yet recognised an approaching crisis.

Community development and welfare

7.54 About 95 per cent of the Chimbu are rural dwellers, separated physically and socially from the amenities and services offered in urban areas, and lacking the knowledge and experience to make the best use of these services. The main task of Community Development and Welfare in Chimbu is to disseminate such knowledge and to act as a bridge between people in rural communities and government officials in the towns. Men from rural areas, who are more articulate than the women and more aware of how opportunities in business development can be exploited, tend to consider the community development officers' activities relevant only to village women. The Department of Community Development and Welfare has two centres, both located in Kundiawa. At present the Department concentrates mainly on helping rural women to improve their way of life, and assisting them in business projects.
7.55 **Community Development Office.** This office, staffed by a provincial development officer, government liaison officer and supporting staff, is a centre for disseminating information on political change, business development and financial assistance to rural areas. Its role also includes the establishment of clubs, community centres and cottage industries, and instruction in simple technology which will help to improve living standards. Work of this type must be carried out through extension services, but the Department is too strongly centralised in Kundiawa, and effective extension work, which would involve visiting rural communities in the evenings and at weekends, is unpopular with many of the staff. Isolated parts of Chimbu rarely have contact with the office. The only way to overcome this problem would be to disperse staff to outlying areas, but the central office does not have the resources to do this, and attempts so far to employ lower level staff in rural communities have failed.

7.56 **Community Education Centre.** A community education centre was set up in Kundiawa in 1968 to train Chimbu women as council welfare assistants. Their training included courses in health, nutrition, sewing, handicrafts and cooking. On completion of their year's instruction, they returned to their own communities where they were employed by the councils to teach these skills to other women. Few have stayed in their jobs for longer than six months, leaving either because the pay was too low, or because they were disillusioned with the work. The main reason for failure seems to have been that all trainees were immature single women who lacked the leadership qualities necessary to teach older village women new ways. The success of such a training scheme requires more co-operation between older women with little education and young women with some vocational training, perhaps working as teams.

7.57 In 1972, following a lack of demand from Chimbu women for training as welfare assistants, the centre began training community development officers, all of whom had Form IV secondary education. These trainees came from all parts of Papua New Guinea. In 1975 the entire training programme of the Department was reorganised and all trainees, both council welfare assistants and community development officers, were sent to the country's only other training centre in Alotau and to the Administrative College in Port
Moresby. During 1975 Kundia centre was used only for short courses in nutrition for male trainee patrol officers. Its future is doubtful; suggestions which have been made include its use as an extension to the police barracks, or as hostel accommodation.

7.58 **Community centres.** During the last few years the Community Development Office has formed some ten community centres in different parts of the province but most have failed. The only centre which still functions is Kewamugl, where the club is closely linked to a community education project (see 7.40 above). The reasons for failure are said to be the lack of interest by rural people in any activity which is not purely social, financial mismanagement, and lack of effective extension work. A fundamental reason may be that many activities sponsored in the clubs are those encouraged by the Office of Community Development, and not those which the members of the community actually want. Further, because the men are not interested, they have not given their support, and the women have been unable to deal with some of the problems which have arisen.

7.59 **Women's clubs.** Recently, groups of Chimbu women in various parts of the province have expressed interest in starting their own clubs, which they see both as social centres and centres for the promotion of small business ventures. The women want to learn new methods of gardening, ways of improving family health, and how to organise small businesses such as cafes, weaving centres and the sale of traditional handicrafts. The main reason for this movement is a wish to become more independent financially.11

7.60 During 1975 interest increased due to the influence of a few women who visited Yangpela Didiman (Young Farmers' Club) in Banz, and who attended the International Women's Year Conference in Port Moresby. On their return these women travelled to different parts of Chimbu and described their experiences, emphasising the ideas of self-reliance and women's rights which had become popular. People from the Kup area are hoping to establish a women's training

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11 See Appendix 4 - Workshops. Several women commented:

I look after the coffee, I pick the coffee and I dry the coffee - but my husband sells it and collects the money. All the money is spent on gambling and drink.
centre to be called *Kuman Yangpela Didimai*.
The men of Kup, supporting this project, have already set aside an area of land, and people expect that the centre will be used by women from all parts of Chimbu who, after undergoing their training, will return to their homes and teach their friends. In Gembogl a group of women is hoping to start a business selling frozen fresh meat, and in Gumine the women are interested in weaving and handicrafts industries.

7.61 The growth of interest in women's clubs in Chimbu is a healthy sign, and indicates how the work of the Department of Community Development ought to be directed. Because rural people themselves want these clubs, the motivation for their success seems much stronger than in clubs started by the government office. The women involved in organising the clubs are all from the older, more mature age groups, and will be able to provide the leadership necessary for their success. Wide scope exists for involving younger women with higher levels of literacy and training, and a combination of the two age groups would be ideal. The establishment of women's clubs might also give women some much-needed status in an essentially male-dominated society.

7.62 *Chimbu women's conference.* After some delegates from Chimbu had attended the 1975 International Women's Year Conference in Port Moresby, it was decided to hold a women's conference in Kundiawa. The main aim was to inform Chimbu women about the work of different government departments, and to allow them to air their views and discuss their problems with government officials. The conference covered the fields of agriculture, education, police, community welfare, health, politics and government, and business development. The main points which arose were: that men and women must work together for the good of the rural community, with the men becoming more involved in health, family planning and welfare, and the women in agriculture and business development; that women should be included in the Area Authority and become involved in local government councils; that more women should be employed in upper levels of the public service; and that women should be consulted when their husbands seek Development Bank loans or other financial assistance, and should also be able to obtain such loans themselves. The conference ended with the establishment of a Chimbu women's council – *Chimbu Ambu Makai* – the aim of which is to help Chimbu women with their problems, encourage female participation in community affairs, and
keep rural women informed about important developments within the province.

7.63 In summary, the work of the Department of Community Development and Welfare in Chimbu has not been effective because of poor organisation and lack of policy formulation in Port Moresby; lack of staff to carry out extension work in Chimbu; and staff training programmes which involve little practical work and too many administrative duties. Attempts to train an effective body of lower level extension workers have failed because young inexperienced workers have not been supported by the Department after taking up their positions. The Department has not consulted closely with village people before setting up community centres.

7.64 It is recommended that:

1. present development of women's clubs and business activities be encouraged, and that women be given advice and assistance in obtaining loans and grants from the Rural Improvement Programme;

2. the extension work of the Department of Community Development and Welfare be concentrated on these projects, and full consultation be held at all times with those who have requested help;

3. young extension workers who have completed training be more closely supervised, and encouraged to work in conjunction with older married women in the village;

4. men be encouraged to cooperate with women in community development, so that eventually 'women's clubs' may grow into true community centres involving all age groups and covering many different activities.

Missions

7.65 Mission stations, some of which have been established in Chimbu since the first years of colonial contact, have had important influences on society. In addition to introducing people to Christianity in various forms,
missions have provided health and education services; they have attempted to change traditional beliefs and values; and have influenced settlement patterns. The Roman Catholic and Lutheran churches, both of which established missions in Chimbu before 1935, have been by far the most important, but missions have also been established by the Anglicans, Seventh-Day Adventists, Swiss Evangelical Brotherhood, New Tribes and Baptists. Translators from the Summer Institute of Linguistics are working in some Chimbu language groups.

7.66 **Roman Catholic Mission.** The Catholic Mission is established throughout Chimbu but is particularly strong in those areas where it settled first, in Gembogl, Kundiawa and Kerowagi Districts and in parts of Gumine and Sinasina (Map 2.1). The Mission has a strongly centralised organisation based on parishes, most of which are still run by expatriate priests. The main station of each parish varies in size, some consisting only of church and meeting house, but others providing a variety of services including schools, health centres, trade stores and wholesale facilities. In addition to staff based at the main stations, the Catholic Mission employs catechists as teachers and lay preachers in rural areas.

7.67 Catholic Mission centres are important social foci for rural people, many of whom walk considerable distances to attend religious services. They also provide entertainment facilities and organise meetings of wide social relevance. For example, in late 1974-75 a group of influential men calling themselves the 'Leaders of Mingende' met fortnightly to discuss methods of stopping tribal fights, and offered to mediate between warring Gena and Siku groups in the Kerowagi District.

7.68 Because the Catholic Mission is strongly centralised it has less daily contact with rural people than the Lutheran Mission, and has not had a noticeable influence on settlement patterns. It has not actively discouraged traditional customs, and in strong Catholic areas the priest is often called in to give a blessing before a pig-kill 'takes place. Although polygamy is not encouraged, older men now wishing to be baptised may do so without divorcing their extra wives.
Lutheran Mission. The Lutheran Mission, which started in Chimbu in 1934, is organised into ten circuits (Seket), each of which has between 35 and 40 congregations. The circuits, which are dispersed throughout the province, are grouped into parishes, each of which is under the supervision of pastors and elders. Missionaries in charge of circuits are still usually expatriates, but parishes are in charge of indigenous pastors, 93 per cent of whom are now from Chimbu although in the past many came from Finschhafen in Morobe Province. The church also employs about 700 others as teachers, elders and lay preachers. Because the Lutheran Mission depends on a less strongly centralised organisation church workers have more contact with rural people, and in the early days influenced them to consolidate settlements near the church centre. Although these settlement clusters, such as Emai in Sinasina, have survived, many people in the group do not use them as permanent residences. Major Lutheran Mission centres do not offer as comprehensive a range of services as those offered by the Catholic Mission, and they are less important social foci.

The Lutheran Mission policy on education has changed since the pre-war years. Several established Lutheran Mission schools teaching in English are all now under the government. The Mission's education policy is to encourage teaching in Pidgin and try to build up a reservoir of knowledge within the village environment. At present each circuit still has at least one Pidgin school. Extensive health services are only provided in isolated areas such as Karimui (Sigimaru) where no alternative government health service is available.

Because the Lutheran Mission has close village contact it has in places had a strong social influence. In some parts of the highlands missionaries have been instrumental in suppressing traditional customs, particularly those involving feasts and celebrations; in Chimbu such influences seem to have been less strong, possibly because traditional customs have been more important in this area. One interesting recent development reputed to have grown from Lutheran ideas is an informal 'savings and loan society' in rural areas. These are known as Magat in Sinasina (see Chapter 9).
7.72 Other missions. Other missions in Chimbu influence only small groups of people in immediately adjacent areas. The Anglican Mission at Movi in Nambaiyufa census division conducts a primary school and rural health centre as well as its religious functions. Seventh-Day Adventists have two centres, one at Kumul in the Chuave District and one at Moruma near the boundary of Kerowagi District and Western Highlands. Both were important educational centres before the establishment of government schools. The Swiss Evangelical Mission runs the only school at Bomai. The New Tribes Mission at Haia, in the extremely isolated Pio census division has constructed an airstrip and opened an aidpost which has encouraged the scattered groups in the surrounding forests to congregate closer to the mission.

7.73 Mission influence on Chimbu society has in the past been stronger than it is today, although recently missions have become more heavily involved than before in economic activities. When missions were first established they were supported by funds from overseas, but today many have become virtually self-supporting. Of the two dominant Chimbu missions the Lutheran church is heavily involved in business ventures of all types.
8.1 Chimbu's traditional political structure, based on alliances of clans, has been described in Chapter 3. The lack of any enduring centralised government and authority in pre-colonial times, coupled with the imposition of a highly structured expatriate-controlled colonial administration, is perhaps one reason why forms of political organisation introduced during the colonial period have generally failed. Existing political institutions in the province continue to be characterised by parochialism and lack any wide regional identification.

8.2 However, in the period of transition from colonial to independent status, the relative powers of the political and administrative structures have undergone significant changes. The formerly dominant administration has been weakened (although this may be a temporary phenomenon), while political bodies, although still in considerable disarray, are demanding and are being given more power and responsibility, especially at provincial level.

8.3 At present many functions of the political and administrative institutions remain to be defined, or redefined. The nature of the roles and relationships between individuals and institutions in both political and administrative spheres are generally unresolved. Until they are, governance of the province will continue largely on an ad hoc basis, with little consultation vertically or horizontally between the various levels of the political and administrative hierarchies, and a perpetuation of the present unsatisfactory and inefficient provision of services to the Chimbu people. These problems have been recognised by the Chimbu's Provincial Government Committee, which has been exploring possible solutions (para. 8.46).
Political structure

8.4 The hierarchy of formal political institutions in Chimbu consists of nine local government councils, the Area Authority, and one regional plus seven open electorates, which comprise respectively the local, provincial and national levels of political representation. It must be pointed out, however, that public servants have also played an important role in the political process within the province, particularly in decision making. For example, advisors and executive officers who are public servants are appointed to each council and to the Area Authority. Such individuals have played a significant role in the promotion or suppression of certain programmes. It is also fair to mention that members of parliament can bypass provincial institutions and use their direct access to the central government for decisions on particular projects.

Local government councils

8.5 Local government councils, the earliest of the political institutions introduced during the colonial period, have been perhaps the least effective and satisfactory. Councils were proclaimed progressively, in some cases by amalgamation or by division, between 1958 and 1974, when all the people of Chimbu were incorporated into the council system. Table 8.1 shows the date of formation of the councils, the population (1972) each represents, and their tax structures.

8.6 Chimbu councils have not been successful organisations politically, economically or socially. Disenchantment with the councils is frequently expressed and is also reflected in the tax collection rate, which has fallen spectacularly in the last few years, and by the low voting rate in elections. Even the rate of absenteeism does not account for the large gap between the actual and potential voting rates, and for the low revenue from taxation.

8.7 The first councils were adopted with enthusiasm

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We are greatly indebted to Mr Bill Standish, research scholar in Political Science at the Australian National University, for invaluable discussions on Chimbu politics. However, the study team is responsible for the views and interpretations expressed here.
Table 8.1

Local government

<table>
<thead>
<tr>
<th>Council</th>
<th>Date of Proclamation</th>
<th>Population 1971-72</th>
<th>Tax schedule (K./capita)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>M</td>
</tr>
<tr>
<td></td>
<td></td>
<td>rural</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>urban</td>
<td>8</td>
</tr>
<tr>
<td>Kundiawa</td>
<td>1967</td>
<td>29 344</td>
<td>8</td>
</tr>
<tr>
<td>Mt Wilhelm</td>
<td>1965</td>
<td>22 261</td>
<td>6</td>
</tr>
<tr>
<td>Kerowagi</td>
<td>1966</td>
<td>32 217</td>
<td>4</td>
</tr>
<tr>
<td>Elimbari</td>
<td>1965</td>
<td>23 597</td>
<td>4</td>
</tr>
<tr>
<td>Sinasina</td>
<td>1966</td>
<td>25 679</td>
<td>4</td>
</tr>
<tr>
<td>Gumine</td>
<td>1965</td>
<td>25 252 wards 1-32:</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>wards 33-6:</td>
<td>6</td>
</tr>
<tr>
<td>Nambaiyufa</td>
<td>1974</td>
<td>8 095</td>
<td>7</td>
</tr>
<tr>
<td>Salt-Nomane</td>
<td>1970</td>
<td>15 494</td>
<td>5</td>
</tr>
<tr>
<td>Bomai-Mikaru</td>
<td>1973</td>
<td>7 826</td>
<td>2</td>
</tr>
</tbody>
</table>

1. Source: DDA Census.

2. Formed by amalgamation of Waiye LGC (proclaimed 1958) and Yonggamugl LGC (proclaimed 1961). In 1960, Dom Census Division joined Waiye LGC.

3. In 1966, Kup Census Division amalgamated with Koronigl LGC (proclaimed 1960) to form the Kerowagi LGC.

4. Chuave LGC (1961) brought in Elimbari and Nambaiyufa Census Divisions in 1965 to form Elimbari LGC.


6. Estimated population.

Initially, as community leaders felt that council status would boost their prestige. Because councillors were expected to speak Pidgin, a number of older traditional leaders were discouraged from participating in the new system. A rift was thus created between certain traditional leaders and councillors, and almost from the start many councillors lacked support. Later, as councils were amalgamated into larger bodies and the size of wards was
correspondingly enlarged, many people felt that their interests were not adequately represented and that the councils were not relevant to the communities. Others were unhappy at the loss of identity with incorporation into larger groupings. The process of fusion and fission undergone by the councils in eastern Chimbu (Table 8.1, notes 4, 5) and recent demands by the Dom-Kagul to break away from the Sinasina council are symptoms of this feeling. Although councils were introduced throughout the country with the intention of reducing and perhaps eliminating parochialism, it has not yet been demonstrated in Chimbu that this was a valid or realisable goal.

8.8 Among Chimbu communities, resentment of the councils has been added to the feelings of neglect and irrelevance as councils have engaged in misconduct and mismanagement of their affairs. Kerowagi Council was under threat of suspension in May 1975, and after an audit early in 1976 Kundiawa Council, which was effectively bankrupt due to poor management and over-extension of activities, resolved to suspend itself. Councillors and sometimes their staff have made hasty, ill-considered decisions, conspicuously in investment (or over-investment) in plant and equipment for which there was no guarantee of continuing maintenance or management. Supervision of council affairs has frequently been lax. The abuse of privileges such as allowances and the use of council vehicles and other facilities, and problems such as tax shortages, misappropriation of funds, and underpayment of wages for labour have been frequent. It would also seem councillors have used their privileged access to information and credit from government agencies, and perhaps blocked its dissemination, for personal advantage.2 Given all these circumstances, it should not surprise that people's faith in the political process has been seriously weakened.

8.9 When the councils were established they were intended to play an important intermediary role between the administration and the people in communicating the people's needs to the administration, and informing rural communities about

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2While councillors often gained status as innovators in economic ventures by these means in earlier years, such status has been diluted more recently as wider opportunities for entrepreneurship have reduced their monopoly.
government policies. Chimbu councils have proved poor channels of communication. In part this may be due to the fragmented nature of traditional political groupings, the problems of movement in rural areas, and to the dispersed pattern of settlement over much of the province, but the councillors' lack of concern must also be included among the reasons for the virtual collapse of this function.

8.10 In many parts of Chimbu the men's house is still a viable institution and provides opportunity for small, related groups to discuss council affairs with their representatives, and for the latter to disseminate information on council activities. This opportunity is too rarely used by the elected leaders either within or beyond their immediate circle. No women have yet been elected to Chimbu councils, although women participate in discussions in the men's houses. Some groups of women (often led by the councillors' wives) are now voicing their awareness of neglect by the councils.

8.11 The spread of a community-based system such as the Kainantu people have adopted (see below) may provide a more satisfactory basis for local government. Meanwhile, it is probably fair to say that councils now are in a limbo, and that there is a total lack of communication between the councils and any other bodies in the province. It would seem necessary that, if local government is to continue, a thorough examination of its role and functions is required, with widespread consultation at local levels. The problem of the relationship between the area under council jurisdiction and the administrative area now known as the district must also be resolved, in order to bring about some integration of the present uneasy and separate roles which each carries out in essentially identical areas.

8.12 Revenue and expenditure for the Chimbu councils in 1974-75 are summarised in Maps 8.1 and 8.2. Although councils may engage in a wide range of activities, only 14 per cent of the revenue of all the councils in 1974-75 came from business and commercial ventures, while 39 per cent of all revenue was derived from taxes and 43 per cent from government grants and subsidies. In that year almost half the expenditure was still accounted for by infrastructure projects, and a further 29 per cent was absorbed by wages and administrative costs. These figures clearly indicate the continuing reliance on government aid, the lack of diversity of council enterprises, and the costliness of
their operations. Table 8.2 sets out the main purposes for which Rural Improvement Programme (RIP) funds have been allocated in recent years, including the Area Authority's recommendations for 1976-77.

8.13 Although councils were originally perceived by both the administration and the people as playing a significant role in economic development, this phase has now largely ended in Chimbu. At first the councils were used by the administration as agencies to extend rural infrastructure, and were given heavy subsidies for projects such as roads and bridges, schools and aid posts. Such projects are a prerequisite for improvement but do not guarantee it.

8.14 Infrastructure projects demand considerable capital investment initially but are basically one-shot efforts — once completed, the subsidy rarely covers heavy maintenance overheads. Roads and aid posts do not in themselves have the growth potential of business enterprises in the sense of immediate income and revenue generation, but in the past councils were discouraged from undertaking such money-making ventures.

8.15 Few of the business ventures undertaken by the Chimbu councils have been successful. Initially few councils had the experience or staff to run business ventures, and the projects they did undertake raised people's expectations only to disappoint them later as no significant new economic activity resulted. As a greater share of expenditure is spent on maintenance, people now see less 'development' in the form of new projects, and in their disillusionment are even less willing to pay taxes than before. Perhaps the only way to collect taxes from people now is to introduce a system which returns the money, with subsidies, to the communities to use as they think best. The adoption of a system similar to the Kainantu Erías would perhaps enable this (see below).

8.16 The Council Services Unit is an example of a business enterprise undertaken jointly by the Chimbu councils. Set up in 1964 as an equipment pool, it represented the six councils in existence in 1968 when it was formally constituted to provide economies of scale for council projects which required heavy plant and vehicles. By 1975, it had become too diverse and unwieldy to operate effectively, its performance had declined, its management was poor, it was heavily in debt, and it closed down. It
LOCAL GOVERNMENT COUNCIL
INCOME 1974-75

- Local Government Council boundaries
- Tax, all sources
- Government grants and subsidies
- Building rents, plant and vehicle hire, business ventures
- Miscellaneous

Map 81
### Table 8.2
Chimbu Province: allocation of Rural Improvement Funds, 1973-77

<table>
<thead>
<tr>
<th>Purpose</th>
<th>1973-74</th>
<th>1974-75</th>
<th>1975-76</th>
<th>Total 1973-76</th>
<th>1976-77*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>K.</td>
<td>%</td>
<td>K.</td>
<td>K.</td>
<td>K.</td>
</tr>
<tr>
<td>Roads and bridges</td>
<td>121 750</td>
<td>81.3</td>
<td>137 150</td>
<td>113 150</td>
<td>372 050</td>
</tr>
<tr>
<td>Education</td>
<td>22 450</td>
<td>15.0</td>
<td>31 850</td>
<td>38 210</td>
<td>92 510</td>
</tr>
<tr>
<td>Health</td>
<td>2 800</td>
<td>1.9</td>
<td>9 800</td>
<td>5 600</td>
<td>18 200</td>
</tr>
<tr>
<td>Social/community</td>
<td>2 700</td>
<td>1.8</td>
<td>2 400</td>
<td>38 000</td>
<td>43 100</td>
</tr>
<tr>
<td>Maintenance</td>
<td>-</td>
<td>-</td>
<td></td>
<td>10 700</td>
<td>10 700</td>
</tr>
<tr>
<td>Water supplies</td>
<td>-</td>
<td>-</td>
<td>1 000</td>
<td>5 000</td>
<td>6 000</td>
</tr>
<tr>
<td>Coffee pulpers</td>
<td>-</td>
<td>-</td>
<td>5 500</td>
<td>7 335</td>
<td>12 835</td>
</tr>
<tr>
<td>Tractor/trailers</td>
<td>-</td>
<td>-</td>
<td>5 000</td>
<td>5 000</td>
<td>10 000</td>
</tr>
<tr>
<td>Cattle and pig projects</td>
<td>-</td>
<td>-</td>
<td>1 250</td>
<td>11 250</td>
<td>12 500</td>
</tr>
<tr>
<td>Fishery projects</td>
<td>-</td>
<td>-</td>
<td>2 000</td>
<td>2 000</td>
<td>2 000</td>
</tr>
<tr>
<td>Market/vegetable projects</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2 000</td>
<td>2 000</td>
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<tr>
<td>Miscellaneous projects</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1 900</td>
<td>1 900</td>
</tr>
<tr>
<td>Totals</td>
<td>149 700</td>
<td>100.0</td>
<td>195 700</td>
<td>233 145</td>
<td>578 545</td>
</tr>
</tbody>
</table>

* Recommended

Source: Chimbu Area Authority.
seems that the province could not make the most effective use of such a centralised service. Indeed the Unit's poor performance led most councils to establish their own equipment pools and to employ their own tradesmen.

8.17 Even well-intentioned and well-conceived projects can fail in people's eyes. The new abattoir at Kungi, a joint venture of the Kerowagi council and the Area Authority, although not yet operating, is likely to prove a similar disappointment. During the rural workshops in late 1975 a number of people expressed a need for 'factories' to help market their livestock and produce. The notion of a 'factory' appeared to include the provision of cool storage or refrigeration to preserve meat and vegetables for later sale, as well as processing and canning. However, when Area Authority members responded to this request by referring to the abattoir, it was not explained that this will be a slaughtering facility only. The abattoir is being provided essentially to meet regulations that all cattle must be slaughtered under government supervision, and not to cater for the need for marketing facilities for rural producers. The abattoir will undoubtedly be regarded as a further example of inadequate use of funds and of misinformation by councillors.

8.18 The government is now urging councils to extend their operations more widely to include social development projects. Although it may be too late to revive support for the councils in Chimbu by this means, the scope and need for such projects is considerable. Kundiawa council provides a number of services in the urban area, including garbage and sanitation collection and street cleaning. It also supervises the town market, as do most councils in the districts. Small projects which councils might undertake to improve community welfare include wider provision of rural water supply; erection of bus shelters and provision of parking bays at certain major depots and road junctions in Kundiawa, Kerowagi and along the Highway; support for women's clubs and promotion of small-scale industries based on intermediate technology, such as weaving, bakeries, tanning and leather work, furniture making and the like. Other projects to provide much-needed amenities in Kundiawa are discussed in Chapter 10.

8.19 The councillors' most effective surviving function, although never officially endorsed, is that of mediation in disputes within their wards. However, if a village court
system becomes established (see below) this function will be transferred largely from the councillors to court officials.

**Alternative forms of local political organisation**

8.20 Problems caused by lack of communication between different levels within the political structure, and the failure of local government councils, are not peculiar to Chimbu Province. Similar difficulties, existing throughout the country, lie behind the growth of separatist movements and other expressions of dissatisfaction. In some areas new systems of local government have been introduced with features which may be relevant in seeking solutions to the problem in Chimbu. The basic aim of these new systems is to delegate responsibility in local matters to the village level, and thus to increase the degree of self-reliance among rural people. At the same time higher level political structures attempt to work through improved lines of communication, so that villagers are more adequately informed about the workings of the central government.

8.21 In the Kainantu (Eastern Highlands) Local Government Council Area, a new form of local government called *Eria Komuniti*, which has started in combination with village courts, offers possibilities for Chimbu. We here consider the Kainantu model, and assess its relevance for Chimbu.

8.22 **Kainantu Eria Komunitis and Village Courts.** The present *Eria Komunitis* of the Kainantu Local Government Council follow the lines agreed upon after lengthy discussions initiated in 1971 by the then Assistant District Commissioner, the clerk of Kainantu Local Government Council, and the Eastern Highlands Regional Member in the House of Assembly. They were concerned at the failure of the Kainantu council to satisfy the perceived needs of the people, and by the lack of initiative from village groups. The major problems of the council were considered to be:

- recruitment (many councillors were not traditional village leaders and had little status);
- inadequate consultation between councillors and the villagers they represented;
- inadequate council resources, both of finance and manpower;
the people expected too much from the council for the taxes they paid;

the council had to rely too heavily on government subsidies for finance, thus most of the money was spent according to the aims of the government;

the methods of decision-making employed within the council conflicted with traditional methods (Hill, 1974).

8.23 These problems were tackled by devolving control over finance to village communities, reinforcing traditional methods of village government, finding ways to increase council revenue and make the council more independent, and trying to improve communication between different levels of the government hierarchy.

8.24 The Kainantu Local Government Council now consists of the central body - Mama Kaunsil - and 35 Erías with populations ranging from over 2000 to under 200. Kainantu Erías are groups of villages which, after long discussion, agreed that their clan alliances and affiliations were sufficiently strong to allow them to work together. The present groupings have changed somewhat from those originally proposed and it is possible that some further regrouping may occur. Each Ería has a centre consisting of a meeting and court house, 'police' house (for village court peace officers); and visitors' house. Trade stores, a storage house for coffee and other produce, houses for village officials, and social halls for films and entertainment have also been constructed in some centres. All are cheap and simple buildings made almost entirely of local materials.

8.25 The main function of the Erías is to improve the 'quality of life'. Corrigan (1975:3) says that this will occur if 'there is a continued growth in initiative and self-reliance of village leadership in an overall sense'. For this reason the initial emphasis of the Erías has been on getting the people accustomed to the idea of working together, rather than on the early introduction of new types of development projects. The earliest projects were the construction of the central meeting houses, and, although this stage is now past, Erías continue to organise co-operative work on at least one day each week, and all able-bodied adults are obliged to take part. Such work now involves the building of schools, aid-posts, communal vegetable gardens, road improvement and general village
maintenance.

8.26 When an *Eria* decides that it wants to go ahead with a particular project, such as buying a car, improving the village water supply, or establishing a primary school, estimates of costs are obtained from the Kainantu council, money is collected from the members, and if necessary additional council subsidies are sought. Many communities, however, have collected funds without specific projects in mind, and some are unsure how to use these funds. The Investment Corporation has been active in the area. More businesses may now develop, as *Eria* clerks take courses in business management.

8.27 The central council, which after the elections in 1976 will consist of one representative from each *Eria*, is responsible for maintenance of major works, such as public roads; for co-ordinating the activities of the *Erias* and satisfying their needs (within the bounds of 'self-reliance'); and for running various council business ventures whose earnings help to make the council more independent of government funds, and enable *Erias* to use all the tax money which they collect.

8.28 Business ventures include two plantations; coffee buying; a bulk store; and a workshop. An abattoir is suggested for the near future. Present projects are financially successful, the coffee buying business having made a profit of K.11,000 in five months and the bulk store K.50,000 in one year. The council workshop services council vehicles and machinery from Lufa and Henganofi Districts in addition to its own and some private vehicles. Until 1975 the central council also received some of the tax money from the *Erias* (during the last year 40 per cent), but in 1976 all such taxes will go to the *Eria* concerned.

8.29 Soon after the establishment of the first *Erias*, Kainantu District became one of the four pilot areas for the Village Court system. Courts started initially in four *Erias*, and have now spread to the entire District; larger *Erias* form single court areas and smaller ones are combined.

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3 One is on the Electricity Commission land at Yonki and will have to be forfeited when the second stage of the Upper Ramu Hydro Scheme starts; the other incorporates a small coffee factory.
The introduction of village courts has given the Erias a much stronger base on which to develop, and by giving villagers jurisdiction over many local problems of law and order, has helped the growth of self-reliance. The most powerful officials within the Erias are the court magistrates, most of whom are respected middle-aged or elderly men, occasionally with some degree of literacy; other officials are court and Eria clerks and village peace officers. The village courts reinforce the work of the Erias by enforcing participation in communal activities, and fines collected from defaulters go to the sponsoring central council, and hence ultimately help the community.

8.30 Erias and village courts in Kainantu are still at an early stage of development, and various problems have been encountered. After an assessment made in late 1974, Uyassi (1975:51-64) said that there was still a lack of communication between the central council and the Erias, causing a time lag in implementing decisions; within the Erias little direct action was taken to carry out plans because responsibility had not been delegated to particular people; and projects started by the Erias were slow in developing because of lack of forward planning. Since then the whole concept of the Erias has become more readily accepted, although Corrigan (1975:3) found signs that initial enthusiasm may be declining. With respect to the village court system however, Warren (1976:25), who has documented the introduction and first year of operation of a court in southern Kamano, concludes that

... it is as much in its functional as in its formal aspects that the Village Court has strengthened the overall system of social control. It has enlarged the Community elite ... The officials are the centre of a communication network for the Community and ... play a prominent role in the troubleshooting activities of the elite.

8.31 In comparison to other rural dwellers in the highlands the Kainantu people do seem to be willing to do things for themselves, but it may require a decade to assess whether the Erias can become viable centres for village development as well as performing their primary role of social integration.
8.32 The relevance of the Kainantu experiment for Chimbu.
The Kainantu Erias have been formed by reorganising the former ward system of the local government council, and incorporating village courts. No integration has yet been achieved outside the council, for example, with district administration.

8.33 If the Kainantu experiment were adapted for Chimbu, we consider that a first requirement would be to attempt to integrate the functions of councils with the district level administration. In the majority of cases the functional area of the two bodies is closely parallel; they are widely complementary in their functions; communications between the two would be enhanced, and the present considerable duplication of staff and plant could be reduced, to the benefit of rural people. Further, in Chimbu at present no council would be able to parallel the role undertaken by the Kainantu council in providing funds, guidance and specialised services. The strength of the Kainantu council lies in the unique efficiency of its organisation, dependent on the council clerk in particular and on certain strongly motivated councillors. No Chimbu council has ever had this degree of organisational capacity and motivation.

8.34 If an 'umbrella' body could be formed of Chimbu council area districts, from elected representatives of the wards and district level representatives of the public service, more effective guidance and project co-ordination for the communities in each region would be possible. If such integration were achieved, then a system equivalent to the Erias, working in liaison with and advised by the central body, should provide a more effective means of local government than the present dual system. Otherwise, the only options are to perpetuate the existing unsatisfactory council system, or simply to dispense with it altogether.

8.35 There is no reason why a strong system of village courts should not evolve in Chimbu. Indeed, Chimbu social organisation may provide a more effective basis for such courts than Kainantu's; traditional groupings in Kainantu are small, and villages include members from several different clans. The groupings of villages into Erias and village court areas were made after a great deal of discussion and negotiation, and even now strong possibilities of friction and fission remain. Chimbu has much stronger traditional leadership and larger tribal groupings, which should provide a more suitable basis for the courts.
8.36 Many Chimbu are already aware of the village courts, the first of which was introduced in the province early in 1976 in Kerowagi, and are keen for them to be established more widely. The courts are seen by the Chimbu as a natural evolution from traditional forms of dispute settlement which still play an important part in the community. Chimbu consider the courts to be a possible means of mediating in disputes and alleviating the tribal tensions which so often now lead to tribal fighting, and feel that they would also be a great help in controlling juvenile delinquency in rural areas.

8.37 However, we believe that before village courts are introduced more widely in Chimbu, a longer period of consultation with the communities is necessary to clarify their operations and limitations. Many people hold misconceptions about the role and function of the courts. These matters must be clearly understood, especially to avoid fruitless competition between established clan leaders, councillors, and court officials. The Kerowagi courts should have a chance to become firmly established. Existing and potential court officials should monitor the proceedings of the Kainantu village courts with a view to making possible adaptations for conditions in Chimbu.

Chimbu Area Authority

8.38 The only political body at the provincial level, the Area Authority, is a relatively new institution, established in 1972. Its membership includes two nominated representatives from each council and nine ex-officio members: the province's members of parliament and the Provincial Commissioner. Week-long meetings are held every two months in Kundiawa.

8.39 Area authorities were formed 'to advise the government on development priorities' (CP0,1975:40), but this nebulous direction has never been translated into clear guidelines for the members, despite requests for clarification of their roles at the Area Authority's first meeting. Members often do not understand the detailed problems of administration, while government officers frequently bypass the Area Authority unless some crisis demands co-operation. In Chimbu at least, during the short period in which it has been functioning, the Area Authority has thus been in something of a policy and operational vacuum. In addition, and perhaps because the members are all senior council
representatives, many of the problems which are characteristic of the councils have been transferred to the Area Authority.

8.40 In practical terms, the Area Authority's main concern is to recommend to the Co-ordinator of Works priorities for projects in rural areas within the central government's Rural Improvement Programme, which is designed to encourage local decision-making and to channel government spending through provincial and area bodies. Although RIP funds are said to be allocated to each province according to a formula which takes into account population, area, previous government spending in the province, and urgent development needs, it would appear that political factors are also influential.

8.41 RIP funds were paid to area authorities rather than directly to councils for the first time in 1974-75. In that year the project grant to Chimbu was K.195 700, with an additional untied grant of K.24 700, and in 1975-76 project grants totalling K.204 145 and an untied grant of K.22 000 were allocated. Table 8.3 sets out the allocation of RIP funds to councils for the period 1973-76, and the final column shows the per capita allocation of funds in each council area. The unusually high sum for Bomai-Mikaru Council compared with the others is because, as a recently-formed council, its initial needs are higher than they will be subsequently. This council apart, Table 8.3 indicates a relatively wide variation between the councils in per capita allocation of project funds over the period 1973-76. Among the reasons for this variation may be the lack of capacity in some councils to make full use of available funds.

8.42 The Area Authority's role in the allocation of RIP funds to councils assumes that its members are sufficiently familiar with the province to assess development priorities and to deal fairly and responsibly with council submissions. Chimbu's Area Authority appears to lack an integrated view of the Province and its development needs, and to operate largely on an ad hoc basis.

8.43 We readily concede that members face considerable difficulty in achieving the required overview. Apart from the chairman and vice-chairman, who have a number of official duties, members give their first allegiance to their own councils rather than to the provincial body. Most members of Chimbu's Area Authority are either the president or vice-president of the council they represent. Most are middle-aged men with a wide range of commitments in their
Table 8.3

Chimbu Province: allocation of rural improvement funds by councils 1973-76

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
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<td>33 650</td>
<td>108 400</td>
<td>3.6</td>
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<td>26 950</td>
<td>19 780</td>
<td>73 563</td>
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<tr>
<td>Gumine</td>
<td>9 334</td>
<td>13 000</td>
<td>26 585</td>
<td>48 919</td>
<td>1.9</td>
</tr>
<tr>
<td>Salt-Nomane</td>
<td>5 333</td>
<td>16 700</td>
<td>18 200</td>
<td>40 233</td>
<td>2.6</td>
</tr>
<tr>
<td>Kerowagi</td>
<td>40 700</td>
<td>34 300</td>
<td>14 700</td>
<td>89 700</td>
<td>2.8</td>
</tr>
<tr>
<td>Mt Wilhelm</td>
<td>11 500</td>
<td>31 500</td>
<td>26 600</td>
<td>69 600</td>
<td>3.1</td>
</tr>
<tr>
<td>Elimbari</td>
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<td>10 000</td>
<td>11 850</td>
<td>31 350</td>
<td>1.5</td>
</tr>
<tr>
<td>Nambaiyufa</td>
<td>6 000</td>
<td>4 000</td>
<td>17 680</td>
<td>27 680</td>
<td>3.4</td>
</tr>
<tr>
<td>Bomai-Mikaru</td>
<td>10 000</td>
<td>15 000</td>
<td>17 000</td>
<td>42 000</td>
<td>5.8</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>149 700</strong></td>
<td><strong>195 700</strong></td>
<td><strong>186 045</strong></td>
<td><strong>531 445</strong></td>
<td><strong>2.8</strong></td>
</tr>
</tbody>
</table>

* Amended during financial year 1975-76.

Source: Chimbu Area Authority.

own constituencies, and generally lack the time and training required to carry out Area Authority functions adequately. Thus, the role of the Area Authority's executive staff is vital, a fact which has now been recognised by the central government which has recently introduced courses to train technical and managerial staff to assist the authorities. However, difficulties can arise because the executive officer and associate executive officer are functionaries of both the Area Authority and the public service, and may at times experience divided loyalties (see para.8.4).

8.44 The difficulties which Area Authority members have in carrying out some of their functions may be attributed to poor communication between the political body and the public service. For example, the planning efforts of the provincial public service, as demonstrated by bodies such as the
Provincial Co-ordinating Committee, have not been conspicuously successful models for the less experienced Area Authority. Chimbu's Draft Social and Economic Programme (OPAC 1973) presents no overview of critical problems and no sense of policy for the province. The Programme states that it is 'based largely upon material submitted by the District Co-ordinating Committee and approved in principle by the Area Authority' (para.1.4) [emphasis added]. We feel that this statement illustrates emphatically the separation and lack of communication between the two bodies. Although it is also stated (para.1.5) that the suggested initiatives 'have come largely from the district and it is intended that the proposals should be widely discussed at all levels of the community', there is no indication that any significant collaboration occurred in preparation of the document outside the public service in the province, nor that the intention of holding follow-up discussion was fulfilled.

8.45 The lack of wider knowledge of the Province among Area Authority members was one of the reasons for the study team's sponsorship of the three rural workshops, through which it was hoped to stimulate greater awareness of the problems of Chimbu's different regions and communities. It is burdensome for members to maintain close contact with other areas of the province when council headquarters are separated by distances requiring hours of travel over rough roads. However, that such contact is possible, and is welcomed by rural people, was demonstrated by the workshops. It should be possible for the Area Authority, or any equivalent provincial body, to hold two or three meetings during the drier months in each year in centres other than Kundiawa.

8.46 In mid-1975 a Provincial Government Committee was formed in Chimbu to prepare a proposal for provincial government, including a statement of its composition, powers and functions. This committee had not completed its work when the study team's fieldwork ended, nor was it certain when a provincial government would be established in Chimbu. However, we do know that the eventual Chimbu Provincial Government will be an elected body with real executive powers over certain areas of government, and with certain revenue-raising powers. Greater consultation and communication between provincial leaders and officers of government departments are envisaged. Such liaison is crucial to the concept of provincial government, and central to many present problems in the province. It is essential for
co-ordinated planning in the future that formal guidelines be drawn up to institutionalise continuing and effective collaboration between these two branches of government in the province.

National Politics

8.47 Chimbu is represented in the national parliament by eight members, of whom seven hold Open seats and one the Regional seat. Chimbu electorates, with about 26,000 constituents, are somewhat smaller than the national average of around 30,000. Its parliamentarians with one exception (an Independent) are either members of, or identify with, only two of the country's political parties, the National Party and the United Party. The National Party was part of the government coalition until March 1976; the United Party is in Opposition. Chimbu's members are all within the 30-50 age group, and two are literate in English (see Standish, 1976). All are Chimbu-born.

8.48 Chimbu people have participated in three national elections (1964, 1968 and 1972) and one regional by-election (1970). Competition for the Open seats in 1972 was intense, with 13 candidates contesting one seat, and an average of about nine candidates per seat for the whole province. Five candidates, all in their twenties, contested the 1972 Regional seat. The size of the vote varied widely for the Open seats, ranging from 32 to 77 per cent of eligible voters, with 55 per cent voting for the Regional election overall (PNG, 1973). A far greater proportion of informal votes was cast in the Regional election than in the contest for the Open seats, probably due to the difficulties of campaigning and becoming known throughout the province in the case of the Regional candidates.

8.49 National politics tend to have only indirect relevance for most Chimbu people, although dissatisfaction is often expressed at the lack of contact between politicians and their constituents, and between politicians and public servants. However, Whiteman (1973:44), discussing relations between Chimbu migrants in Port Moresby and Chimbu politicians, contends that 'politicians, provided they communicate with and listen to the people, are likely to be given high status ... because Chimbu see the politicians' work as being able to help them obtain the things which they want'. 
8.50 The difficulties of maintaining contact with an electorate in Chimbu are considerable, even though most are compact in size. Politicians also have difficulty in bridging gaps between clans, tribes and language groups, between young and old, village-schooled and western-educated, parochialist and nationalist, traditional, transitional and modern (Bill Standish, personal communication). National politicians have a greater problem than councillors or Area Authority members in maintaining contact with their constituents, given the time they must spend in Port Moresby and the size and disparity of their electorates. In particular, the Open electorate of Karimui-Nomane embraces a region of exceptional geographic and cultural separation. However, forums are available for keeping in touch with the electorate when back in the province which might be used more frequently by political leaders. Apart from council meetings, these include the radio, rural market places, and the assemblies of people who gather at churches every weekend.

Public administration

8.51 The administrative divisions of the province are shown in Table 8.4. Twenty-two census divisions are combined into the five districts which comprise Chimbu Province. Although officially Chimbu has only five districts, Sinasina has had de facto district status since early 1974, and the geographically distant Karimui-Bomai area must be treated separately for any statistical purposes. This is recognised by the distribution of the Open electorates, which include Sinasina and Karimui as separate electorates. Each district has a government station, and some are served also by sub-district stations (formerly patrol posts). These include Kilau, Kup and Segima in addition to Karimui and Kamtai (Sinasina).

8.52 The Provincial Commissioner is the senior public servant and senior representative of the Prime Minister's Department in the province. Most departments of the national government are represented in Chimbu, and each is responsible to its departmental headquarters in the capital, which is in turn responsible to a Minister of the government. Departmental heads within the province have little or no

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4 Electoral and district boundaries do not necessarily coincide.
Table 8.4

<table>
<thead>
<tr>
<th>District</th>
<th>Census Division</th>
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<tbody>
<tr>
<td>Kundiaawa</td>
<td>Waiye</td>
</tr>
<tr>
<td></td>
<td>Dom</td>
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<td></td>
<td>Yonggamugl</td>
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<td>Sinasina</td>
<td>Sinasina</td>
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<tr>
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<td>Gunanggi</td>
</tr>
<tr>
<td>Karimui</td>
<td>Karimui</td>
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<tr>
<td></td>
<td>Tura</td>
</tr>
<tr>
<td></td>
<td>Pio</td>
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<td></td>
<td>Daribi</td>
</tr>
<tr>
<td></td>
<td>Bomai</td>
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<tr>
<td>Gumine</td>
<td>Nomane</td>
</tr>
<tr>
<td></td>
<td>Salt</td>
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<tr>
<td></td>
<td>Marigl</td>
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<tr>
<td></td>
<td>Wikauma</td>
</tr>
<tr>
<td>Kerowagi</td>
<td>Kup</td>
</tr>
<tr>
<td></td>
<td>West Koronigl</td>
</tr>
<tr>
<td></td>
<td>East Koronigl</td>
</tr>
<tr>
<td>Gembogl</td>
<td>Niglkande</td>
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<td></td>
<td>Mitnande</td>
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<td>Chuave</td>
<td>Chuave</td>
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<td></td>
<td>Nambaiyufa</td>
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<td>Elimbari</td>
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</table>

policy-making power; their basic responsibility is to implement policy formed under ministerial direction. Some government departments are linked in regional clusters. Chimbu, with Enga and the Eastern, Western and Southern Highlands provinces, comprise the Highlands Region. Certain departments, including Natural Resources and Primary Industry, are under the direction of regional officers based in either Mt Hagen or Goroka.

8.53 The public service is a national corps, recruited in all parts of the country. Thus the public servants staffing any province come from many provinces, although the
proportion of Highlanders is lower than the proportion from coastal and island regions. Until 1972 the public service was dominated by expatriate (largely Australian) officers, but many were displaced by the programme of rapid localisation undertaken in the early 1970s with the approach of self-government. Recently, the national origin of expatriate officers has widened and now includes Commonwealth countries other than Australia, and (since 1974) the Philippines.

8.54 Almost 1700 public servants were employed in Chimbu in 1975. This includes all medical, education, police and other government officers, whether employed on a contract or casual basis. In late 1975 only 88 (five per cent) of Chimbu's public servants were non-indigenous, of whom 62 were Australians, 12 were volunteers from other Commonwealth countries, and 14 were Filipinos. Women comprise only eight per cent of Chimbu's public servants, and the majority are Papua New Guineans. Their main occupations are nursing, teaching, and clerical work. The annual wage bill for public servants in Chimbu exceeds K.3 000 000.

8.55 The public service at provincial and district levels faces a number of problems, some inherited from the colonial period, others specific to Chimbu. Ballard (1976a), in an article on public administration in Papua New Guinea, makes the following points:

* The Australian system of public administration in Papua New Guinea was extremely centralised, and made official decolonisation of the public service exceptionally difficult;

* the Papua New Guinea government inherited no effective policy-making and co-ordinating machinery;

* in the transition period of the early 1970s efforts at decentralisation encountered delays and uncertainty; and

* owing to the conflict in jurisdiction in a decentralised system, as well as departmental, and increasing ministerial, concern to preserve central prerogatives, 'no co-ordinated effort at administrative decentralisation was undertaken beyond the issuing of declamatory circulars'.
8.56 These general problems for the public service were aggravated in Chimbu by a further factor following localisation. The bad image which Chimbu has for people from other parts of the country has made many national public servants reluctant to accept postings to the province, or to extend their terms of duty. At the Planning Workshop* held in Kundiawa in December 1975, a number of working groups concluded that Chimbu's reputation was among its major problems. Although the poor image has evolved over a period of some years, its consequences for Chimbu's progress are fairly recent, and relate largely to the operation of the public service in the province. Reference has been made (paras 7.48 ff.) to the difficulties created for the Department of Education by Chimbu's reputation. Not only are most public servants reluctant to accept a posting to Chimbu, but those who do come tend to stay for a single term of duty only, to use posting to Chimbu to obtain promotion and transfer, and to refuse to become involved in community affairs.

8.57 The blame does not, of course, rest wholly with outsiders: rural Chimbu especially are often suspicious of others and afraid of the stranger's sorcery. On the other hand, it is patently unfair to prejudge Chimbu in their homeland by the outsider's experience of Chimbu (or so-called Chimbu) migrants elsewhere. However, it seems likely that unless tribal fighting can be reduced, and until Chimbu's migrants possess more skills, the reputation which the Chimbu have among others will persist. In the meantime only a strong commitment to co-operation between both rural Chimbu and the public servants who live and work among them seems likely to improve conditions.

8.58 Other dissatisfactions with the public service expressed at the Planning Workshop included the lack of commitment to their work shown by extension officers, who make little real contact with the people; the superior attitudes adopted by public servants toward rural people; and the public servants' concern with personal promotion rather than service to the community. Many of these criticisms were raised by public servants themselves. They were also concerned at the lack of communication and co-ordination between government departments, and between government officers and other members of the community such as politicians and businessmen.

* See Appendix 5.
8.59 A number of suggestions were made at the Workshop to improve the functioning of the public service within the province, and its relations with the community. They include:

* a stronger role for the Provincial Co-ordinating Committee;
* greater delegation of powers from the central government to the province;
* greater powers for the Provincial Commissioner over provincial heads of departments;
* delegation of disciplinary powers over public servants to the Provincial Commissioner;
* increased contact with rural people in rural areas;
* co-ordination of visits by government officers to rural areas, and visits by teams rather than individuals to outlying communities;
* improved publicity of visits by government officers to rural areas, with greater use of radio announcements;
* greater use of allocated radio time by all government departments to inform the community of their policies and activities;
* orientation periods including a stay at rest houses for newly-appointed public servants, to familiarise them with local people and customs.

8.60 We endorse all these suggestions. The proposals relating to the powers of the Provincial Commissioner would require policy changes at present being considered throughout Papua New Guinea, but the remainder can be implemented by the staff of the province at virtually no cost. They do require, however, a greater commitment to improving the functioning and effectiveness of the public service in Chimbu, and in this connection a reduction in the high turnover rate of public servants. The increased understanding of local people and problems which would result would lead to improved performance by public servants in the province.

8.61 One further aspect of politics and administration, the wantok system, was also raised during the Workshop and requires discussion. In Chapter 3 (para. 3.60) reference
was made to the role of the wantok system among migrants, and to the security it provides newcomers to urban areas especially. Although wantok originally meant a person speaking the same language, its meaning has now broadened, and 'the wantok system' implies relationships which do not necessarily depend upon language or kinship ties. The extended meaning of the term now includes the evolution of a patronage-like system, influence peddling, and other forms of exploitation of political power and public office for personal advantage. In this context, Wertheim's (1974) analysis of conditions and trends in Third World nations is relevant. He points out that the creation of supra-village organisations is favoured by factors such as the progressive monetisation of the economy, improved communications, growing urbanisation and extended educational opportunities (1974:245), all of which apply in Papua New Guinea where traditional society was very weakly stratified. However, contemporary society is rapidly becoming differentiated, as much in rural areas with the rise of 'a restricted class of rural capitalists' as between rural and urban societies. In these circumstances Wertheim sees the need for patrons as particularly important.

In a society where the government administration fails to provide a minimal standard of living and security for the rural masses, patron-client relationships dependent on the good will of a member of the [elite] may function as the only protection for a significant section of the poor peasantry, against natural or social forces experienced as inimical (1974:239).

8.62 While Chimbu standards of living have not yet declined to the level depicted here, such conditions are likely to appear earlier in Chimbu than elsewhere in the country, given its economic situation and the growing pressure on resources. Patron-client relations are emerging in Chimbu as elsewhere but perhaps reflect the decline in government efficiency which followed the rapid localisation of the public service, more than a situation of rural deprivation. However, unless the quality of public administration improves the quality of rural life will decline and dependency on patrons in dealing with the complexities of modern institutions will increase.

8.63 Public servants attending the Planning Workshop cited the opportunities which are available for favouring and
protecting wantoks in, or seeking, government employment. Kambu et al. (1974:5) report that

Many teachers believe that a wantok system is operating in the Department of Education, and that senior staff are promoting their wantoks and passing over other teachers who should be promoted first. We do not know whether this happens, only that teachers think that it does.

It was also stated at the Planning Workshop that one of the negative aspects of the wantok system in Chimbu is the demand that the public service employ only local people in the province. It appears, however, that a number of well-educated people prefer employment elsewhere (para. 7.49), although public servants cannot always choose their place of employment. However, educated people are fully aware of the demands to which they would be subject by their wantoks if appointed to their home province, and obviously this factor influences them in their preference for other places of employment.

8.64 Such people fall into Whiteman's 'Social Category III' in her study of Chimbu families in Port Moresby (1973). Whiteman's characterisation of these men suggests that they are committed to 'the Western ideology of life' (p.143), that they are more selective in their relationships with kin, and have a smaller proportion of kin in their networks than do less-educated men (p.146). The demands which the wantok system would place on such men in Chimbu would certainly be out of proportion to traditionally required obligations. Whiteman points out that '... there is an understood reciprocal obligation to give, when one has something to give, to those who are in need' (p.46). Such obligations are expected of the more advantaged Chimbu wherever they may be, but are certainly less onerous away from the home province.

8.65 Excessive demands on privileged wantoks may lead to corruption, particularly in contexts wider than traditional networks, such as the supra-village organisations mentioned above. Mounting corruption is seen by Wertheim as a symptom of the erosion of traditional values:

... corruption may simply be viewed as a sign of decreasing regard for communal interests and an increasing craving for personal gain fostered
by habits of conspicuous consumption introduced by foreigners or by a rising native bourgeoisie (1974:244).

Politicians, subject to many pressures from their constituents and privy to information which is not widely available, are perhaps most vulnerable to corruption. Ballard has suggested that 'the truly dangerous area of privileged access by elite wantoks is that which gives politicians and senior public servants a much better chance than most other applicants for their proposals for development grants and loans' (1975b:14). In addition, most new leaders strive to adopt the values and life styles of the colonisers whom they have displaced, but their economic situation does not usually match their aspirations and they may thus be led to exploit the opportunities of office.

8.66 An important long-term consequence of wantok systems burgeoning into patron-client relations and corruption lies in their impact on the ideology of the Eight Point Plan. The Plan approximates Wertheim's 'populist ideology' which emphasises the unity of a people rather than a horizontal division into classes (1974:246; see also Worsley, 1964: 118ff). He suggests that a populist ideology can be maintained as long as class conflict has not yet crystallised, but in a situation where leaders use their positions for personal advantage the ideology of populism is eroded at the top. As Ballard (1976:15) notes, 'the public service is an exceptionally well entrenched group of wantoks'.

8.67 A national philosophy such as the Eight Point Plan will be very fragile indeed if it must be promoted by men who are prepared to preach but not practise it. Our contacts with village people indicate their awareness of the growing disparities in wealth and power. Ballard considers that institutional safeguards such as the Ombudsman Commission, instruments of public opinion, and increased publicity can all help in improving the distribution of particular services (op.cit. 16). But he reinforces our own concern in 'the development of elitism as a special form of wantokism ... for there is the danger that both politics and administration become merely arenas for limited competition between the elite groups, with the public interest bearing the expense' (op.cit. 17). While no solutions have been found or are likely in the near future, unless such situations can be contained, any confidence in local leadership will be dissolves.
Chapter 9

The economy

9.1 It is impossible in Chimbu to separate the economy into non-monetary and monetary sectors. In this chapter we have chosen to broadly divide the discussion of the province's economic structure according to rural and urban economic activity. However, the chapter is largely devoted to the rural economy, as some 95 per cent of the province's people are rural. In this sector, we examine subsistence and commercial agriculture, rural markets, the role of credit institutions, livestock, small-scale industries, including rural service industries, and the possibilities of introducing mobile services. In the urban sector we analyse wage employment and conclude with a brief outline of other industries including tourism. Other urban activities are discussed in the following chapter.

Subsistence

9.2 In common with the rest of the highlands, Chimbu subsistence agriculture\(^1\) is based upon the production of sweet potato as the most important single crop, supplemented by a wide variety of secondary vegetable, tuber and tree crops. Agriculture in northern Chimbu is a form of shifting cultivation in which land is cultivated within sharply defined group territories for periods varying according to land availability, micro-environmental conditions, and the immediate personal needs of the farmer. No single generalisation can be applied to the diversity of Chimbu agricultural practices, which have been documented by Brookfield, Hide, Hughes and others (see Bibliography). We stress, however, that it is agriculture which provides the majority of Chimbu with most of their food, fuel and other material needs, and that it will undoubtedly form the basis of subsistence for many years to come.

\(^1\)This discussion is concerned primarily with the agriculture of northern Chimbu.
9.3 The subsistence economy is also able to support the complex institutional structure of interpersonal and inter-group relations involved in marriage prestation, pig festivals, and other elements of the socioeconomy. Under present conditions, rural Chimbu divide their time among a wide range of activities, some predominantly traditional, others associated with the new socioeconomy established during the colonial period. As indicated in Table 9.1, these latter activities, which include cash cropping, marketing, retailing, work for schools, churches and councils, and use of health and other government services, account for nearly one quarter of an 'average' person's week. While

<table>
<thead>
<tr>
<th>Activity</th>
<th>Chimbu (Sinasina)</th>
<th>Western Highlands (Raiapu Enga)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsistence food production</td>
<td>16.1</td>
<td>18.8</td>
</tr>
<tr>
<td>Other subsistence tasks</td>
<td>11.3</td>
<td>6.5</td>
</tr>
<tr>
<td>Commercial crop production</td>
<td>1.7</td>
<td>1.7</td>
</tr>
<tr>
<td>Commercial</td>
<td>2.6</td>
<td>3.1</td>
</tr>
<tr>
<td>External sector</td>
<td>6.7</td>
<td>6.3</td>
</tr>
<tr>
<td>Social/ceremonial</td>
<td>9.9</td>
<td>11.1</td>
</tr>
</tbody>
</table>

1. 'Man-week' combines men and women.
2. For breakdown of these categories, see Waddell (1972:89).

Sources: Sinasina: Hide unpublished data, 1972-3; the sample included 43 persons of whom 26 were active adults. The average adult was cultivating 0.17 ha subsistence crops, and 0.05 ha coffee.

Enga: Waddell, 1972:97; his survey included 45 persons, of whom 34 were active adults (1972:221). Cultivation figures were c.0.20 ha subsistence crops, and 0.02 commercial (1972:43).

2This figure is closely comparable with that given by a Western Highlands survey (Waddell, 1972).
this is a sizeable amount, it remains true that the rural activity pattern is still predominantly tradition-oriented (Lea, 1969-70). The production and preparation of food, animal husbandry, housing construction and maintenance, care of children, and a wide range of social and ceremonial events, occupy the greatest proportion of time for most people.

9.4 The chief characteristics of the rural activity pattern are firstly, fairly regular inputs of subsistence agricultural labour throughout the year, though this may be disturbed temporarily by less frequent activities such as housebuilding or the intensive mourning consequent upon the death of a close relative (Table 9.2, column 2). Secondly, seasonal variation mainly affects labour inputs on coffee production (high in the dry season), on road maintenance (high in the wet, early months of the year), and in participation in social and ceremonial events, which, insofar as they are not random (as is mourning, for example), tend to be concentrated in the drier months. As Lea (1969-70) and many others warn, it would be wrong to assume automatically that these low inputs merely reflect a high preference for 'leisure'. But it should be noted also that they do not disguise high inputs

| Table 9.2 |
| Seasoinal changes in activity patterns (Sinasina, 1972-3): percentage of time spent per mean man-week in 3 one-month periods |

<table>
<thead>
<tr>
<th>Activity</th>
<th>June/July</th>
<th>Oct./Nov.</th>
<th>Feb./March</th>
<th>Total Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsistence food production</td>
<td>41.0</td>
<td>28.5</td>
<td>45.3</td>
<td>38.2</td>
</tr>
<tr>
<td>House construction/maintenance</td>
<td>3.1</td>
<td>15.0</td>
<td>5.5</td>
<td>7.9</td>
</tr>
<tr>
<td>Other subsistence tasks</td>
<td>18.4</td>
<td>19.5</td>
<td>20.8</td>
<td>19.7</td>
</tr>
<tr>
<td>Coffee production</td>
<td>8.3</td>
<td>1.8</td>
<td>2.5</td>
<td>4.1</td>
</tr>
<tr>
<td>Commercial</td>
<td>3.5</td>
<td>2.5</td>
<td>3.2</td>
<td>3.1</td>
</tr>
<tr>
<td>Modern agencies</td>
<td>5.6</td>
<td>5.7</td>
<td>9.5</td>
<td>7.0</td>
</tr>
<tr>
<td>Health</td>
<td>1.4</td>
<td>5.3</td>
<td>3.4</td>
<td>3.3</td>
</tr>
<tr>
<td>Social/ceremonial</td>
<td>18.2</td>
<td>21.7</td>
<td>9.9</td>
<td>16.6</td>
</tr>
</tbody>
</table>

Source: As for Table 9.1.
at certain times of the year, for sweet potato cultivation is not markedly seasonal. Rather, the low regular inputs are an essential part of the contemporary system, made possible by the favourable combination of crop and climate.

9.5 This has important implications in relation to the adoption of either more intensive subsistence agriculture, or alternative or new cash crops. The returns to land and labour of both the principal subsistence crop, sweet potato, and the principal cash crop, coffee, are relatively very high, and seem to have influenced people's expectations in relation to alternative crops. We have already drawn attention in Chapter 5 to actual and potential land shortage in Chimbu. Barnett, in a recent land and population report to the national government, has made a 'grim forecast' of 'serious food shortages, malnutrition and famine by early next century' (Post Courier, 7 July 1976, p.9). Given present conditions and future prospects, the Chimbu, especially in the least favourable areas, cannot hope to maintain present subsistence standards unless agriculture is intensified and techniques changed. And in this situation, it would appear that only an active role by government in placing before the people the importance and urgency of a future-oriented view is likely to achieve any impact.

9.6 Thirdly, the pattern of low average inputs masks sharp differences according to marital status (and thus age), and sex. The sexual division of labour is primary and well understood, with men responsible for clearing and fencing land, house construction, the cultivation of certain special crops, and the daily routine of firewood collection, while women take charge of the bulk of sweet potato and other subsistence crop cultivation, child care, and other domestic chores.

9.7 While this specialisation of labour by sex is established before marriage, the full round of adult activity is not undertaken until then. Although young pre-adolescent girls (but not their brothers) usually make regular and substantial contributions to a household's labour requirements, young unmarried men and women do not, and are not expected to take on such responsibility (Table 9.3). Before marriage, young adults make only sporadic contributions to their household's labour need, and much of their time is occupied with visiting, courting and other social activities. By comparison with married people their responsibilities, both social and economic, are extremely limited.
Table 9.3

Variations in activity patterns by marital status and sex: percentage of time spent per mean man-week

<table>
<thead>
<tr>
<th>Activity</th>
<th>Married</th>
<th>Unmarried</th>
<th>Preadolescent Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men</td>
<td>Women</td>
<td>Men</td>
</tr>
<tr>
<td>Subsistence food production</td>
<td>35.0</td>
<td>45.1</td>
<td>10.2</td>
</tr>
<tr>
<td>House construction</td>
<td>15.5</td>
<td>1.7</td>
<td>18.6</td>
</tr>
<tr>
<td>Other subsistence tasks</td>
<td>11.2</td>
<td>25.5</td>
<td>10.7</td>
</tr>
<tr>
<td>Coffee production</td>
<td>4.3</td>
<td>4.8</td>
<td>1.5</td>
</tr>
<tr>
<td>Commercial</td>
<td>2.9</td>
<td>2.7</td>
<td>4.6</td>
</tr>
<tr>
<td>External agencies</td>
<td>9.6</td>
<td>5.0</td>
<td>10.7</td>
</tr>
<tr>
<td>Health</td>
<td>2.9</td>
<td>4.6</td>
<td>3.6</td>
</tr>
<tr>
<td>Social/ceremonial</td>
<td>18.7</td>
<td>10.4</td>
<td>40.1</td>
</tr>
<tr>
<td>Number of persons in sample</td>
<td>9</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Mean man-week (hours)</td>
<td>50.9</td>
<td>52.1</td>
<td>52.1</td>
</tr>
</tbody>
</table>

Source: As for Table 9.1.

9.8 This situation has two sides. On the one hand, it appears to be a straightforward case of underemployment of a large, and growing, segment of the Chimbu population, hence the question should be posed as to how long Chimbu can afford to grant its youth such an extended period of privileged 'freedom'. Momis' warning that aspects of traditional culture should not be preserved like fossils is particularly pertinent. Culture, he writes, 'must be meaningful to the present ... We must question ourselves now. Are these cultural or traditional practices in line with genuine human development?' (1975:9). Further, it is not only the present and the past that are significant. Society, as Worsley points out, should also be a product of the future: 'of what people want to be, to have, and to do' (1967:272-3).
9.9 Any change in this situation will have fundamental effects throughout Chimbu society, and will require rethinking at all levels. Government will need to allocate far more of its scarce resources to programmes aimed at deliberate mobilisation and support of young adults. Chimbu adults will have to accept the necessity for both delegating greater authority and granting access to resources, to the younger generation. Finally, the young themselves will have to demonstrate to the present authority-holders their will and readiness to accept this challenge. Many signs of tension and stress already suggest that the conditions for such rethinking exist, but revolutions, especially cultural ones, are not accomplished easily.

9.10 This is the positive side of the situation. The other is frankly negative. The reluctance of adults to grant the young the use of resources, and the associated period of privileged 'freedom' allowed the young, can be seen as part of a response to the overall shortage of land, in that the effect of these practices is to prevent a substantial proportion of the population from establishing independent use of land before marriage. Their marriage, in turn, is underwritten, not generally by the past economic activity of the new couples, but by the contributions of the adult generation, thus ensuring that the rising generation is bound into the existing structure of debt, credit and obligation. Whatever the advantages of this system in possibly easing pressure on land, its effect in the modern context appears to be one of displacing tension at one level only to find it re-emerge elsewhere as intergenerational conflict.

9.11 In the past, the scarce resources of the government have been concentrated less on improving subsistence than on creating opportunities for commercial cropping and husbandry, which have been largely grafted onto the subsistence base without fundamentally altering it. Government policy is now changing to a concern for self-reliance in food production, and improved nutrition. However, at a time when national priorities are changing, the Chimbu's equation of 'development' or 'improvement' with an increase in his ability to earn cash is being expressed as firmly as ever (see Appendix 4).

3At the 1971 census, those aged between 18-25 years constituted approximately 22 per cent of the Chimbu population aged over 18 years.
These goals do not necessarily conflict. We believe that the DPI must take into account both priorities.

9.12 The DPI in Chimbu has always suffered from inadequate staffing, difficulties of maintaining close contact with the rural population, and perhaps a lack of clear cut goals in a province where opportunities for cash cropping are so restricted. We note with some alarm that recommendations have been made recently to penalise areas of tribal fighting by withdrawing or reducing DPI staff from these communities (McKillop, 1976). It is readily acknowledged that tribal fighting represents an expensive drain on government resources, but the danger of applying strictly such a policy in Chimbu, already severely disadvantaged by past neglect and present minimal staffing levels (conditions over which the villagers have had no control), is that they will be penalised further. We would therefore urge serious consideration of the wider implications before such a proposal is adopted.

9.13 Those aspects of the subsistence economy which require DPI attention include both short and long term objectives. Much dissatisfaction was voiced to members of the study team about the ineffectiveness of agriculture extension workers. In part this may be attributed to the low morale, especially of national officers, appointed to Chimbu, and unquestionably more commitment and co-operation in achieving goals is required from villagers as well as extension personnel. As ToVue (1974) has shown, similar problems are common in many parts of the country. Whatever the reasons, the problem demands urgent attention by both senior agricultural staff in the province, and by leaders in rural communities.

9.14 A problem more readily solved in the short term is the lack of good seed stock for rural communities. Supplies of seed, in suitably small quantities, need to be made widely available throughout the province, in outlets such as trade stores, rural markets, council office and perhaps schools as well as DPI offices. Not only marketable vegetables are needed, but also foods for domestic consumption. Parallel promotion of high-nutrition foods, such as wing bean and other legumes, could be undertaken at most of these places. We note with approval the recent campaign to promote greater peanut consumption in the province, but also point out that health authorities have been aware of protein malnutrition in Chimbu since the 1950s (Hipsley, 1966:2).
In an earlier campaign to promote peanuts in the Chimbu diet, initial enthusiasm soon dwindled, pointing to the need to sustain awareness and interest in such programmes over long periods, and to involve adults and their children in the programmes. Imaginative use of broadcasting could contribute greatly in such programmes. In this context also the booklets in Pidgin prepared by Yangpela Didiman to help villagers improve their farming techniques should be widely distributed, if necessary with DPI or LGC assistance.

9.15 Competition and display are fundamental elements of Chimbu culture, and could be utilised in efforts to improve subsistence production. In this context, we recommend the introduction of agricultural shows at the level of council areas or districts. Small rural shows could involve competition in the size and quality of a wide range of agricultural produce and stock, for appropriate prizes. The sponsorship and organisation of such events would create an opportunity for increased co-operation between district and council personnel, as recommended in the previous chapter (para. 8.33-8.34). Further, with close DPI involvement, it would also be possible to use the shows to identify, select and disseminate superior varieties of traditional food crops, about which knowledge is still very localised especially as Chimbu has no agricultural experimental station which carries out subsistence crop trials. Such shows hold other possibilities: they could promote a revival of traditional crafts, and provide an opportunity for competition in newer skills such as dressmaking or woodworking. Some tourism may be generated: the produce displays, handicrafts and entertainments are likely to attract people from other districts of the province, townspeople, and possibly other visitors.

9.16 Seasonal food shortage, creating temporary crises and requiring appropriate government response, is one of the problems which occurs in the short term. While some shortages are obviously due to climatic variation such as the 1972 drought, others may be due to social factors. The general lack of knowledge concerning staple availability reflects the almost total reliance of government in the past on imported food supplies for consumption in its own institutions. Should present policy objectives of achieving self-sufficiency in food be implemented vigorously in Chimbu, there will be added impetus to gaining accurate knowledge
9.17 We suggest that the recent emergence of numerous rural markets in the province (see Map 9.2) provides a ready opportunity for the systematic monitoring of staple availability, and other useful agricultural information. It is recommended that a network of schools, both primary and secondary, in the vicinity of strategically located markets could be used to conduct regular market surveys. Such a scheme, if well co-ordinated, could provide valuable information not only on basic characteristics of subsistence agriculture, but also on regional differences in supply. In the event of critical local shortages, such information would allow quick central provincial response thus avoiding the past pattern of government suspicion of hunger claims (see File 12-1-2 Kundiawa). Similarly, local surpluses could be integrated into a wider pattern of provincial demand. Further, such information should be a prerequisite as a base-line for planning any regional specialisation, and for co-ordinating supplies with urban and other institutional demands. Such a monitoring scheme would offer teachers a useful practical exercise, linking both them and their students more closely to the local economy, besides providing students with relevant numerical data on which to cut their mathematical teeth.

9.18 Turning to long term objectives, and given Chimbu's population growth and the limited range of options outside the province, we recommend that DPI commit a significant proportion of its funds to investigation of more intensive methods of land use. Justification of such research implies the full realisation that under present conditions more intensive methods will not be adopted readily by the Chimbu due to the requirement for higher labour inputs per area of land, and that without doubt such methods will become essential to many Chimbu in the near future. It is therefore incumbent upon the province's DPI that its staff, at least, acquire the necessary information on soils, slopes, cultivation cycles, fallow requirements, rotation and cover crop sequences, and crop varieties, to assist agricultural intensification. In

4Present evidence indicates a reduction in the availability of sweet potato during the early months of the year (Lambert, 1975; Hide, 1975b). For example, the nutritionist Bailey found a tendency for Chimbu body weights to rise during the dry months between May and August, and to fall between February and May (1963:392), a tendency also apparent in pig weights during 1972-73 in part of Sinasina (Hide, 1974).
other words, it is necessary to know the limits of present land use systems, and the areas in which those limits can be raised with new or higher inputs, or by alternative means.

9.19 Aspects of this research, such as the search for, and testing of, higher yielding varieties of subsistence staples, will be valuable in themselves, but the long term continuation of the programme must also be justifiable on more immediate grounds. The aim must be to instruct rural people how to gain knowledge necessary for the maintenance of subsistence agriculture when man-land ratios are so reduced that current technology will no longer be adequate.

9.20 Such a programme should be undertaken initially in upper Chimbu, and a concurrent programme at Bomai would be invaluable. In this connection, it should be pointed out that yields alone cannot be taken as the only important variable. Kimber's experiments comparing long and short rotations with sequences of different crops and different fallow legumes planted between sweet potato crops have important implications. He has shown that though the long rotations resulted in higher individual yields, the shorter rotations, while producing lower individual harvests, yielded two sweet potato crops for every one in the long-rotation sequence, and were thus considerably more productive than the long-rotation system (1974:74). Kimber thus concluded that the short rotations make for more efficient use of the land: evidence from other trials at Aiyura suggests that even short periods (six weeks to 18 months) under grassy fallow between cropping may be sufficient to restore sweet potato yields to high levels (1974:77-8). If Chimbu subsistence agriculture is to be improved by increased and sustained higher yields without environmental deterioration, base-line information of this kind on the limits of contemporary cultivation techniques is essential.

Coffee

9.21 Chimbu has a one-crop cash economy, based on coffee. The first cash crop to be promoted in the province coffee has been adopted so widely (within its environmental limitations) that no other cash crop has or is likely to match it in ease of production, simplicity of preparation for sale, and rate of return to inputs of land and labour.\(^5\) The

\(^5\)This holds in spite of more general problems of quotas set by the International Coffee Agreement and growers' dissatisfaction with chronic price fluctuations.
province's few alternative cash crops are insignificant in terms of area planted, number of growers, and income derived. Coffee has been used by villagers as the yardstick against which other cash crops are evaluated, and most have been rejected after failing to give similar returns, even in areas where coffee growing itself is not possible. Pyrethrum, for example, has suffered this fate.

9.22 Coffee was peculiarly suitable for mass acceptance, whatever the role of individual innovators during the early stages of its introduction, in that the crop was for a large external market. Individual producers within any community were not placed in competition with each other, except partially for use of land. However, over-reliance on this model for future innovations which rely on a more local market would be a mistake. Subsequent innovations are not likely to spread so widely and be capable of such broad acceptance as was coffee production.

9.23 Coffee was introduced as a smallholder crop by the administration in 1953-54 in most northern parts of the province with land suitable for its cultivation, i.e. below about 2000 m. Extension continued sporadically until the mid-1960s when, as a result of overproduction for the market, extension programmes were discontinued. Following the first sales in the late 1950s, however, planning by smallholders was pursued enthusiastically for some time.

9.24 Although very few Chimbu planted as much as one hectare (Brookfield, 1968), the overall picture is one of minute plots (0.1 ha per grower; see also Table 5.5, p.107) and consequently small annual incomes: only 189 kg of parchment coffee is produced annually per grower (Wilson and Evans, 1975:11-13; see also McKillop, 1972:2). The holdings are generally fragmented into smaller plots (2.5 per grower, average size 0.05 ha); very densely planted with an average of 2600 trees per ha, or almost twice the recommended density; and poorly maintained.

9.25 Coffee husbandry practices in Chimbu appear to be less than adequate, although some debate exists regarding ideal village coffee management. Many plots contain trees first planted in the mid-1950s, and now require either to be replanted or cut back. Attention to weeding is minimal, and

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it would seem that few growers spray or otherwise control pest and disease infestations. Coffee production has a strong seasonal fluctuation, peaking in the period May-August, as shown by the Chimbu Coffee Co-operative's monthly purchases of parchment coffee (Table 9.4). Pruning is necessary immediately after the seasonal flush to ensure the following season's harvest; hence attention to pruning has a major effect on the availability of cash in rural areas. From observations, little pruning was done following the 1975 flush, although many growers had been informed of the expected increase in coffee prices following severe frost damage to Brazil's coffee region in mid-1975.

Table 9.4

| Average monthly purchase of parchment coffee, 1971-75* ('000 kg) |
|-------------------------|----------------------|
|                         | Range                |
| January                 | 86                   |
|                         | 42 - 165             |
| February                | 70                   |
|                         | 40 - 97              |
| March                   | 102                  |
|                         | 81 - 117             |
| April                   | 162                  |
|                         | 83 - 216             |
| May                     | 401                  |
|                         | 300 - 624            |
| June                    | 524                  |
|                         | 368 - 773            |
| July                    | 544                  |
|                         | 333 - 740            |
| August                  | 481                  |
|                         | 208 - 721            |
| September               | 204                  |
|                         | 165 - 255            |
| October                 | 132                  |
|                         | 57 - 224             |
| November                | 97                   |
|                         | 40 - 149             |
| December                | 82                   |
|                         | 23 - 149             |

* For October-December, averaged over 1971-74.

Source: Chimbu Coffee Co-operative.
9.26 By comparison with the Eastern and Western Highlands where five and eight per cent respectively of coffee trees were immature in 1973, the Chimbu figure was 2.5 per cent, suggesting a considerably lower rate of new planting. Further, significant numbers of Chimbu have no coffee, due either to isolation or to the location of their land at high altitudes (for upper Chimbu valley: Criper, 1967; Koronigl: Harris, 1974; and Table 9.6 below).

9.27 Accurate information on Chimbu coffee plantings and production is unfortunately not available. In the past DPI has collected statistics on the number of growers, and the number of coffee trees (distinguishing mature and immature trees), by census division. These figures, converted to area planted to coffee and production, have been returned each year, but a recent survey has 'reasonably firmly' established that the counts are serious underestimates (Wilson and Evans, 1975:9). To be accurate, and therefore useful, such censuses require a major investment of time. Wilson and Evans (1975:29) cite a figure of 16 man-months for the careful counting of 1.2 million coffee trees in Sinasina (two census divisions only) in 1972. Significantly, the previous Sinasina figure, still used uncritically in the 1972-73 DPI returns, was only 437,690 trees (36 per cent of the Wilson and Evans count). The pilot survey carried out by Wilson and Evans yielded an estimate of 14.3 million trees for the whole of Chimbu, more than double the 7 million given in the 1972-73 returns (1975:8). The contrast between these two sources is detailed in Table 9.5.

9.28 The existing information on coffee holding and production by census division, shown in Table 9.6 on a per capita basis, is therefore unreliable. It can safely be used only to demonstrate the very major difference between the five southern census divisions in the Karimui-Bomai area.

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7 For details, and other inter-province comparisons, see Wilson and Evans, 1975:11-13.

8 However, as dense planting reduces the yield per tree, the validity of deriving production figures for the province from tree counts is dubious.

9 Further confusion is shown in Table 2.1 of Appendix 2 in OPAC (1973), where the total of 24.1 million trees results from a clerical error in the Kundiawa District total. The latter should read 1.9 million, not 19 million.
and the remainder of the province, and to show the especially disadvantaged position of the upper Chimbu valley (Mitnande).

Table 9.5

Two estimates of Chimbu smallholder coffee plantings

<table>
<thead>
<tr>
<th>DASF 1972-73&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Sample survey 1973&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of coffee trees</strong> ('000)</td>
<td></td>
</tr>
<tr>
<td>- immature</td>
<td>990</td>
</tr>
<tr>
<td>- per cent</td>
<td>14.1</td>
</tr>
<tr>
<td>- mature</td>
<td>6 050</td>
</tr>
<tr>
<td>- per cent</td>
<td>85.9</td>
</tr>
<tr>
<td>- total</td>
<td>7 040</td>
</tr>
<tr>
<td><strong>Trees per grower</strong></td>
<td>199</td>
</tr>
<tr>
<td><strong>Area under coffee (ha)</strong></td>
<td>3 977</td>
</tr>
</tbody>
</table>


9.29 In 1973 a national coffee expansion programme was launched with the aim of increasing the area under coffee by 8000 ha and thus substantially increasing the country's production (and bargaining power before the International Coffee Agreement). Under this programme most extension attention was to be directed towards less developed areas such as the Southern Highlands Province, but Chimbu DPI was authorised to plan for an increase of 607 ha over three years. Such figures were not so much specific targets as approximate ranges of opportunity (Coffee Marketing Board, File 155). Expansion in areas such as Chimbu was to be based upon the distribution of seed and advice.

9.30 No reliable figures are available concerning any overall increase in coffee planting in Chimbu between 1974-76. Although prices were high in 1974, they fell heavily during the 1975 flush, rising again in the last quarter of
the year. In such an unsteady price situation it is unlikely that growers' confidence in the future of the crop was sufficient to encourage much extra planting.

Table 9.6

Coffee trees and coffee production by census division, 1972-73

<table>
<thead>
<tr>
<th>Census Division</th>
<th>Coffee trees per capita</th>
<th>Production per capita&lt;sup&gt;+&lt;/sup&gt;</th>
<th>Number</th>
<th>Rank order</th>
<th>Kg</th>
<th>Rank order</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waiye</td>
<td></td>
<td></td>
<td>42</td>
<td>6</td>
<td>30</td>
<td>6</td>
</tr>
<tr>
<td>Dom</td>
<td></td>
<td></td>
<td>56</td>
<td>5</td>
<td>27</td>
<td>7</td>
</tr>
<tr>
<td>Yonggamugl</td>
<td></td>
<td></td>
<td>58</td>
<td>4</td>
<td>18</td>
<td>10</td>
</tr>
<tr>
<td>Sinasina*</td>
<td></td>
<td></td>
<td>17</td>
<td>15</td>
<td>13</td>
<td>13=</td>
</tr>
<tr>
<td>Nomane</td>
<td></td>
<td></td>
<td>35</td>
<td>9</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>Salt</td>
<td></td>
<td></td>
<td>24</td>
<td>12=</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>Marigl</td>
<td></td>
<td></td>
<td>24</td>
<td>12=</td>
<td>13</td>
<td>13=</td>
</tr>
<tr>
<td>Wikauma</td>
<td></td>
<td></td>
<td>24</td>
<td>12=</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Kup</td>
<td></td>
<td></td>
<td>37</td>
<td>8</td>
<td>32</td>
<td>5</td>
</tr>
<tr>
<td>West Koronigl</td>
<td></td>
<td></td>
<td>38</td>
<td>7</td>
<td>33</td>
<td>4</td>
</tr>
<tr>
<td>East Koronigl</td>
<td></td>
<td></td>
<td>32</td>
<td>10</td>
<td>26</td>
<td>8</td>
</tr>
<tr>
<td>Niglkande</td>
<td></td>
<td></td>
<td>26</td>
<td>11</td>
<td>19</td>
<td>9</td>
</tr>
<tr>
<td>Mitnande</td>
<td></td>
<td></td>
<td>4</td>
<td>16</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>Chuave</td>
<td></td>
<td></td>
<td>78</td>
<td>3</td>
<td>49</td>
<td>2=</td>
</tr>
<tr>
<td>Nambaiyufa</td>
<td></td>
<td></td>
<td>95</td>
<td>1</td>
<td>58</td>
<td>1</td>
</tr>
<tr>
<td>Elimbari</td>
<td></td>
<td></td>
<td>94</td>
<td>2</td>
<td>49</td>
<td>2=</td>
</tr>
<tr>
<td>Karimui</td>
<td></td>
<td></td>
<td>2</td>
<td>17</td>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td>Tura</td>
<td></td>
<td></td>
<td>-</td>
<td>19=</td>
<td>-</td>
<td>18=</td>
</tr>
<tr>
<td>Pio</td>
<td></td>
<td></td>
<td>-</td>
<td>19=</td>
<td>-</td>
<td>18=</td>
</tr>
<tr>
<td>Daribi</td>
<td></td>
<td></td>
<td>-</td>
<td>19=</td>
<td>-</td>
<td>18=</td>
</tr>
<tr>
<td>Bomai</td>
<td></td>
<td></td>
<td>1</td>
<td>18</td>
<td>-</td>
<td>18=</td>
</tr>
</tbody>
</table>

<sup>+</sup> Green bean.

* Includes present census division of Gunanggi.

9.31 Given the shortage of land in northern Chimbu, several questions arise. Is expansion of coffee plantings desirable? To what extent is coffee expansion possible? Should the DPI priorities regarding coffee be directed mainly to expansion, or to increasing production on existing holdings?

9.32 Some observers (Shand and Straatmans, 1974:59; Lambert, 1975) have suggested that coffee may be, or already has been, planted to the point where it seriously competes for land with subsistence cultivation. In the absence of accurate figures concerning the extent of coffee planting and the requirements of subsistence land use, assessment of this question is difficult. As Shand and Straatmans have pointed out however, there is a disparity of the order of 7:1 between the amount of calories which can be produced by cultivation of food crops, and the amount which can be bought with income from coffee produced from the same area of land. This assumes high coffee yields and prices, and also that income from coffee will be used to purchase food, although only a small proportion of such income is normally spent on food. Thus Chimbu households have strong economic justification for retaining self-sufficiency in food production and not over-specialising in coffee.

9.33 Where reliable information on coffee planting is available, the evidence suggests that over-specialisation is unlikely to have occurred. In the case of Sinasina, some 1.2 million trees had been planted by 1972, which at a planting density of 2700 trees per ha converts to 4.4 km² of land. This represents two per cent of all Sinasina land (213 km²; see Table 4.1, p.73). Since coffee is primarily planted on better agricultural land below 2000 m altitude, it could be assumed that coffee is restricted to the 'plain-lands and undulating terrain' categories defined by CSIRO (Table 4.2, p.77), which total some 50 km² in Sinasina. If this is the case, coffee would be using some 10 per cent of such better land, which although considerable, does not appear, under present man-land ratios, to represent an immediate threat to adequate subsistence. Nevertheless this calculation does imply that there is a very real ceiling above which those Chimbu with little land would be ill-advised to continue to plant coffee, given past experience of the coffee price structure.
9.34 Present patterns of labour investment in coffee production probably also make expansion of existing holdings unlikely, at least in the north. A small survey of coffee production in Sinasina in 1972-73 showed that more than 2000 hours per ha were required annually (Hide, 1975a), and that returns to labour were poor (Table 9.7). Even so, these returns are higher than from present alternative crops.

Table 9.7

Cash returns to land and labour in smallholder coffee production (Sinasina, 1972-73)

<table>
<thead>
<tr>
<th>Cash returns at various prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 t/kg</td>
</tr>
<tr>
<td>To land (K/ha/yr)¹</td>
</tr>
<tr>
<td>To labour (K/hour)</td>
</tr>
<tr>
<td>(K/day)²</td>
</tr>
</tbody>
</table>

1. Parchment, assuming a parchment yield of 0.7 tonne/ha/year.
2. Assuming a seven hour day.

Source: Hide, 1975a.

9.35 It must be stressed that coffee production is not primarily a business enterprise for most Chimbu households. Shortage of suitable land has meant that each household has a number of minute, usually fragmented plots of coffee whose management is grafted onto the round of subsistence activity. The shortage of land, and, by comparison with current urban and rural wage rates, relatively low returns to labour, thus combine to doubly constrain peasant coffee production.

9.36 As the standards of smallholder coffee husbandry are generally low, it is often argued that production could be increased considerably if maintenance and exploitation of existing holdings were intensified. Although there is some justification for this view, it is important to understand why it may not be worthwhile for smallholders to invest such
extra labour. The crucial factor determining low levels of maintenance and irregular work inputs in coffee is probably price variability. In the past, prices have swung markedly both between and within years (Table 9.8). Given this experience, together with the small size of holdings and independent means of subsistence, it is unlikely that smallholders will invest extra labour in the hope of only a marginal increase in cash income. Why work harder or longer if a price drop is likely to wipe out any possible extra return? Under such circumstances, a smallholder's best strategy is probably to reduce to the necessary minimum all pre-harvest maintenance labour, wait to see how prices shape up during the main season, and if favourable, respond with an increased effort at this time only.

Table 9.8
Selected average monthly prices for parchment coffee (Toea per kilogram)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>March</td>
<td>51.8</td>
<td>35.0</td>
<td>55.1</td>
<td>57.7</td>
<td>48.7</td>
</tr>
<tr>
<td>June</td>
<td>45.0</td>
<td>37.9</td>
<td>53.5</td>
<td>57.9</td>
<td>42.1</td>
</tr>
<tr>
<td>September</td>
<td>42.5</td>
<td>41.4</td>
<td>51.3</td>
<td>42.5</td>
<td>51.3</td>
</tr>
<tr>
<td>December</td>
<td>39.9</td>
<td>36.8</td>
<td>51.3</td>
<td>33.8</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

Source: Chimbu Coffee Co-operative.

9.37 If this analysis of the smallholder's strategy is correct, what are the implications for DPI policy? How can the DPI best assist the smallholder? In the absence of a well-regulated pricing system, it is unlikely that extension efforts to improve coffee husbandry will have much effect. However, should prices stabilise, and alternative cash-earning options be drastically reduced, it may be expected that the conditions for intensification of coffee husbandry will be established.
9.38 Given the constraints of land and labour on coffee growing described above, it is to be expected that most public Chimbu attention, especially from politicians and other aspiring leaders, will focus not on coffee growing, but on the control of the coffee purchasing and processing structure.

9.39 Most village coffee is processed to parchment stage and sold at the roadside to itinerant buyers, who resell it to one of Chimbu's two factories for processing to green (i.e. unroasted) coffee. The factories arrange contracts with highlands-based agents for sale of the green bean on overseas markets. These apparently simple transactions mask many complexities in the disposal of coffee, among them the wide economic and physical gap between producers and ultimate consumers. However, we are principally concerned here with internal marketing, that is, with the transfer of coffee from the village producer to the processing factory.

9.40 Coffee purchasing and processing have had a chequered history in Chimbu since the 1960s. In 1964, with vigorous promotion by the administration and initially enthusiastic investment by Chimbu producers, a co-operative was formed by purchasing a foreign-owned factory built at Kundiawa in 1962. Originally called the Kundiawa Coffee Society Ltd, and later renamed the Chimbu Coffee Co-operative Ltd (CCC), its members number over 15,000, or about 40 per cent of Chimbu's coffee growers. Table 9.9 shows details of the CCC's membership at March 1974, and Map 9.1 illustrates the pattern of investment in the province.

9.41 By 1970, the CCC was on the brink of collapse as a result of poor management (five expatriate members in as many years), decline in member loyalty, and inadequate funds (Singh, 1974). It was rescued by government intervention guaranteeing extensive borrowing and a near buying monopoly under a nominated vigorous manager. As the single largest industrial concern within the province, the CCC has become the focus of bitter disputes within the highlands coffee industry and among political leaders, which a sequence of government policy changes affecting coffee buying regulations (Fleckenstein, 1975) has as yet done nothing to alleviate.

9.42 Coffee buying from growers and by processing factories in Chimbu is, at least in the more accessible areas, highly competitive - one informant described it as 'vicious'. Although seasonal (Fig. 9.1), coffee buying is one of the
### Table 9.9

**Chimbu Coffee Co-operative: membership details at March 1974**

<table>
<thead>
<tr>
<th>Census Division</th>
<th>Population</th>
<th>Members</th>
<th>Capital invested (K.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>As percent of population</td>
<td>Total</td>
</tr>
<tr>
<td>Mitnande</td>
<td>14,149</td>
<td>0.81</td>
<td>2,586.90</td>
</tr>
<tr>
<td>Salt</td>
<td>10,733</td>
<td>5.61</td>
<td>2,637.60</td>
</tr>
<tr>
<td>Marigl</td>
<td>15,941</td>
<td>6.32</td>
<td>4,885.60</td>
</tr>
<tr>
<td>Wikauma</td>
<td>9,311</td>
<td>7.31</td>
<td>5,744.00</td>
</tr>
<tr>
<td>Niglkande</td>
<td>8,221</td>
<td>4.80</td>
<td>5,847.80</td>
</tr>
<tr>
<td>Kup</td>
<td>9,685</td>
<td>7.13</td>
<td>10,559.40</td>
</tr>
<tr>
<td>Gunanggi</td>
<td>10,328</td>
<td>11.33</td>
<td>14,996.00</td>
</tr>
<tr>
<td>Elimbari</td>
<td>11,834</td>
<td>8.79</td>
<td>19,881.40</td>
</tr>
<tr>
<td>E. Koronigl</td>
<td>11,964</td>
<td>8.49</td>
<td>22,160.50</td>
</tr>
<tr>
<td>Chuave</td>
<td>9,379</td>
<td>7.57</td>
<td>17,967.10</td>
</tr>
<tr>
<td>Sinasina</td>
<td>15,351</td>
<td>8.77</td>
<td>34,100.20</td>
</tr>
<tr>
<td>Yonggamugl</td>
<td>10,568</td>
<td>9.92</td>
<td>26,000.00</td>
</tr>
<tr>
<td>Waiye</td>
<td>12,158</td>
<td>10.49</td>
<td>32,871.90</td>
</tr>
<tr>
<td>W. Koronigl</td>
<td>10,394</td>
<td>18.32</td>
<td>29,604.60</td>
</tr>
<tr>
<td>Dom</td>
<td>7,443</td>
<td>15.13</td>
<td>21,867.50</td>
</tr>
<tr>
<td>Nambaiyufa</td>
<td>8,095</td>
<td>11.22</td>
<td>25,899.20</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>175,554</td>
<td>8.6</td>
<td>277,608.90</td>
</tr>
</tbody>
</table>

* Population Census 1971

Source: Chimbu Coffee Co-operative.
CHIMBU COFFEE COOPERATIVE:
monthly purchases of parchment coffee *

*as percentages of annual totals; 4-year means, 1971-74.

Fig. 9.1
few alternative income-earning opportunities in the province to actually growing the crop. Moreover, in Chimbu as throughout the highlands, factory processing capacity is considerably in excess of smallholder production, which increases the competition for the crop. The CCC, for example, has the capacity to process 10,000 tons of parchment a year, or more than double Chimbu's annual crop. The second factory in the province, Chimbu Developments Ltd (CDL), has the capacity to process twice as much as the quota allocated it by the Coffee Marketing Board.

9.43 Legitimate buyers (see below para. 9.46) in Chimbu fall into one of three categories. Perhaps the majority are those who own or are purchasing a vehicle, and have an agreement with one or both factories under which they are given cash advances to purchase coffee for the factory. In 1975, between 20-30 buyers had such an arrangement with CCC, and about 40 with CDL. Secondly, coffee is bought by individuals using their own or a group-owned vehicle. Although it is difficult to establish the number of village-owned vehicles in Chimbu as many are registered outside the province, it appears that over 100 are licensed as PMVs, many of which are also used to buy coffee in the season. Finally, the CCC employs its own drivers (about 14 in 1975) as buyers, using CCC vehicles.

9.44 Unless a producer can deliver his coffee to the factory door himself he must sell it to a roadside buyer for prices which vary with distance and difficulty of access to Kundiawa, with the degree of competition among buyers in any locality, and with the buyer's caniness, as well as varying from day to day, month to month and year to year. Given this list of variables only the experienced and strong-willed grower can exert much influence on the price offered at the roadside, even though he may be aware of the factory door price, which is included in the daily broadcast of commodity prices for all provinces.

9.45 In the late 1960s declining coffee prices and the parlous state of the CCC led to the sale of a considerable proportion of Chimbu coffee to foreign-owned factories in other provinces. In 1970, however, buyers from outside Chimbu had to be licensed to purchase coffee inside the province, and in 1974, under the newly introduced coffee dealing legislation, outside buyers were prohibited entirely from Chimbu, a restriction which is still in force. Chimbu growers may, however, sell their coffee elsewhere. One
informant estimated that such sales, together with pirate buying, accounted for about 20 per cent of the coffee crop being processed outside Chimbu in 1975.

9.46 Pirate buyers generally offer a higher price for Chimbu coffee than do local buyers. The economics of this practice are not clear to us, and it has been suggested that these higher prices have little to do with economic factors.10 Although pirate buyers tend to operate mainly near the Highway, which reduces their transport and other costs compared with buyers who venture into more remote areas, the expenses incurred by outside buyers must be higher than those of local buyers. The CCC says that it must apply a margin of 10 toea per kg to cover its expenses in buying parchment, although an individual buyer could manage on a margin of 6 toea per kg. Operating expenses of buyers working in the areas accessible to Mt Hagen and Goroka are about half those incurred in Chimbu. Most buyers, whether or not connected with CCC, believe that if the borders were opened again, higher prices could not be offered for much longer, although a number of growers assume that relatively higher prices will continue.

9.47 The arguments for and against the closed borders are difficult to evaluate, but cannot be assessed in isolation from the CCC. As with previous decisions, the question of the borders is likely to be resolved ultimately on political grounds. Although less than half Chimbu's coffee growers are members of CCC, and although it is not the sole coffee processor in the province, government has been closely involved with the Co-operative since its formation.

9.48 Some of the problems arise from the fact that the CCC as a co-operative cannot by law declare an annual dividend above a set ceiling, and must maintain a certain amount of reserves which cannot be used as working capital. The high cost and logistics of distributing a dividend to the thousands of shareholders has been an added complication. These are all factors which have inhibited the CCC's ability to

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10 It has been widely believed by those involved in the management of the CCC that outside factories were prepared to pay higher prices for Chimbu coffee in order to gain wider access to the Chimbu catchment, and that they have continued to do so in order to break the CCC's monopoly and protected status.
satisfy its shareholders. Furthermore, as long as the government is prepared to support the CCC and protect its shareholders' interests, compared with the interests of growers in general, the dissatisfactions with CCC will be perpetuated within the province.

9.49 However, more recent events may lead to wider dissatisfaction. The coffee dealing legislation of 1974 attempted to increase ownership or equity by Papua New Guineans in the processing factories, thus changing the earlier situation in which the CCC, as one of the very few indigenously-owned factories, warranted the introduction of protective measures. However, the strong pressure which has been applied on the national government in the last year or two by Chimbu politicians to continue support for the CCC must now be liable to criticism (if not stronger action), at least from those factories in other provinces which have now acquired significant local ownership.

9.50 Two things seem clear in the confusion which has surrounded coffee buying and processing in the highlands in recent years. Both buying and processing are subject to many vested and conflicting interests, and no 'solution' applied to Chimbu only, without regard to the other coffee-producing provinces, is likely to be viable. Secondly, in any evaluation of regulations or legislation concerning coffee, the question 'Who benefits?' must be raised. We believe that any further changes in coffee buying and processing arrangements must be considered first in terms of their impact on coffee growers. As a rule, coffee provides their only source of income, and they are the group most vulnerable to changes in the system.11

Other cash crops

9.51 Pyrethrum was introduced in the highlands as a cash crop for high altitude regions (above 2100 m). In Chimbu its main distribution is in the area north of Gembogl, with

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11Since the study team's visit to the province, the CCC has been changed from a co-operative to a proprietary company. According to a report in the Post Courier (21 September 1976, p.10), 'The shareholders are being formed into business groups under 1974 legislation, to avoid some of the paperwork and still be recognised as a legal body ... and there will be 48 bodies represented within the Chimbu Coffee company'.
minor production on the higher slopes north of Kerowagi and around Gumine. In all cases, however, interest in the crop has waned in recent years. In Chimbu, this is dramatically illustrated by production figures, which declined from 75 tonnes in 1969 to 50 tonnes in 1972 and 18 tonnes in 1974. Yields in upper Chimbu were about one-third the normal yield. Scoullar's (1973) excellent analysis of the reasons for the crop's poor acceptance by highlanders has identified the main problems, all of which are relevant to Chimbu. They include planting in unsuitable environments, poor planting material, inadequate marketing arrangements, high labour requirements and low returns (around 48 cents per man day). Scoullar also stresses that, to the grower,

... pyrethrum must be seen to be comparable in returns to other activities considered important by subsistence farmers. At present, not only is total income, and income per man day low, but also there are no returns at all in terms of a conspicuous asset, a consideration of great importance to Highlands men. Pyrethrum therefore compares very unfavourably with other activities such as breeding pigs, accumulating wives, transactions in the traditional trading cycle and investments in cars, cattle or tradestores (1973:22).

9.52 Little interest in pyrethrum was expressed at the Womatne rural workshop. Although DASF proposed in the early 1970s to distribute improved planting material and to encourage the use of fertilisers for higher yields, it appears that further promotion and extension effort with the crop are not warranted.

9.53 Peanuts, passionfruit and tobacco. These crops all provided important sources of income for highlanders in other areas at various times, but none has been a major income earner for the Chimbu. The 'protein power' of peanuts is currently being emphasised in efforts to increase domestic consumption and improve nutrition (Post Courier, 10 August 1976). Until recently, however, efforts were still being made to promote peanuts as a cash crop. In 1970, for example, a proposal was under consideration to establish a peanut marketing co-operative at Moruma near Kerowagi, but the project was considered too small and too specialised and no further action was taken. Income from peanuts now is minor, and largely derived from sales of small bunches in Chimbu's produce markets. The lack of external markets has always been considered the main constraint on peanuts as a
cash crop, but more might be sold on the internal market, especially in forms other than raw peanuts, for example, as peanut butter.

9.54 Passionfruit is no longer a cash crop in Chimbu, although in the early 1960s the province produced well over one million kg of fruit annually. Production had declined to about 300 000 kg by the late 1960s, (of which only 45 000 kg were sold), and to 113 000 kg in 1972 (File 23-2-A-DASF, Kundiawa). The loss of external markets in the early 1970s was responsible for this, and meant that by 1975 passionfruit had virtually disappeared from Chimbu, and was rarely offered for sale even in local produce markets.

9.55 Commercial tobacco in Chimbu is confined largely to the alluvial flats between Kerowagi and Kup in the west of the province. Farmers here have been assisted by extension officers with advice on planting, harvesting, curing and marketing of the crop, which is sold either to tobacco companies in the Goroka valley or to itinerant buyers on the Highway. Tobacco is advantageous in that it requires little land, but it is also labour intensive, and the standards demanded by factories require considerable assistance to growers from extension officers.

9.56 **Vegetables.** A wide variety of introduced vegetables can be grown in the province, ranging from potatoes, onions and cabbages at higher altitudes to legumes, salad vegetables and other produce lower down. Given supplies of suitable seed, production is not a problem. However, with a few notable exceptions such as maize, villagers have usually regarded introduced vegetables as items for sale rather than for domestic consumption.

9.57 Most vegetables for sale are grown by rural households and offered at produce markets within the province (see below). Attempts have also been made to produce vegetables on a commercial basis by institutions such as the vocational centres and the Catholic mission at Kerowagi. For example, students at the Kundiawa vocational centre sell produce both at the school and in the town market, although the school's location is in a vulnerable position in the town and thefts have been a problem. Gui vocational centre, on the other hand, trucks much of its own produce, together with vegetables grown by nearby villagers, once or twice weekly to the Government Fresh Foods wholesale store at Mt Hagen. However, at times the Mt Hagen market has refused to buy the Gui
produce, stating that it did not have purchasers (Post Courier, 2 December, 1975, p.2).

9.58 If Chimbu villagers or institutions were to increase vegetable production the surplus would have to be disposed of outside the province, as internal needs are largely met by present production. The problems of outside marketing are considerable, perhaps insoluble in the near term. They involve finding outlets, and being able to guarantee a regular supply of produce of acceptable quality and reasonable quantity. To date the only organisation of villagers in the highlands supplying vegetables to the coast is the Lowa Marketing Co-operative in the Goroka valley, which specialises in the marketing of sweet potato. The most successful vegetable producers are Waso Ltd at Wapenamanda and the Kabiufa farm near Goroka, both run by mission stations with expatriate management. The Government Fresh Foods Project does not buy vegetables in Chimbu, concentrating its highlands operations in Goroka and Mt Hagen. Thus expansion of vegetable production as a source of cash in Chimbu appears remote under present conditions.

Produce markets

9.59 Produce markets developed in Chimbu with the growth of an urban and rural non-village population, and have increased in size and number in recent years (see Map 9.2). More recently, markets have developed in rural communities. In all larger non-village centres the market is a focus for trading and social interaction between rural and urban dwellers, while the smaller rural markets bring together people from neighbouring tribal groups and provide an opportunity for peasant producers to trade with peasant consumers (Hide, 1975b).

9.60 Although most markets operate weekly or twice-weekly, the largest market, at Kundia, now functions daily except on Sundays. On its major trading days, Wednesdays and Saturdays, a large influx of rural people comes to sell, buy and meet friends. Custom at the town's retail stores is also heavier on these days. Although most market users come from nearby rural communities, some travel from further afield on passenger vehicles. A few traders in specialised products come from beyond Chimbu: among these are farmers from the Wahgi valley resettlement blocks with produce such as sweet potato and pineapples, and traders who bring betel
nut and coconuts from the Markham valley.

9.61 Chimbu markets fall into two groups, those controlled by local government councils, at which sellers are charged gate fees; and the smaller, free-entry markets. In addition to the Kundiawa market, councils supervise the markets at the district stations and at Womatne, headquarters of the Mt Wilhelm LGC. Sellers are charged a fee of 10 toea, with some variation according to the quantity of produce brought. Saturday is the main trading day at the larger markets, followed by either Tuesday or Wednesday.

9.62 Free-entry markets are widely dispersed and vary greatly in size. They are located at central meeting points such as road junctions (Koge), ceremonial grounds (Angangoi) or mission stations (Mingende), as well as at convenient places along the Highlands Highway (Wandi, Ganigl). Koge and Mingende have large twice-weekly markets which attract considerable crowds, and Ganigl, near the border with the Western Highlands, is a daily market which draws buyers and sellers from some distance east and west along the Highway. Market days are usually staggered to avoid competition with other markets nearby, thus free-entry markets near council markets will not usually operate on Saturdays.

9.63 Buyers and sellers at Chimbu's markets generally come from the immediately adjacent areas: surveys show that even at Kundiawa market, long-distance users are very much a minority. Reeve (1972) found that over 80 per cent of the vendors at Kundiawa market came from Waiye and Yonggamugl census divisions, and in 1975 sellers from these areas formed 72 per cent of the total (Map 9.3). The slight change over the period 1972-75 may be due to improved access to the town, particularly from Dom, but variation in the vendors' places of origin may also be due to special events. For example, a pig festival held in Dom in 1972 may have left a smaller surplus of marketable produce than normal.

9.64 Little specialisation in produce is apparent in the province's markets. Some exceptions are Toromambuno (2130 m)

12 These two groups correspond with those described by Jackson and Kolta (1974:9) in the Western Highlands.
13 At Kundiawa, sellers are charged 10 t. per bilum (net bag) of produce, and vendors of high-value items such as betel nut are charged more.
ORIGIN OF SELLERS AT KUNDIAWA MARKET, MARCH 1975

Map 9.3

Chimbu province boundary
Other major markets
Roads
Census division boundaries

Number of sellers
0 5 10 25 50
kilometres

CHIMBU
KUNDIAWA
which always has an abundance of potatoes and cabbages, but a scarcity of sweet potato; Girio, north of the Wahgi river in Elimbari census division, where mangoes are available in season; and Ganigl, which offers large quantities of sweet potato, peanuts and greens from the Wahgi valley. The produce at all markets is subject to seasonal variation in type and quantity. Green vegetables are usually scarce during the dry months (May-September), and sweet potato is less plentiful between October and February.

9.65 Less surplus produce is available during the dry months, a characteristic reflected in gate receipts for Kundiawa market (Fig. 9.2). Fees collected between February and May were higher than between May and September, although the pattern is somewhat masked by the significant increase in receipts during 1975 when trading was extended to six days a week.

9.66 During the rural workshops, one of the most frequently raised problems was the need for means to store or preserve periodic surpluses of vegetables in order to sell them as opportunity arose (Table, Appendix 4). The need was usually couched in terms of 'factories' but appeared to be for cool storage facilities rather than canning or other forms of processing. An area such as upper Chimbu, with its potential to produce the scarcer cool temperate vegetables hindered by transport and marketing difficulties, might well warrant the installation of a modest cool store at either Gembogl or Womatne, perhaps as an RIP project. To be successful the present quality of vegetables would need to be improved, and the project would require articulation with a marketing organisation outside the province. It is recommended that a cool store for vegetables, to be operated by the Mt Wilhelm LGC in conjunction with DPI as a pilot project be investigated, as much to raise morale as to boost income in this neglected area. If successful, the seasonal shortages of staples referred to earlier (paras 9.16-9.17) might also be alleviated by further cool stores in other locations.

9.67 In all Chimbu markets, sweet potato is the most important commodity. Other major foodstuffs are bananas, peanuts, sugar cane and greens, including cabbages (Reeve, 1972: Table 3). Although traditional items such as bilum

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14To some extent, lower receipts between May and September may also reflect the fact that this is the coffee harvesting season.
KUNDIAWA MARKET GATE RECEIPTS, 1973-75
fibre, *bilums*, possum fur, tethers, plumes and arrows are often on sale, they comprise a very small proportion of the produce offered. Few informal sector activities, such as the sale of clothing and cooked food, have yet appeared in Chimbu's markets, and the urban markets lack facilities such as cooking areas and lock-up stalls for vendors of these items. The urban markets also lack amenities such as toilets, drinking fountains and benches for market patrons (see also Chapter 10). Chimbu markets, like those in the Western Highlands (Jackson and Kolta, 1974:37) have not become the major trading centres in the towns, but are supplementary to the regular commercial and retail establishments.

9.68 The regular, periodic gathering of numbers of people at rural markets provides opportunities for extending the functions of the markets, both in trading and other activities. Hide's survey (1975b) of Koge market in 1972-73 revealed that it was regularly visited by coffee buyers during the season, that one entrepreneur had begun selling cooked food alongside the market, and that councillors and government personnel regularly visited the market to disseminate information, as did politicians during an election. We do not know the extent to which all markets are used in these ways, but consider that their potential should be utilised as extensively as possible. In 1975 the district officer at Chuave distributed a list of market places and days in his district to his counterparts in other districts and to provincial offices, to assist in planning public meetings. We recommend that this practice be adopted throughout the province. All government offices in Kundiawa should have a current list of the province's network of markets. It would also be useful if Radio Chimbu broadcast each morning the places at which markets were scheduled that day.

### Credit institutions

9.69 Before discussing other aspects of the rural economy, it is appropriate to look at credit institutions in the province, as most non-agricultural activities are closely linked with the availability of credit. The two formal institutions which provide credit in Chimbu are the Papua New Guinea Development Bank (PNGDB) established in 1967, and the Chimbu Savings and Loan Society (CSLS), established in its present form in 1973.
9.70 The Papua New Guinea Development Bank. The PNGDB officially endorses a policy of decentralisation: 'The Bank has always believed that decision making is best done as close to the borrower as possible' (PNGDB, 1975:7), and by late 1975, after eight years of national operation, had established branches or sub-branches in all but two provinces. One of these was Manus, the other Chimbu. Depending on the purpose for which a loan was required, a Chimbu applicant first approached an officer of either DPI or the Office of Business Development in Kundiawa, who then referred the application to the Mt Hagen branch. Appointment of a PNGDB officer to Chimbu has been anticipated at least since 1972 (OPAC, 1973:para.5.17), and an office has now been opened in Kundiawa. Reasons given for the delay vary from the low development potential in the province, to lack of a suitable officer to deal with the Chimbu, and the lack of housing in Kundiawa. Whatever the reasons, the need for all applications to be processed outside the province, and the consequent lengthy delays, were widely resented.

9.71 Figure 9.3, which ranks the provinces according to their receipt of PNGDB loans on a per capita basis since the Bank's inception, shows that Chimbu is near the lower end of the scale. Between 1967 and 1975, Chimbu received 1.8 per cent of all loans made to Papua New Guineans, which represented 1.3 per cent of the total value of such loans (PNGDB, 1975:20–21). It may be recalled that 6.6 per cent of the country's indigenous population lives in Chimbu. The allocation of loans among provinces reflects partly the emphasis in the late 1960s on maximisation rather than equalisation of opportunities, partly the attitude that Chimbu lacked potential for the kinds of projects preferred by the PNGDB and DPI (see below, paras 9.73, 9.94ff. and 9.104-105) and partly perhaps, the difficulty for Chimbu people in gaining access to and information about the Bank.

9.72 The situation is improving, at least numerically. Table 9.10 shows that the number and value of loans approved to Chimbu borrowers since 1967 have increased, especially since 1973. Within the province, Chimbu borrowers comprise 93 per cent of the total, but the value of their loans was only 44 per cent of the total, reflecting the Bank's policy of subsidising small loans at concessionary rates of interest to Papua New Guineans by profits from larger loans, mainly to expatriates (CPO, 1975:97). Profits from the larger loans are used to make up for losses (on both costs of servicing and defaulting) on smaller ones. The PNGDB estimates that an
Table 9.10


<table>
<thead>
<tr>
<th></th>
<th>Chimbu</th>
<th>Joint-Enterprise</th>
<th>Non-Indigenous</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Loans</td>
<td>No.</td>
<td>Amount K</td>
<td>No. Amount K</td>
<td>No. Amount K</td>
</tr>
<tr>
<td>1967-68</td>
<td>1</td>
<td>500</td>
<td>3 20 300</td>
<td>4 20 800</td>
</tr>
<tr>
<td>1968-69</td>
<td>4</td>
<td>4 400</td>
<td>- 129 800</td>
<td>8 134 200</td>
</tr>
<tr>
<td>1969-70</td>
<td>14</td>
<td>30 600</td>
<td>-</td>
<td>14 30 600</td>
</tr>
<tr>
<td>1970-71</td>
<td>28</td>
<td>63 073</td>
<td>- 30 000</td>
<td>29 93 073</td>
</tr>
<tr>
<td>1971-72</td>
<td>15</td>
<td>13 960</td>
<td>-</td>
<td>15 13 960</td>
</tr>
<tr>
<td>1972-73</td>
<td>19</td>
<td>16 643</td>
<td>-</td>
<td>19 16 643</td>
</tr>
<tr>
<td>1973-74</td>
<td>44</td>
<td>46 257</td>
<td>2 58 273</td>
<td>46 104 530</td>
</tr>
<tr>
<td>1974-75</td>
<td>84</td>
<td>101 226</td>
<td>5 110 918</td>
<td>89 212 144</td>
</tr>
<tr>
<td>Total</td>
<td>209</td>
<td>276 659</td>
<td>8 131 218</td>
<td>224 625 950</td>
</tr>
</tbody>
</table>

% of Total  93 44 4 21 3 35 100 100

Average
Amount of Loan 1 324 16 402 31 153 2 794

Source: Papua New Guinea Development Bank, Summary of Approvals.
PNG DEVELOPMENT BANK LOANS, 1971-75*

Number of loans per Census Division

*Excluding Kunduawa town

Map 9.4
economic interest rate (covering administrative and accounting costs) on loans under K.10 000 would need to be set at more than 20 per cent (PNGDB, 1974:15).

9.73 However, an analysis of the spatial distribution of loans within the province is revealing. Map 9.4 and Map 9.5 illustrate the allocation respectively according to the number of loans and their per capita value by census divisions. Both maps show the clear concentration of successful borrowers in and near the two main towns, and in areas near the Highlands Highway. Turning to Map 9.6, which illustrates the purposes for which loans have been granted in each census division, it can be seen that land-extensive cattle and piggery projects are dominant. Between 1970-75, 73 per cent of all loans to Chimbu borrowers were granted for livestock projects. Some implications of this bias are discussed below (paras. 9.102ff.)

9.74 McKillop (1974) has drawn attention to two recent trends in agricultural extension strategy, with which the PNGDB has been closely associated. One has been the 'pressures for supervised credit' for PNGDB-assisted projects in which villagers have little managerial experience. This has led to a trend toward a supervisory rather than an advisory role for extension workers (1974:12). Another has been the concentration of extension effort on so-called 'progressive farmers' in the belief that they would then become the agents through whom new ideas would gradually diffuse throughout the whole community. However, McKillop notes that the application of diffusion theory in developing countries has not been very successful, and that 'in the short term such policies have been shown to create poverty in rural areas' (1974:6).

9.75 In Chimbu, the concentration of extension assistance and provision of credit to a few, directed to projects such as cattle with (relatively) heavy land requirements, is leading to the stratification of rural society and the emergence of a rural elite with an effective monopoly on these scarce resources, and hence the momentum to further increase its advantages.15 This result, obviously unlooked

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15 A case in point is the Gembogl businessman who has about 100 head of cattle, several tradestores, deals in coffee, and has recently purchased a store in Goroka, reportedly for K.100 000 (Post Courier, 21 September 1976, p.10).
Purpose of loan

- Piggery projects
- Cattle projects
- Carrying and cartage
- Trade stores
- Industrial

PNG DEVELOPMENT BANK LOANS, 1971-75

Map 9.6
for, will be difficult to reverse, and highlights an important dilemma for policy makers: the desire to promote entrepreneurship (itself a scarce resource) as it emerges versus aims of the Eight Point Plan such as achievement of more equal distribution of economic benefits, including movement toward equalisation of incomes among people.

9.76 This conflict is the more critical in Chimbu in that niches for economic specialisation of all kinds are acutely limited. There may be scope in any community for only one cattle project, or one viable tradestore, or one business truck, but no more. These limited niches imply that the tendency for any official support to entrepreneurs, in the form of extension, training or credit, will appear to be restricted to a privileged few. This tendency will be inescapable: because the niches are limited, government support can be given only to a limited number of people.

9.77 The same argument holds for certain innovations at the community level: for example, only a community or a very restricted number of communities, with suitable land in the vicinity of an urban produce market may well be able to specialise in producing certain items for the market — perhaps almost the whole range of major foods required by the market. The niche is likely to be sufficiently large for one community only. The point raised here indicates that perhaps policy makers should distinguish between generalised opportunities and specific (niche) opportunities. The question is, to what extent should government departments and agencies allocate their scarce resources between these two options? DPI, the PNGDB, and the Office of Business Development are apparently concentrating on the latter, but overall improvement as envisaged in the eight aims requires perhaps more attention to the former option.

9.78 The Chimbu Savings and Loan Society. Savings and Loan Societies in Papua New Guinea grew relatively slowly after their establishment in the early 1960s, but after 1970 their total assets increased rapidly from roughly K.1 million to over K.7 million (PNGFSLS Annual Report 1974-75:12). As part of a current national policy of consolidation the present Chimbu Society was formed in 1973 by the amalgamation of some 22 small societies and ten clubs previously operating in the province. During its first year as a single society both membership and assets more than doubled, and an office and staff quarters were established in Kundiawa (CSLS Annual Audit, 1974). By mid-1975, mechanised ledger accounting had
been introduced which also handled the records of the Wahgi and Nondugl Societies in the Western Highlands, and the Society's assets stood at K.256 477, with a membership of over 4000. The Society has a board of nine directors and a staff of three, consisting of a Chimbu manager, a teller-examiner, and a clerk machinist. Five of the directors are from Kerowagi District, three from Kundiawa and one from Gemboi. Only members are eligible for loans; applications are considered by a committee of three at fortnightly meetings.

9.79 Membership of the CSLS is also strongly concentrated in the Kundiawa and Kerowagi Districts, the result of the initial drive for small society formation in these areas in the late 1960s and early 1970s. Incomplete analysis (due to the lack of detailed membership records) of the spatial distribution of membership shows that over 80 per cent of members live in four census divisions: Waiye, Kup, and East and West Koronigl (Table 9.11 and Map 9.7). According to the manager, it is unlikely that new members will be actively recruited from other areas in the near future.

9.80 Between December 1973 and October 1975, the CSLS approved 995 loans totalling nearly K.150 000, or an average of K.155 per loan (Table 9.12). PNGDB loans, by contrast, averaged almost K.2000 per borrower in Chimbu between 1971 and 1975.16 Although less than 3 per cent of CSLS loans were for more than K.500, these accounted for a disproportionate amount of the total loaned (32 per cent). Similarly, some 55 per cent of the total funds loaned by the PNGDB in the province went to only 5 per cent of the borrowers.

9.81 The wide range of purposes for which the CSLS has granted loans is shown in Table 9.13. Approximately one-quarter of all loans (11 per cent by value) were for domestic and social purposes; nearly 40 per cent (or 25 per cent by value) were for rural production; and just over one-third (63 per cent by value) were for commercial purposes.17 By number of loans, the three most important purposes for which loans were granted were tradestore stock purchases, pigs, and school fees, which together accounted for nearly two-

16 This includes borrowers of all races. The average per Chimbu borrower in this period is K.1010.

17 This classification is crude. For example, motor-cycles are included with 'commercial' motor vehicles.
Table 9.11

Chimbu Savings and Loan Society, distribution of members by district and census division

<table>
<thead>
<tr>
<th>District</th>
<th>Census Division</th>
<th>Members</th>
<th></th>
<th>Members as % of population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number</td>
<td>Percent</td>
<td></td>
</tr>
<tr>
<td>Kundiawa</td>
<td>Waiye</td>
<td>1053</td>
<td>28.4</td>
<td>8.7</td>
</tr>
<tr>
<td></td>
<td>Dom</td>
<td>147</td>
<td>4.0</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>Yonggamugl</td>
<td>105</td>
<td>2.8</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>1305</td>
<td>35.2</td>
<td>4.3</td>
</tr>
<tr>
<td>Sinasina</td>
<td>Sinasina</td>
<td>101</td>
<td>2.7</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>Gunanggi</td>
<td>11</td>
<td>0.3</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>112</td>
<td>3.0</td>
<td>0.4</td>
</tr>
<tr>
<td>Gumine</td>
<td>No individual census division information</td>
<td>59</td>
<td>1.6</td>
<td>0.1</td>
</tr>
<tr>
<td>Kerowagi</td>
<td>Kup</td>
<td>533</td>
<td>14.4</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td>West Koronigl</td>
<td>488</td>
<td>13.2</td>
<td>4.7</td>
</tr>
<tr>
<td></td>
<td>East Koronigl</td>
<td>740</td>
<td>20.0</td>
<td>6.2</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>1761</td>
<td>47.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Gembogl</td>
<td>Niglkande</td>
<td>168</td>
<td>4.5</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>Mitnande</td>
<td>291</td>
<td>7.8</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>459</td>
<td>12.4</td>
<td>2.0</td>
</tr>
<tr>
<td>Chuave</td>
<td>No individual census division information</td>
<td>10</td>
<td>0.3</td>
<td>-</td>
</tr>
<tr>
<td>Karimui</td>
<td>No individual census information</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Provincial total</td>
<td></td>
<td>3707</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

1. These data are incomplete due to insufficient details of members' addresses recorded in CSLS Membership Books. They probably cover over 90 percent of the Society's members.


### Table 9.12

Chimbu Province: PNG Development Bank and Chimbu Savings and Loan Society compared: distribution of loans by size

<table>
<thead>
<tr>
<th>Value of loan (Kina)</th>
<th>PNG Development Bank 1971-75</th>
<th>Chimbu Savings and Loans Society 1973-75</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of loans</td>
<td>%</td>
</tr>
<tr>
<td>0 - 200</td>
<td>8</td>
<td>5.2</td>
</tr>
<tr>
<td>201 - 500</td>
<td>59</td>
<td>38.1</td>
</tr>
<tr>
<td>501 - 1 000</td>
<td>33</td>
<td>21.3</td>
</tr>
<tr>
<td>1 001 - 5 000</td>
<td>47</td>
<td>30.3</td>
</tr>
<tr>
<td>5 001 + 10 000</td>
<td>2</td>
<td>1.3</td>
</tr>
<tr>
<td>10 000 +</td>
<td>6</td>
<td>3.9</td>
</tr>
<tr>
<td>TOTALS</td>
<td>155</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Sources: PNG Development Bank
<table>
<thead>
<tr>
<th>Category</th>
<th>Purpose</th>
<th>No. of loans</th>
<th>%</th>
<th>Value of loans (Kina)</th>
<th>%</th>
<th>Mean Value (Kina)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic and Social</td>
<td>School fees</td>
<td>133</td>
<td>13.9</td>
<td>7 633</td>
<td>5.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>House/furniture</td>
<td>11</td>
<td>1.2</td>
<td>3 384</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Customary payment</td>
<td>16</td>
<td>1.7</td>
<td>1 050</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sew.mach./radio/watch</td>
<td>12</td>
<td>1.3</td>
<td>1 046</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Debt consolidation</td>
<td>12</td>
<td>1.3</td>
<td>950</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Airfares</td>
<td>17</td>
<td>1.8</td>
<td>596</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other¹</td>
<td>48</td>
<td>5.0</td>
<td>2 127</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>249</td>
<td>26.1</td>
<td>16 786</td>
<td>11.4</td>
<td>67</td>
</tr>
<tr>
<td>Rural</td>
<td>Pigs</td>
<td>237</td>
<td>24.8</td>
<td>20 557</td>
<td>13.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cattle</td>
<td>51</td>
<td>5.3</td>
<td>9 360</td>
<td>6.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coffee pulpers</td>
<td>29</td>
<td>3.0</td>
<td>3 043</td>
<td>2.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Land purchases</td>
<td>8</td>
<td>0.8</td>
<td>2 140</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poultry</td>
<td>27</td>
<td>2.8</td>
<td>1 268</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fencing</td>
<td>9</td>
<td>0.9</td>
<td>612</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other²</td>
<td>6</td>
<td>0.6</td>
<td>242</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>367</td>
<td>38.4</td>
<td>37 222</td>
<td>25.2</td>
<td>101</td>
</tr>
<tr>
<td>Commercial</td>
<td>Motor vehicles and repairs</td>
<td>46</td>
<td>4.8</td>
<td>41 361</td>
<td>28.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tradestores</td>
<td>237</td>
<td>24.8</td>
<td>37 458</td>
<td>25.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coffee buying</td>
<td>50</td>
<td>5.2</td>
<td>14 054</td>
<td>9.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Labourers' wages</td>
<td>3</td>
<td>0.3</td>
<td>560</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shares</td>
<td>3</td>
<td>0.3</td>
<td>190</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>339</td>
<td>35.5</td>
<td>93 623</td>
<td>63.4</td>
<td>276</td>
</tr>
<tr>
<td></td>
<td>TOTALS</td>
<td>955</td>
<td>100.0</td>
<td>147 631</td>
<td>100.0</td>
<td>155</td>
</tr>
</tbody>
</table>

1. Includes medical bills, fines, bail, and council tax.

2. Includes tools, goats, and peanuts.

thirds of the total. Loans for the purchase and repair of motor vehicles accounted for the largest single amount of funds.\(^{18}\)

9.82 It is not known how widely the 955 loans (made in just under two years) were spread among members. Assuming a total membership of about 4000, approximately one in every eight members has received a loan each year. Since some members presumably borrowed more than once, the actual ratio is probably lower. Also unknown is the ratio of loan approvals to loan applications. Such figures might be useful to the CSLS for gauging the extent to which it is assisting all members. We have not made a complete evaluation of loan repayment, though a partial check during the 1975 audit suggested a high rate of loan delinquency. It would appear that the present Federation measure of loan delinquency, which rests upon whether or not a borrower made a monthly repayment during one arbitrarily selected month, irrespective of season and of the previous record of repayment, could be improved.

9.83 The rapid growth of the CSLS and the wide range of purposes for which loans are made, indicates that such facilities are important to many Chimbu. The CSLS enables a lower level of borrowing, reaches a larger number of people, and permits wider scope for loans than does the PNGDB. In this context, the marked concentration of CSLS membership in Kundiawa and Kerowagi Districts, while due to historical accident, is unfortunate, since it is exactly these two areas which also receive the highest per capita amounts of PNGDB loan money (Map 9.5).

9.84 The recent policy of amalgamation and centralisation has had obvious benefits and was necessary in view of the problems of efficient financial management and regular auditing (common throughout the country: see PNGFSLS, 1975). Nevertheless, members' access to and communication with the CSLS is crucial. Given round-trip travel costs of up to K.5.00 between Kundiawa and other district centres such as Gumine and Gembogl, and the generally low average per capita savings (well below K.100), the CSLS would do well to give careful consideration to future strategies. Close watch on the growth of membership and savings would indicate the extent to which centralisation is approaching the limits of effective

\(^{18}\) This was also the case at the national level (PNGFSLS, 1974:9).
operation. In this connection, the problems faced by the Chimbu Coffee Co-operative in communicating with, and distributing dividends to, its thousands of members are worth careful scrutiny.

9.85 Informal credit associations. Below the formal level of banks and Savings and Loan Societies, with their offices, trained staff, and complex record-keeping procedures, are a multitude of informal ways in which Chimbu raise funds amongst themselves. Perhaps the most obvious example is that of bride payment, in which money, pigs, plumes and other items are contributed by members of a group. Although such contributions are raised among relatives, return is expected and required, though time limits are not specifically defined. In all aspects of Chimbu life, cash and other gifts move between individuals and groups in a continual and heavy flow, a reciprocal system which rests heavily upon trust. Wage earners in towns and on plantations have also long utilised rotating credit associations, known in Pidgin as kampani or sande, in which members of small groups pool their wages each payday and then allocate the combined pool to each contributing member in rotation.

9.86 Similar institutions are reported as operating among non-wage earning rural people. One in Sinasina, known as magai, a Kuman term meaning meeting, is organised by young literate Lutherans in two 'circuits', one held by men, the other by women within one tribal group. Membership is not restricted to Lutherans, who are in fact outnumbered by Catholics. Meetings are held at night, either fortnightly or monthly in different men's houses, and involve food sharing and considerable formality. The men's magai includes as many as 80 members who regularly subscribe a total of over K.200. After small deductions for the church and the services of the clerks (records of contributions and recipients are kept), this is given with full ceremony to one of the members. Responsible use of the funds, such as the stocking of a tradestore or payment of high school fees, is stressed, and the system is clearly of considerable assistance for members with impending heavy cash payments. The women's magai has fewer members, and contributions are generally smaller.

9.87 Although accumulated funds of a few hundred kina are hardly impressive when judged against annual government wage bills or average Development Bank loans within the province, these are artificial comparisons which are not part of a villager's calculations. In five years, for instance, only
Development Bank loans were granted in Chimbu. Rather, the significance of such informal credit associations should be assessed in relation to the average incomes received by villagers primarily dependent upon one major cash crop, which fall within the range of K.20-80 per year (McKillop, 1975), and the periodic need for funds ranging up to and over K.100 for high school fees, trades store stock and bride payments.

The major advantages of such informal institutions are their simplicity and flexibility. Members are known to each other, and their 'collateral' is their social standing within their own community, combined with their willingness and ability to participate. The public collection and immediate allocation of funds to one member inhibits dishonesty and removes the need for banking and other institutional structures. Such pooling systems may appear wasteful of time (long night meetings) and resources (the provision of food at meetings), but these costs are relative. The average villager does not have ready access to a bank, and cannot raise credit with the stroke of a pen. Indeed, in the eyes of the participants, the 'costs' may well be perceived as significant social benefits. They are also probably essential to the operation of a system of trust, for most customary transactions require public ratification and take place in a 'special' atmosphere coloured by the ceremonial consumption of food.

Livestock

Current national policy is to achieve self-sufficiency in meat supplies through the increased production of cattle, pigs and poultry, to which end DPI planned to direct approximately one-third of its total extension effort throughout the country during the period 1974-76 (CPO, 1975:77-8). The PNGDB is closely involved with this effort and, by 1975, had already made 2518 cattle project loans totalling K.5.3 million over the previous eight years (PNGDB, 1975:15).

In Chimbu this policy has resulted in a rapidly increasing number of cattle and pig projects, supported by

The increase in cattle numbers is also appreciable. Between 1967-1971 total cattle numbers in Chimbu rose from 643 (of which 40 per cent were Chimbu-owned), to 995 (58 per cent Chimbu-owned), (PNG 1975, Summary of Statistics 1971-73, Table 63, p.59). By 1975 the number had risen to 2662, of which some 80 per cent were Chimbu-owned.
loans from both the PNGDB and the CSLS (Table 9.14). Over the last five years the PNGDB has made a total of 120 livestock loans totalling K.89 230 to Chimbu, with pig project loans averaging K.366 and cattle loans K.1134 per borrower. These may be compared with the CSLS loans which have averaged K.87 for pig projects, and K.183 for cattle projects. In just under two years the CSLS has made available nearly K.32 000 in 324 livestock-associated loans.

9.91 Responsibility for surveying and approving projects for PNGDB loan support rests with the DPI, which also services the loans and provides continuing advice. The Department has less liaison apparently with the CSLS. The DPI also organises the supply of animals for Chimbu projects (from Baiyer River and Markham), provides veterinary services when necessary, and where possible, controls and carries out the slaughter of cattle.

9.92 During 1973-74, 114 cattle were slaughtered under DPI supervision. The number rose to 327 in 1974-75. Of the latter, however, 131 were killed on a single occasion, a ceremonial prestation at Kewamugl. This points to an important aspect of the livestock project policy. Although Kundiawa has a butcher's shop, it sells no meat, either beef or pork, produced in Chimbu. Chimbu cattle and pigs (and those elsewhere in the highlands, Watt (1974), are not produced for sale in urban markets. With very few exceptions they are slaughtered and their meat distributed within the rural social economy. This does not mean that such animals are not involved in cash transactions. They are, but at prices two or three times higher than those which would be realised in the urban market. Although it cannot be proved that present livestock policy is not achieving import substitution, and presumably some rural purchasers are buying locally-produced rather than imported supplies, it appears undeniable that where the projects are financially successful it is because they supply a product demanded by the intergroup exchange system.

9.93 The distribution of livestock projects, both with and without loan support, is highly uneven within the province. By July 1975, of some 2660 head of cattle in Chimbu – over 2150 of which were on Chimbu-owned projects – 87 per cent were held in the Kerowagi and Kundiawa Districts (Table 9.15). Development Bank support shows a similar geographical pattern (Table 9.16). Three census divisions in Kerowagi and Kundiawa (Waiye, Dom and West Korongil) stand out as having received
Table 9.14

Chimbu Province: Loans for livestock projects

<table>
<thead>
<tr>
<th></th>
<th>Pigs</th>
<th>Cattle</th>
<th>Poultry</th>
<th>Fencing</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNG Development Bank (1971-75)</td>
<td>61</td>
<td>22 314</td>
<td>59</td>
<td>66 916</td>
<td>-</td>
</tr>
<tr>
<td>Chimbu S.L. Society (1973-75)</td>
<td>237</td>
<td>20 557</td>
<td>51</td>
<td>9 360</td>
<td>27</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>298</td>
<td>42 871</td>
<td>110</td>
<td>76 276</td>
<td>27</td>
</tr>
</tbody>
</table>

Sources: PNG Development Bank, Mt Hagen. Chimbu Savings and Loan Society, Loans Book, Kundiawa.
Table 9.15

Distribution of introduced livestock in Chimbu (1975)

<table>
<thead>
<tr>
<th>District</th>
<th>Cattle</th>
<th>Goats</th>
<th>Sheep</th>
<th>Horses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kundiawa</td>
<td>827</td>
<td>600</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Gumine</td>
<td>66</td>
<td>585</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Kerowagi</td>
<td>1487</td>
<td>1205</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Gembogl</td>
<td>160</td>
<td>160</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Chuave</td>
<td>116</td>
<td>700</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>2656</strong></td>
<td><strong>3253</strong></td>
<td><strong>13</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

Source: DPI, Animal Industry Division, Annual Report (1974-75). No information available on pigs. If DPI figures on coffee trees in Chimbu are any guide, the above figures on goats should be regarded with caution.

more than K.140 per capita in livestock loans; two other census divisions (Sinasina and Yonggamug1) have received between K.0.50 and K.1.00; a further eight divisions only K.0.01 to K.0.50; and no loans at all were received by the remainder (three Gumine divisions, Elimbari, and the six census divisions in the Karimui-Bomai area). Although information on the location of persons borrowing from the CSLS is not available, the great majority of members (over 80 per cent) live in the Kundiawa and Kerowagi Districts and it is reasonable to assume that most CSLS loans were also obtained by them.

9.94 This distribution of livestock projects, and the associated pattern of loans, is disturbing. Obviously terrain considerations affect the suitability of sites for possible cattle projects (i.e. the availability of lower and flatter land as around Kerowagi, see Table 4.2, p.77), but this factor can hardly be claimed to affect the siting of piggeries. There seems little reason to doubt that the pattern is primarily the result of convenient access to Kundiawa and Kerowagi.
Table 9.16
PNG Development Bank Livestock Loans (1971-75) Chimbu:
Distribution by census division, with district subtotals

<table>
<thead>
<tr>
<th>Census Division</th>
<th>Pigs</th>
<th>Cattle</th>
<th>Totals</th>
<th>Loans (K.) per capita</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>K.</td>
<td>No.</td>
<td>K.</td>
</tr>
<tr>
<td>Waiye</td>
<td>18</td>
<td>6 056</td>
<td>19</td>
<td>14 839</td>
</tr>
<tr>
<td>Dom</td>
<td>8</td>
<td>2 471</td>
<td>9</td>
<td>10 840</td>
</tr>
<tr>
<td>Yonggamugl</td>
<td>3</td>
<td>955</td>
<td>5</td>
<td>5 737</td>
</tr>
<tr>
<td>KUNDIWA</td>
<td>29</td>
<td>9 482</td>
<td>33</td>
<td>31 416</td>
</tr>
<tr>
<td>Sinasina</td>
<td>10</td>
<td>2 931</td>
<td>9</td>
<td>10 343</td>
</tr>
<tr>
<td>Gunanggi</td>
<td>2</td>
<td>727</td>
<td></td>
<td>13 504</td>
</tr>
<tr>
<td>SINASINA</td>
<td>12</td>
<td>3 658</td>
<td>9</td>
<td>10 343</td>
</tr>
<tr>
<td>Salt and GUMINE</td>
<td>1</td>
<td>454</td>
<td></td>
<td>1 454</td>
</tr>
<tr>
<td>Kup</td>
<td>4</td>
<td>1 700</td>
<td>2</td>
<td>2 478</td>
</tr>
<tr>
<td>W. Koronigl</td>
<td>-</td>
<td></td>
<td>8</td>
<td>14 504</td>
</tr>
<tr>
<td>E. Koronigl</td>
<td>-</td>
<td></td>
<td>1</td>
<td>1 350</td>
</tr>
<tr>
<td>KEROWAGI</td>
<td>4</td>
<td>1 700</td>
<td>11</td>
<td>18 332</td>
</tr>
<tr>
<td>Niglkande</td>
<td>3</td>
<td>1 870</td>
<td>1</td>
<td>1 480</td>
</tr>
<tr>
<td>Mitnande</td>
<td>5</td>
<td>2 790</td>
<td></td>
<td>2 790</td>
</tr>
<tr>
<td>GEMBOGL</td>
<td>8</td>
<td>4 660</td>
<td>1</td>
<td>1 480</td>
</tr>
<tr>
<td>Chuave</td>
<td>5</td>
<td>1 790</td>
<td>3</td>
<td>1 625</td>
</tr>
<tr>
<td>Nambaiyufa</td>
<td>2</td>
<td>570</td>
<td>1</td>
<td>2 000</td>
</tr>
<tr>
<td>CHUAVE</td>
<td>7</td>
<td>2 360</td>
<td>4</td>
<td>3 625</td>
</tr>
<tr>
<td>Unknown</td>
<td>-</td>
<td></td>
<td>1</td>
<td>1 720</td>
</tr>
<tr>
<td>TOTALS</td>
<td>61</td>
<td>22 314</td>
<td>59</td>
<td>66 916</td>
</tr>
</tbody>
</table>

Source: PNG Development Bank, Mt Hagen, 1975.
9.95 That access is an important factor is hardly surprising. What is disturbing is the correlation between the pattern of PNGDB loans and population density, given the fact that cattle are heavy land users and that the Commission of Inquiry into Land Matters expressly recommended that 'Care should be taken in land-short areas to see that land is used for close-cropping rather than extended farming' (1973:139). Thirty-seven of the Development Bank cattle loans (63 per cent) went to Sinasina, Dom and Waiye, three census divisions with only 0.8-0.9 ha of all land per person, i.e. the highest crude population densities in the province (see Table 5.2, p.93).

9.96 Although actual stocking rates are not known for Chimbu projects, Leche (1973) cites a figure of 1 beast/2.5 ha for the Eastern Highlands Province, and the Chimbu Provincial Livestock Officer reports that the DPI aims at 1 beast/3.2 ha for new projects. If realised in practice, these figures mean that each head of cattle is using the amount of land which, if land was equally distributed, would equal the total land available to three or four persons. Very little success has so far been achieved with improved pastures in the province and it is therefore unlikely that effective stocking rates are much below these figures. Effective rates should, however, be distinguished from actual rates, which may well be higher. According to DPI figures, 139 of the 152 Chimbu cattle projects had an average herd of eleven cattle, the remainder averaging 52 head. However, nearly 60 per cent of the projects had less than 8 ha of fenced pasture (DPI, Animal Livestock Industry Division, Annual Report, 1974-75), suggesting that actual rates, on fenced pastures at least, were below 1 ha per beast.

**Pigs and piggeries**

9.97 Pigs are an integral part of Chimbu society, agriculture and land use. Pig husbandry is customarily extensive in that animals, although receiving as much as 2-5 kg of sweet potato daily, are generally free to forage, and breeding is not closely regulated. The result is slow growth rates, small average litter sizes, and infrequent farrowing; in brief a system of low productivity (Hide, 1974).

9.98 This system of husbandry imposes heavy demands upon both cultivated and fallow land. During the period leading up to a pig festival the number of pigs held, and the area of
land under cultivation, may double (Brookfield, 1973). Pigs rooting in old gardens and fallow land on steep slopes are probably a major cause of topsoil loss. They therefore increase pressure on, and degradation of, scarce land. Significantly, during a period of early enthusiasm for economic change following the introduction of coffee, some Chimbu argued that pig cycles were incompatible with aspects of modern life (Brookfield, 1968:105). As population increases, it is evident that the place of pigs in Chimbu agriculture and perhaps their dominant role in prestation, will require serious rethinking by Chimbu clansmen.

9.99 The aim of current piggery projects has been to improve productivity through more intensive methods of husbandry. These methods include larger supplies of energy foods, imported protein supplements, and improved breeds. As described above, such projects have received a substantial share of the available livestock loans (35 per cent, Table 9.14, p.260).

9.100 Information on the projects throughout the province was not available in 1975, but some figures from Kundiawa District are probably representative. Of 31 Kundiawa projects started since January 1974, 30 were supported by the Development Bank with a total of K.9359 in loans, or an average K.312 per project. Others were undoubtedly receiving loans from the Savings and Loan Society in the district, but the DPI does not keep details on these. The 31 projects had a total of 139 pigs (30 boars, 46 sows, 24 weaner boars and 39 weaner sows), or an average of four to five animals per project.

9.101 As Watt (1974) has observed, highland farmers appear to experience difficulties meeting the recommended feed rations for these projects. Understanding of this problem emphasises the fact that piggeries, like cattle projects, require relatively large amounts of land. The recommended daily rations of sweet potato varies from 4.5-6.7 kg per grower,20 to 6.7-11.2 kg per adult pig (Watt et al., 1975:88), in other words a very substantial increase over the customary ration which would have rarely exceeded 3 kg. On the assumption that two crops of tubers can be harvested per year, which is valid only for lower altitude areas in Chimbu, Watt et al. estimate that 0.4 ha of sweet potato cultivation would

20 An immature pig.
be sufficient for five growers or two adult animals.

9.102 Two limitations restrict the ability of Chimbu house­olds to expand their production easily to this extent: the availability of land, and of labour. In the case of land, 0.4 ha represents half of the total land available per person in the most densely occupied parts of the province, which is precisely where most projects are located (Table 9.16, p. Secondly, assuming an approximate figure of 5000 hours labour per ha for sweet potato cultivation (Hide, unpublished field data, 1972-73; Waddell, 1972:98), 0.4 ha would require some 2000 hours of labour, or 38 hours per week. This should be compared with customary levels of around 16 hours per man­week expended in subsistence food production (Table 9.1, p.211). Given that women are primarily responsible for sweet potato cultivation, it would not be at all surprising to find that men with more than one wife were disproportionately represented among pig project owners. Dumont's suggestion that heads should be liberated from netbags (1972:33) is worthy of consideration in this context.

9.103 Thus, while pig projects utilise more intensive methods of husbandry than the customary extensive regime, their 'intensiveness' is misleading. They are still based upon a major input of energy food, sweet potato: in fact a major increase in this crop which is still produced by customary extensive agricultural means. The projects are founded upon the recommendation that one adult pig = 0.2 ha of extra cultivation (and more where two crops per year are not possible). Each new project established in the more densely populated parts of the province is therefore appreciably increasing pressure on the scarcest resource, land.

9.104 To summarise, livestock loans are sought eagerly by Chimbu. They are also satisfactory to the lending institutions because they represent one of the very few straightforward means of channelling funds to rural people which seem to be at least break-even economic propositions (i.e. loans are repaid, but since loans are small, bank profit is little or nothing). Further, they provide DPI staff with a set of concrete tasks focused on a relatively small number of projects which demonstrate their success in getting development out to the people. At face value, and at least in the short term view, current livestock policies appear to be successful. Not only are they wanted, but government institutions are responding with large inputs.
9.105 Closer investigation of the achievements, and most importantly of the resource requirements, of these policies suggests, however, that they may be counterproductive for longer term Chimbu interests. Like earlier observers, (CILM, 1973; Dumont, 1972), we question these policies on several grounds:

1. They promote extensive land use in a region where every effort should be devoted to more intensive utilisation of this resource. We believe that government credit and skilled personnel should not be used to underwrite such land use by the few, thereby directly increasing land pressure for the many.

2. They promote the production of a protein food that is not used to replace expensive imports in the nation's growing towns, but rather contributes to the inflationary spiral of intergroup prestations in the rural sector. If policy is to improve rural nutrition, credit and technical skills should be invested in programmes designed to economise on land and therefore capable of being implemented by as many Chimbu as possible. The production of prestige political counters is an expensive luxury.

9.106 A counter-argument is possible to this negative appraisal of current policies. It could be held that a livestock 'phase', while probably short-lived in Chimbu, is advantageous in providing entrepreneurs with invaluable experience, and as an essential means of accumulating scarce capital. Armed with experience and capital, such persons will then be enabled to diversify by exploiting new opportunities in the future.

9.107 It could also be argued that the livestock promotion policy, by intensifying pressure on land ahead of population growth (for each head of cattle and each pig in a pig project requires as much, or more, land than is needed to provision a person by agriculture), is only speeding up an inevitable process. It therefore has the advantage of creating the conditions under which more intensive land use methods become not only acceptable but necessary, while at the same time laying the foundations of skills and capital for investment in whatever economic forms prove possible under such conditions.

21It should not be thought that DPI staff are blindly pursuing the present policy. Several expressed their doubts about the future of livestock projects given the long term constraints of the Chimbu situation.
Small-scale industries

9.108 Chimbu's potential for secondary industries is perhaps even more circumscribed than its agricultural potential. Most basic raw materials such as minerals, building materials, fibres, and the like are either totally lacking or in limited supply. Fuel is scarce, and power supplies have been limited also until the recent provision of Ramu power to parts of the province. The population has low purchasing power and is self-sufficient for many of its requirements, while the cost of transporting locally made goods outside the province is high. Chimbu's main resource is labour, and although the potential workforce is generally unskilled, the demand for employment exceeds the number of jobs available.

9.109 The province does, however, have some potential for certain types of industry which has not yet been utilised. Industrial policy for Chimbu should concentrate on labour-intensive industries which will create employment opportunities; on the use of such raw materials as are available locally; on small-scale establishments designed initially to meet the requirements of a local market; and on certain cottage industries.

9.110 One possibility for small-scale industry in Chimbu is in the production of certain types of building materials. Virtually all building materials used in the towns and non-village areas are brought into Chimbu either from other parts of the country or from overseas. Reference has been made (para.4.43) to the scarcity of accessible timber resources and the desirability of introducing small wood-treatment plants to extend their usefulness. Chimbu has extensive deposits of clay and limestone, however, which might be used for brick-making, cement and building stone. Bain et al. (1975:103) have reported that limestone in the vicinity of Mt Elimbari is 'a pure white foraminiferal variety which appears eminently suitable as a building or cladding stone'.

9.111 Rural people in the Chuave area especially have held hopes that the region's extensive limestone deposits might warrant development of a cement factory (Appendix 4). Government plans to date appear to be based on large capital intensive plants with overseas participation, using the deposits near Lae or Madang. We understand, however, that small-scale cement works requiring little capitalisation
which have been developed successfully in India would be appropriate in provinces such as Chimbu (D. Nuttall, personal communication, December 1975). We recommend investigation into the feasibility of establishing a small cement works in the Chuave area.

9.112 Bain et al. (op. cit.) also referred to other resources of building materials, for example, the deposits of sandstone near Gurumugl west of Kundiawa, which 'may be useful in cement or concrete for nearby bridges and culverts or in the town of Kundiawa'. The Business Development officer in Chimbu considers that a ceramics industry, producing 'everything from tableware to drainpipes and wash basins' would also be feasible in the province. Technical instructors at the Kundiawa vocational centre have also been concerned with developing viable small industries for the Chimbu community, particularly industries and services relevant to or associated with agricultural production. These include a coffee pulper repair shop (it is estimated that there are about 6000 coffee pulpers in Chimbu, half of which are rendered inoperative in the first year of use), with parts manufactured by students at the centre; the sale of small manual grinders for corn, coffee and peanut butter (replacement parts for which can be made at the centre); the manufacture of small hydraulic rams for village water supplies and fish ponds; the manufacture of sweet potato shredders for drying the tubers prior to storage; and equipment for hospital wards (Nuttall, 1975).

9.113 Industries such as these, which would create opportunities locally to employ not only some of Chimbu's unskilled labour but also provide training and employment for rural technicians, using local resources and meeting the needs of the local and regional market, demand serious consideration. The goodwill generated by setting up even a few new industries would be immense in a province which has seen very little new development in recent years (see Tables 9.30, 9.31), and small 'agro-industries' would mean considerable savings to rural people by making certain products available more cheaply and extending their useful life.

9.114 Cottage industries. The promotion of village industry, and emphasis on small scale artisan, service and business activity are among the aims of the government's Improvement Plan. In line with these goals, small cottage industries have been established in many provinces in recent years. Many have been sponsored by the Department of Business Development and extension officers of other
government departments, but some have also been assisted by private individuals, missions, and organisations such as Yangpela Didi'man (Young Farmers) clubs. Small industries recently introduced in the highlands include weaving, silk production, bee-keeping, pottery making and silk screen printing.

9.115 Chimbu, however, has had little assistance in establishing such activities. The Office of Business Development in Kundiawa has a staff of two, but for the first four months of 1975 was unstaffed. Shortages of staff, and the demands made on their time in processing applications for PNGDB loans mean that extension work in rural areas is almost impossible, although a radio programme in Kuman is broadcast each week. The Office can see only those applicants who come to town, and must restrict its resources to assisting projects already under way, rather than initiating new projects. It is unclear how successful cottage industries would be in Chimbu if their promotion were directed to the men, who evaluate most innovations in terms of status considerations. However, there is an increasing demand from women's groups (para. 7.59) for such projects, as well as an important need to diversify opportunities for rural women.

9.116 One of the few cottage industries introduced in Chimbu was weaving. Weavers were first trained in the province in the mid-1960s, and projects begun in Gumine, Karimui, Kundiawa, Pari and later at Kerowagi high school. Several years later the training centre was moved to Goroka, and Chimbu's projects have encountered a number of setbacks, largely beyond the control of the weavers. A major problem has been obtaining supplies of raw material: wool is imported in 100 kg bales from Australia by Highland Weavers in Goroka, brought by road to Kundiawa, and sent to rural weaving cells as transport facilities permit. Another problem has been the frequent turnover of staff assisting the projects: both at Karimui and Gumine, the weaving cells have lapsed for this reason and the Gumine looms have now been sold. Karimui once had about twelve trained weavers but at the time of the study team's visit in October 1975 only one loom was in occasional use.

22 We are indebted to N. Philp, formerly of the Australian National University, for much of the following information on Chimbu weaving projects.
9.117 The Kundiaua unit also declined for a while, but was revived during 1975 under the guidance of the Business Development officer, and by the end of the year five or six women were carding and about eight men weaving. One man is reputed to be 'perhaps the best weaver in the country' (N. Philp, personal communication, October 1975). The weavers make blankets, rugs, ponchos and table mats, using raw silk from the Southern Highlands in some of their products.

9.118 Marketing provides few problems. Woven goods which are not sold in Kundiaua (mainly to tourists) can be sold through the Highland Weavers outlet in Goroka or through the Department of Business Development in Port Moresby. Unfortunately, the high cost of imported wool puts the prices of the products out of reach of most Chimbu people. The weaving projects do, however, need the assistance of a co-ordinator in Kundiaua both to make periodic checks on supplies of raw material and to purchase (and pay spot cash for) the finished products. If the Office of Business Development were given additional staff, weaving could experience a worthwhile revival in the Province. In the long term, if a sufficient threshold of weaving units were operating, the weavers themselves could contribute toward the salary of a manager to co-ordinate supply of raw materials and purchase of products.

9.119 The Business Development officer in Chimbu considers that a tanning factory, processing hides from local cattle projects, would be a feasible small industry for the province, which could also provide leather to support various cottage industries. However, in view of our recommendations concerning the future of cattle projects in Chimbu, a tannery would probably have to depend on supplies of hides from other provinces. Hides from the new Kungi abattoir could perhaps be treated at Gui vocational centre on a trial basis to test the potential for this type of project.

9.120 A number of Chimbu's traditional handicrafts and artifacts, such as clay toys and ocarinas, flutes and other bamboo items, and net bags, could form the basis of cottage industries if marketing arrangements could be organised. Some discussion was held in Mt Hagen in 1975 regarding the establishment of a Handicrafts Co-operative, possibly representing several provinces, to organise supplies of raw materials (such as shell), and marketing outlets, for such products.
9.121 The study team did not make a comprehensive investigation of the range of small industries which might prove worthwhile in Chimbu. We would only reiterate the lack of employment opportunities in the province, the one-dimensional character of the rural cash economy, the desirability of providing more local incentives to reduce the stream of younger, more active migrants, and the limited input by the Department of Business Development to date. Past experience emphasises that village projects require close management and sustained motivation in initial stages, but if all small industry projects were to provide opportunities for suitably qualified Chimbu people to understudy government advisers from the beginning, the projects might have some chance of achieving early self-reliance.

**Rural service industries**

9.122 Rural Chimbu in general is poorly provided with service industries. The two most widespread activities, transport services and retailing, are basically informal sector enterprises characterised by low capitalisation, irregular operation and inexperienced management. Without these services, however, rural areas would be seriously deprived.

9.123 The availability and standard of rural services reflect both the low cash incomes in Chimbu, and also periodic 'pulses' in the flow of money. These fluctuations differ in rural and non-rural areas. The cyclic flow of money in urban and rural non-village centres is triggered by the fortnightly wage packet of all employees, and is clearly reflected in the turnover in stores. The significant pulse in rural areas, on the other hand, is determined by the seasonality of coffee, peaking in the period May to August (see Fig. 9.1). This cycle is not only reflected in the pattern of store turnover and operation or vehicles in rural areas, but is responsible for their very existence.

9.124 It has been observed that highlanders have a preference for conspicuous consumption (Finney, 1973:69 ff.). The Chimbu are no exception. More people spoke about *bisnis* at the rural workshops than about any other issue. The ability to undertake such ventures, however, is restricted not only by the availability of capital and the limited niches noted above (para. 9.76), but to a large extent also by the availability of models for potential entrepreneurs. In Chimbu
the models have been very few indeed. Even in provinces with large expatriate populations, the private sector has concentrated on transport and trading. Translated to rural areas, similar enterprises appear as replications, often rudimentary, of the urban model. Thus tradestores are invariably separate fixed structures with counter and shelves, rarely temporary stalls for the display and later removal of goods. It is likely that the status attaching to investment in such a store is more important to the entrepreneur than conducting a viable business in a more humble setting. Status may also explain why the ownership of vehicles is so widespread in rural areas, and vehicle repair shops so rare. Both the need for, and expected returns from such workshops appear considerable. However, the bulk of village investment in transport is in vehicles for carrying passengers, coffee and other produce, and not in repair and maintenance enterprises, which require more expertise and management skills.

9.125 It is impossible to state reliably the number of trade stores and passenger vehicles operating in rural areas (although all vehicles and most stores are required to be licensed) because their operation is dependent on the cyclic availability of cash. Many stores are built and stocked in the coffee season but often close down a few months later. Some may reopen during the following season, others fall into disrepair. Most of the transient stores are poorly located, so their custom depends on a small local community, and they stock only the most basic inventory of goods. The more successful stores, able to maintain continued operation and regular trading hours, are usually found in strategic locations such as near rural produce markets or near road junctions. Table 9.16 illustrates some variations in the patterns of sales in rural and urban trade stores at various dates. The wide variations in percentages of foodstuffs in Sinasina sales is not explained, but may be due to seasonal shortages, or local events which created a greater demand for purchased foods. The ultimate seal of success for a rural storekeeper is a licence to sell beer, although the Liquor Licensing Commission is very strict in granting such licences.23 Passenger vehicles purchased with income from coffee, like tradestores, are frequently no longer operational a year later, although owners of vehicles purchased specifically for coffee buying may simply take them off the road at

23 In October 1975, of 15 new applications from rural storekeepers for licences, all were refused.
Table 9.17
Patterns of sales in rural and urban Chimbu stores at various dates

<table>
<thead>
<tr>
<th>Product</th>
<th>Sinasina (rural)</th>
<th>Kundiawa (urban)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foodstuffs</td>
<td>24.0</td>
<td>57.9</td>
</tr>
<tr>
<td>Clothing</td>
<td>46.0</td>
<td>7.8</td>
</tr>
<tr>
<td>Hardware</td>
<td>16.0</td>
<td>1.8</td>
</tr>
<tr>
<td>Toiletries</td>
<td>4.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Tobacco</td>
<td>10.0</td>
<td>29.9</td>
</tr>
<tr>
<td>Alcohol</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Sources:
A. Shand, 1966:71-73 (the largest expatriate-owned tradestore in Sinasina, sales figures for nine months).
B. Hide unpublished field data (one of the largest, mission-owned tradestores in Sinasina, data calculated from store's wholesale purchases for twelve months).
C. Hide unpublished field data (purchase data from a survey of ten Sinasina households during three selected months).
D. Kundiawa Vocational School Canteen, Kundiawa Hospital. Data base: two weeks in August in both years. N.B. the canteen serves both patients (i.e. primarily rural people temporarily resident Kundiawa), hospital staff and other urban residents. Clothing and hardware lines are limited.
the end of the season to ensure their survival for the following season.

9.126 Among its functions, the Office of Business Development in Kundiawa offers brief courses in tradestore management, and toward the end of 1975 planned to hold them in various district centres. The office also acts as agent for the PNGDB in processing loan applications for tradestores and vehicles for passenger and coffee buying operations. However, no application is considered unless an enterprise has been functioning for at least six months. In effect, this means that these rural enterprises must maintain their operations through the leaner months following the coffee harvest, a fairly rigorous test. The Business Groups Act (1974) now provides the means to register traditionally based groups, thus increasing the possibility of obtaining PNGDB loans, but by 1975 only three groups had approached the Business Development office under its auspices.

9.127 It seems unlikely that the present provision of rural services will improve significantly in the next few years, given the constraints faced by rural entrepreneurs in establishing such enterprises. However, villagers by no means have ready access to all the services, whether government or private, which they require, and for the majority a long and expensive journey to Kundiawa is involved to obtain them. The periodic provision of certain services on a mobile basis would alleviate this situation and provide some additional opportunities for rural and urban entrepreneurship.

**Mobile services**

9.128 Kundiawa is the only centre in which a fairly comprehensive range of services is available, but even Chimbu's largest town ranks well down on the national urban hierarchy and is dependent on other centres for certain goods and services. Smaller centres in Chimbu can meet only a very small part of people's non-traditional needs. Higher-order goods are available only in Kundiawa, and supply is not always guaranteed. Only Kundiawa and the district stations provide banking and postal facilities, and government departments such as Business Development and Welfare have offices only in Kundiawa.

9.129 Many of the goods and services in fairly frequent demand by rural dwellers require a trip to Kundiawa. Table
9.18 shows the main reasons why people from five Chimbu communities\textsuperscript{24} visit Kundiawa. The reasons for going to the town vary according to its accessibility for each community, and according to the visitor's sex. Men living in communities with easy access to Kundiawa visit the town to transact business of various kinds, and for entertainment and casual visiting, while women from accessible villages visit the town mainly for business, including buying and selling at the market. All men and women from Burukngaumo, the sample village nearest to Kundiawa, had been to the town. Considerable numbers from Korul and Angangoi, the two most distant communities, have never been to Kundiawa. Men from less accessible communities go to Kundiawa mainly to visit friends and relatives there, rather than for business reasons. This suggests that perhaps people from more distant communities are less familiar with the services available in town, and hence make less use of them, rather than that such services are not needed by outlying villagers.

9.130 Dispersal of some of Kundiawa's centralised services appears to be warranted, not only to reduce the cost of travel for villagers, but also to provide people with services in familiar surroundings. Because Kundiawa is located in the Kuman-speaking regions of the province, people from other language groups and tribal affiliations often feel uncomfortable in the town.

9.131 Three alternatives to the problem of over-concentration of services are available:

- establishment of small 'growth centres' in suitable locations;
- more effective extension services; and
- decentralisation of services through mobile service units.

9.132 Although the establishment of small 'growth centres' would enable the dispersal of some essential services to outlying communities, the cost would not be justified in terms of demand. The domination of the government sector in Kundiawa's employment structure and the very small private sector would mean that dispersal of some government services

\textsuperscript{24} For location of the communities, see p.49, Map 3.5. These data were collected during the survey of the role of small towns in rural-urban migration; see p.47 ff.
### Table 9.18

**Sample survey of Chimbu rural communities - reasons for visiting Kundiawa**

Percentage of all visitors (rounded)

<table>
<thead>
<tr>
<th>Ranked accessibility index</th>
<th>Burukngaumo</th>
<th>Email</th>
<th>Angangoi</th>
<th>Korul</th>
<th>Bomkan</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>Work</td>
<td>-</td>
<td>-</td>
<td>8</td>
<td>-</td>
<td>9</td>
</tr>
<tr>
<td>Contract</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Business</td>
<td>40</td>
<td>27</td>
<td>39</td>
<td>21</td>
<td>10</td>
</tr>
<tr>
<td>Market</td>
<td>2</td>
<td>29</td>
<td>7</td>
<td>31</td>
<td>5</td>
</tr>
<tr>
<td>Entertainment</td>
<td>11</td>
<td>-</td>
<td>-</td>
<td>8</td>
<td>-</td>
</tr>
<tr>
<td>Visit friend</td>
<td>9</td>
<td>10</td>
<td>2</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>Meet friend</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Accompany friend</td>
<td>2</td>
<td>-</td>
<td>3</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>Look around</td>
<td>21</td>
<td>10</td>
<td>18</td>
<td>14</td>
<td>22</td>
</tr>
<tr>
<td>In transit</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Police</td>
<td>5</td>
<td>-</td>
<td>7</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Hospital</td>
<td>3</td>
<td>12</td>
<td>2</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Education</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

#### Number of visitors

- 63 M, 81 F
- 89 M, 81 F
- 80 M, 46 F
- 86 M, 65 F
- 71 M, 49 F

#### Number of visitors interviewed (%)

- 100 M, 100 F
- 99 M, 99 F
- 88 M, 69 F
- 87 M, 58 F
- 100 M, 100 F

### Reasons for visiting town

- **Work**: look for work, carry cargo, assist in setting up government station, employed as wage earner
- **Contract**: go as agreement labourer
- **Business**: go to bank, to trade stores, to buy cargo for trade stores; business connected with administration, employer's business, other business
- **Market**: take goods to sell, buy goods
- **Entertainment**: go to show/festival/sport, play cards, drink beer
- **Visit family/friend**: social visit to contacts resident in town, take goods to relatives
- **Meet family/friend**: meet contacts not resident in town
- **Accompany friends**: no set personal reasons, merely going round town because a friend is going
- **Look around**: no set purpose, merely looking around, to watch the planes
- **In transit**: stop and wander round town while en route elsewhere
- **Police**: court business, go to jail
- **Hospital**: go to hospital as a patient/visitor, stay in hospital with a friend
- **Education**: go to school/college

These data are based on the following question: 'When you last visited Kundiawa, what was your main reason for going there?'
to other centres might seriously undermine Kundiawa's economy. Moreover, concentration of government services does allow economies of scale which otherwise would be infeasible. Although Ward et al. (1974:6) argue that 'the loss of some scale economies is more than offset by the benefits of greater rural-urban interaction', other means may be available to provide Chimbu's rural people with a more adequate distribution of needed services.

9.133 It may be appropriate to maintain the present centralisation of services in the larger Chimbu towns and improve their distribution to rural areas through extension services. Although health and community welfare services extend to rural areas, the two departments do not liaise to co-ordinate their activities. Both wider extension of other services, and a serious attempt at co-ordination of such services, are desirable. Increased agricultural extension and business development extension would be welcomed in rural areas. Private sector activities, for example wholesale marketing, might also be decentralised. Namasu provides a service for rural trade store owners and Chuave high school has attempted to organise the carriage of bulk goods into rural areas as a means of raising funds, but neither service is predictable and rural people cannot rely on them. Local government councils would be suitable organisations to meet a need of this kind.

9.134 The concept of *maket raun*, namely the introduction of regular periodic market or service units in rural areas of the highlands, was first proposed in 1974 (Ward et al., 1974a; 1974b). Its rationale was that

> Few areas outside the larger towns can support permanent, fixed-location service centres able to provide a wider choice and higher quality of goods than the normal tradestore. Mobile services can reach a larger population in a given time and thereby achieve access to threshold populations for goods with wider ranges (1974a:8.3).

Further, 'regular concentrations of people [at the market sites] offer excellent opportunities for extension and educational programmes' (1974a:8.5), hence it was considered that the co-ordination of government services with other rural activities would provide a promising strategy for area improvement.
The provision of mobile services is not new in Chimbu, but few are presently available. The Maternal and Child Health clinics are one example, although their operation in Chimbu has been hampered frequently by transport availability (para. 7.16). In the mid-1960s, an expatriate entrepreneur successfully ran a mobile trading operating in the Gumine District:

With two Landrovers operating in the District he has provided a ready market for any produce locally grown. With his Pedler's [sic] licence, he has also provided a mobile store stocked with a great variety of goods and thus provides a convenient service to those people not directly served by a Trade Store (Gumine Patrol Report No.2, 1964-65).

This entrepreneur is no longer in Chimbu, and unfortunately no Chimbu businessmen have followed his example. The logistics of maintaining supplies and keeping vehicles operational on regular schedules have undoubtedly deterred some potential entrepreneurs from undertaking such a venture. Meanwhile, a large potential market for such services exists in the province's rural areas. It was estimated that in 1974 the average PMV fare in the province for the round trip between any rural location and its nearest fixed site service centre was almost $2 (Ward et al., 1974b:7.11). Maket raun is one means by which entrepreneurs might be given some assistance in the initial stages of mobile trading. Another possibility is the formation of groups, such as 'development corporations' to co-ordinate the rural and urban operations involved in mobile trading.

A maket raun pilot project, based on the recommendations of Ward et al., was established in the Western Highlands with government assistance and New Zealand aid in September 1975. Shortly after its inception, two members of the Chimbu study team visited the project and held discussions with its co-ordinator, P. Tozer, to assess its relevance for Chimbu. The initial aim of the co-ordinator was to establish the government sector activities of the project, which included a team of Maternal and Child Health nurses, a banking and postal service, a mobile vehicle repair unit, and an 'entertainment' unit to provide taped music, record singsings, broadcast announcements and show films. Seven rural localities were visited each fortnight. No promotion had been undertaken at the time of our visit to include trading, peddling, or other informal sector activities in
the project. The following assessment, and the estimate of costs as set out in Appendix 3, were made by B. Kaman.

9.138 Although make market was seen only in its early stages, it seemed that such a project would be eagerly supported by rural people in Chimbu. Not only is their demand for improved government services and for economic development very strong, but due to the province's difficult terrain and poor roads, government officers appear infrequently in isolated areas and a more regular service would be welcomed. However, in order to make services widely available without consuming too much travelling time, the scheme should be adapted for Chimbu conditions by decentralising it to the districts rather than basing it exclusively on the provincial headquarters, as was initially the case in the Western Highlands.

9.139 In each district, co-ordination and supervision of the make market activities and personnel should be the responsibility of the assistant district officer. Each team should include two nurses (trained in family planning as well as maternal and child health), an agricultural extension officer (preferably with some training in business development), a postal and banking service (see para.5.51), and a mechanic. In an operation adapted for Chimbu, it would be advisable to include councils in planning the team's circuits and provision of services, but as far as possible, rural market places should be used as sites for the make market, as people are already accustomed to visiting these places.

9.140 As the rationale of co-ordinating government services in this way is to make extension more accessible and effective, team members should be prepared to stay overnight in rural communities as frequently as possible. However, because this makes heavy demands on personal and family life, selection of team members will be critical. Several alternatives can be tried to choose appropriate staff. Ideally, husband-and-wife teams would be most suitable. Perhaps the best way to recruit highly motivated personnel would be to advertise for applicants, rather than by nominating district staff to the teams. Alternatively, team members could be rotated every month or so.

9.141 A provincial co-ordinator based in Kundiawa would also be required, to provide overall liaison and logistics support for the district teams. He should be able to mobilise specialist services available only in Kundiawa,
such as advisers in community development, credit facilities, legal matters, nutrition, and adult education, to travel with the teams.

9.142 Thus, to be successful in Chimbu, *maket raun* should be established differently from the Western Highlands project. A Chimbu scheme should be more decentralised and make more use of district level extension staff, but maintain liaison with a co-ordinator at provincial headquarters, preferably operating within the Department of Provincial Affairs. District team members should have a strong motivation and team spirit. Before any scheme is initiated in the province, frequent broadcasts over Radio Chimbu to familiarise rural people with the idea, and to attract as many businessmen as possible, are suggested. The early participation by traders, coffee buyers and other produce buyers is essential to the success of mobile services in Chimbu.

Wage employment

9.143 *The employment situation in Chimbu.* As employment opportunities for earning an adequate income from cash cropping or livestock are so limited, and as few people in Chimbu have yet realised the opportunities for self-employment in informal sector activities or small industries, their main alternative is to enter wage employment. Allied with the scarcity of paid employment is the problem that most jobs are available only in the towns. As Table 9.19 shows, only 17.4 per cent of village men were wage earners in 1971, whereas almost half the workforce in the urban and rural non-village centres were in paid employment.

9.144 The only village people who can commute from their homes to paid employment are those living near towns. Wage earners in other rural areas are mainly aidpost orderlies.

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25 Data on wage employment are collected by the Department of Labour in the form of returns by employers at 30 June each year. Some data are also available from the 1966 and 1971 censuses. In the following discussion we have used Department of Labour data for 1971, and some preliminary analyses of 1973 data provided by H.C. Weinand, as well as both censuses. See also Appendix 2.

26 These figures are for the total population aged ten years and over, many of whom were full-time students.
primary school teachers, and pastors. Greater dispersal of employment opportunities, including the decentralisation of small industries, repair and maintenance establishments, would spread the benefits of wage earning more widely and perhaps reduce the drift to towns. Unfortunately, as the example of the weaving industry demonstrates, the tendency toward concentration seems to be increasing.

Table 9.19

<table>
<thead>
<tr>
<th>Sector</th>
<th>Number wage earners</th>
<th>Total workforce</th>
<th>% wage earners in total workforce</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural village</td>
<td>8 240</td>
<td>47 369</td>
<td>17.4</td>
</tr>
<tr>
<td>Rural non-village</td>
<td>1 135</td>
<td>2 397</td>
<td>47.4</td>
</tr>
<tr>
<td>Urban: Kundiawa</td>
<td>517</td>
<td>866)</td>
<td>48.9</td>
</tr>
<tr>
<td>Kerowagi</td>
<td>168</td>
<td>536)</td>
<td></td>
</tr>
</tbody>
</table>


Table 9.20 compares the percentages of people in various occupational categories in the province and in the national workforce in 1971. Both monetary and non-monetary occupations are included. Of the occupations listed, the category 'farmers and planters' in Chimbu largely consists of self-employed cultivators outside the wage earning sector. As the table demonstrates, the percentages of men and women thus employed in Chimbu was considerably higher than the national average in 1971. The proportion of men in skilled occupations is also significantly low in Chimbu compared with the national average. Few women in Chimbu were employed outside the rural sector or as wage earners.

9.145 Table 9.21, also derived from 1971 data, shows the percentages of wage earners in Chimbu employed by government and in the private sector, and their provinces of birth. Although over 60 per cent of the paid workforce then was Chimbu-born, almost three-quarters of the contracted
<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. workers</td>
<td>3.6</td>
<td>0.7</td>
<td>2.5</td>
<td>4.0</td>
<td>3.2</td>
<td>3.7</td>
</tr>
<tr>
<td>Admin. workers</td>
<td>0.6</td>
<td>0.0</td>
<td>0.4</td>
<td>0.8</td>
<td>0.0</td>
<td>0.6</td>
</tr>
<tr>
<td>Clerical workers</td>
<td>0.6</td>
<td>0.1</td>
<td>0.4</td>
<td>1.6</td>
<td>0.7</td>
<td>1.3</td>
</tr>
<tr>
<td>Sales workers</td>
<td>2.1</td>
<td>1.0</td>
<td>1.7</td>
<td>2.1</td>
<td>1.1</td>
<td>1.8</td>
</tr>
<tr>
<td>Farmers/Planters</td>
<td>69.3</td>
<td>76.9</td>
<td>72.1</td>
<td>35.0</td>
<td>58.9</td>
<td>42.4</td>
</tr>
<tr>
<td>Farm workers, etc.</td>
<td>4.9</td>
<td>8.0</td>
<td>6.0</td>
<td>17.1</td>
<td>14.7</td>
<td>16.4</td>
</tr>
<tr>
<td>Miners, etc.</td>
<td>0.0</td>
<td>-</td>
<td>0.0</td>
<td>0.9</td>
<td>0.0</td>
<td>0.6</td>
</tr>
<tr>
<td>Transport industries</td>
<td>0.8</td>
<td>0.0</td>
<td>0.5</td>
<td>3.1</td>
<td>0.1</td>
<td>2.2</td>
</tr>
<tr>
<td>Skilled workers</td>
<td>5.0</td>
<td>1.3</td>
<td>3.3</td>
<td>17.0</td>
<td>3.0</td>
<td>12.7</td>
</tr>
<tr>
<td>Service industries</td>
<td>2.2</td>
<td>0.9</td>
<td>1.7</td>
<td>6.5</td>
<td>4.2</td>
<td>5.8</td>
</tr>
<tr>
<td>Not stated</td>
<td>10.8</td>
<td>12.1</td>
<td>11.3</td>
<td>11.9</td>
<td>14.0</td>
<td>12.5</td>
</tr>
<tr>
<td><strong>TOTAL NUMBER</strong></td>
<td>17 756</td>
<td>10 194</td>
<td>27 950</td>
<td>336 783</td>
<td>151 522</td>
<td>488 305</td>
</tr>
</tbody>
</table>

### Table 9.21

**Wage employment in Chimbu Province, June 1971 - percentage of total**

<table>
<thead>
<tr>
<th>Province of birth</th>
<th>Written contract</th>
<th>Casual</th>
<th>Apprentices</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western</td>
<td>1.0</td>
<td>0.2</td>
<td>0.7</td>
<td>-</td>
</tr>
<tr>
<td>Gulf</td>
<td>7.0</td>
<td>-</td>
<td>1.0</td>
<td>1.2</td>
</tr>
<tr>
<td>Central</td>
<td>9.8</td>
<td>0.9</td>
<td>1.0</td>
<td>0.8</td>
</tr>
<tr>
<td>Milne Bay</td>
<td>4.5</td>
<td>3.5</td>
<td>0.4</td>
<td>1.2</td>
</tr>
<tr>
<td>Northern</td>
<td>4.2</td>
<td>6.1</td>
<td>0.4</td>
<td>1.3</td>
</tr>
<tr>
<td>S. Highlands</td>
<td>0.3</td>
<td>0.9</td>
<td>-</td>
<td>2.0</td>
</tr>
<tr>
<td>W. Highlands</td>
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**Total number** 286 229 490 869 10 7 786 1105

**Source:** Department of Labour, Employers' returns, June 1971.
government positions were held by non-Chimbu. By contrast, casual government jobs were held largely by Chimbu (see also para. 8.54, p. 204). One consequence is that the relations between non-Chimbu supervisors and managers and their Chimbu subordinates tends to be poor. An orientation programme for public servants newly posted from other parts of the country, as suggested earlier (para. 8.59) would help alleviate this situation.

Table 9.21 also indicates that apprentices represented only 0.9 per cent of all Chimbu's wage earners in 1971. The lack of apprenticeship opportunities may well be a factor influencing young educated Chimbu to move elsewhere. The province provided only 23 registered apprentices in 1971 - by far the lowest number of any province in relation to its population. With the loss of more highly skilled people to other areas, the expertise and motivation needed to start new enterprises at home becomes scarcer. Although experience elsewhere in the country is undeniably valuable, Chimbu would benefit if able to attract more of its skilled people to work within the province.

Table 9.22 shows the relationship between the activity groups in the total workforce (i.e. monetary and non-monetary) and educational level in the rural village, rural non-village, and urban sectors in Chimbu in 1971. This table indicates that all sectors had a pool of people with some formal education who were not dependent on wage employment. Some had secondary education which, in 1971, ought to have guaranteed them paid employment. The size of the skilled pool did, however, vary by sector. Table 9.22 suggests that levels of unemployment in the province, including its two urban centres, were not high in 1971. However, in an urban survey carried out in Kundiawa in

27 All higher level government positions are contracted, whereas labourers and semi-skilled workers are usually employed on a casual basis.

28 The census definition of 'unemployed' was 'a person who actively looked for a paid job last week', i.e. in the week preceding the census. See Appendix 2 for a further discussion of this definition.
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January 1974, 29 25 per cent of Chimbu people in the town were without employment (see Table 9.30 below). The rural village sector undoubtedly contained a significant number of people who would have entered some form of casual employment if it were available near their homes.

9.148 In 1973, the latest year for which data are available, Chimbu's monetary sector workforce consisted of 2425 people, of whom 2310 were nationals (Table 9.23). In the country as a whole in 1973 the paid workforce was 134 346, of whom 117 669 were nationals. Chimbu, with 6.6 per cent of the country's population, provided wage employment for less than 2 per cent of the national workforce (see Table 9.27).

9.149 Our data for 1973 are not strictly comparable with those for 1971, but do reveal some interesting information. Table 9.23 shows a classification of Chimbu's employees according to industry groups and places of birth. The largest employers were the construction and infrastructure industries, followed by education, and commerce. Although not indicated in Table 9.23, all but those in commerce were largely in the public sector. Certain industry groups, namely mining, communications and business services, were not represented in Chimbu's workforce in 1973. Manufacturing, while apparently a significant employer, includes establishments such as garages and hence is somewhat misleading. Actual secondary (i.e. processing) industries were limited to coffee processing. Overseas employees were concentrated in the categories of commerce, education and public authorities.

9.150 Of the 1973 paid workforce in Chimbu, 1649, or 68 per cent, were Chimbu-born. Of these, two-thirds (or 45 per cent of the province's total paid workforce) held unskilled labouring jobs, and only 7 per cent of the province's professional positions were held by Chimbu people (Table 9.24). This raises the question of the extent to which employment opportunities were available within the province, and the extent to which Chimbu are obliged to move elsewhere to find work. Table 9.25 helps answer these questions.

---

29 Part of a national urban survey designed to measure the effects of employment opportunities and wage structures on migration streams, carried out in 18 towns during November 1973-January 1974 (Wright et al., 1975).
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Chimbu-born as % of total in each category

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<tr>
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<td>353</td>
<td>140</td>
<td>-</td>
<td>30</td>
<td>2425</td>
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Chimbu-born as % of total in each category

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</thead>
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<td>84.3</td>
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* See Appendix 2 for definitions of industry groups.
* See Appendix 2 for definitions of industry groups.
** Includes Enga Province.

### Table 9.24

Monetary sector workforce in Chimbu, 1973, by occupational level*

<table>
<thead>
<tr>
<th>Place of birth</th>
<th>Professional</th>
<th>Semi-professional</th>
<th>Skilled</th>
<th>Semi-skilled</th>
<th>Unskilled</th>
<th>Voluntary workers</th>
<th>Total</th>
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<td>12</td>
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<td>15</td>
<td>11</td>
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<td>5</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>56</strong></td>
<td><strong>384</strong></td>
<td><strong>341</strong></td>
<td><strong>383</strong></td>
<td><strong>1172</strong></td>
<td><strong>89</strong></td>
<td><strong>2425</strong></td>
</tr>
</tbody>
</table>

Chimbu-born as % of total in each category

|                       | 7.1 | 24.5 | 37.5 | 65.5 | 93.4 | 86.5 | 68.0 |

* See Appendix 2 for definitions of occupational levels.

** Includes Enga Province.

Table 9.25
Levels of skill of Chimbu in workforce compared with national and provincial availability of jobs

<table>
<thead>
<tr>
<th></th>
<th>Professional</th>
<th>Semi-professional</th>
<th>Skilled</th>
<th>Semi-skilled</th>
<th>Unskilled</th>
<th>Voluntary workers</th>
<th>Total</th>
</tr>
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<td>1. Number of Chimbu in</td>
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<td>604</td>
<td>1,420</td>
<td>5,377</td>
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<td></td>
</tr>
<tr>
<td>2. Number of Chimbu in</td>
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<td>128</td>
<td>251</td>
<td>1,095</td>
<td>77</td>
<td>1,649</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3. Total number in</td>
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<td>22,673</td>
<td>23,215</td>
<td>27,046</td>
<td>54,657</td>
<td>1,832</td>
<td>134,346</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4. Total number in</td>
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<td>341</td>
<td>383</td>
<td>1,172</td>
<td>89</td>
<td>2,425</td>
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<td>provincial workforce*</td>
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<td></td>
</tr>
<tr>
<td>5. Row 2 as % of Row 1</td>
<td>15.4</td>
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<td>21.2</td>
<td>17.7</td>
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<td>81.9</td>
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<tr>
<td>6. Row 2 as % of Row 4</td>
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<td>65.5</td>
<td>93.4</td>
<td>86.5</td>
<td>68.0</td>
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<tr>
<td>7. Row 1 as % of Row 3</td>
<td>0.5</td>
<td>2.0</td>
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<td>5.2</td>
<td>9.8</td>
<td>5.1</td>
<td>1.8</td>
</tr>
</tbody>
</table>

* Includes persons born overseas.

Row 5 of Table 9.25 shows that of all Chimbu in paid employment only 15-21 per cent of each category are employed in their home province. A comparison of Rows 1 and 4 shows that, with the exception of the professional category, the number of jobs available in Chimbu is exceeded by the number of Chimbu people available in the various skill categories. To take one example, the province in 1973 had places for 341 skilled workers, but 604 skilled Chimbu workers were employed in the nation as a whole. Thus, within the paid workforce, there was a surplus of Chimbu people beyond their province's capacity to employ them. It must be pointed out, however, that apart from unskilled workers, most workers are not able to choose their place of employment, unless self-employed. Those in government service, and those working for private firms with more than one establishment, are usually directed to their place of employment.

Table 9.25 points to other features of the Chimbu workforce. In relation to the percentage of Chimbu in the country's indigenous population (6.6 per cent), the province's paid workforce was under-represented in all occupational levels except the unskilled category, in which the Chimbu were over-represented (Row 7). Row 1 shows that only 26 Chimbu (0.3 per cent) in the 1973 paid workforce had professional qualifications, whereas 5377 (or 67 per cent) were unskilled. However, over 93 per cent (Row 6) of the province's unskilled occupations were filled by Chimbu employees.

Employment of Chimbu elsewhere. Because the number of jobs available locally has always been relatively small, Chimbu men have become accustomed to migrating elsewhere to find work. D. Emery, conducting a patrol in Salt census division in 1965, reported that:

The mere mention of the Pidgin word for coast brought near riots at every Rest House visited. It was extremely difficult to control the crowd when accepting men for the Highland Labour Scheme. In the majority of Census Units, the rate of absenteeism within the able-bodied male population exceeded the 33 1/3% allowed for (Gumine Patrol Report No.4, 1964-65).

The category 'Voluntary workers' is excluded in the following discussion.
In 1971, the number of Chimbu who had migrated elsewhere for work was more than ten times the number who had come from other parts of the country to work in Chimbu (Map 9.8). Two years later, the ratio was slightly lower at 8:1, and as we have seen, for every Chimbu person employed within the province, four were employed elsewhere. Map 9.9, which illustrates the proportion of the workforce in 1971 who were born in the province of their employment, shows how Chimbu compares with the rest of the country in respect of out-migration of labour.

9.154 In 1971, the most important sources of outside employment for the Chimbu included both the nearest and most remote provinces, from the Eastern and Western Highlands to Central Province and Bougainville (Table 9.26). According to the 1971 census, most migrants from Chimbu were in rural non-village areas (see also Table 3.8, p.45), which included the plantations of the highlands capable of absorbing numbers of unskilled workers,31 and the Panguna copper mine and its associated infrastructure. By 1973, Western Highlands, Eastern Highlands and Central Province were still the three main areas for migrant Chimbu labour, but Bougainville had been displaced by Morobe (Table 9.27).

9.155 In 1973, nearly 41 per cent of Chimbu wage earners in the national workforce were employed in primary industry, with construction, manufacturing industries and public authorities the only other significant fields of employment (Table 9.27). The occupational levels of Chimbu wage earners throughout the country are set out in Table 9.28, illustrating that in the nation as in the province, the Chimbu workforce consists largely of unskilled and semi-skilled employees.

9.156 Table 9.29 suggests that migrants from Chimbu vary in their preference for urban or non-urban areas according to their district of birth within the province. Thus less than a quarter of the male migrants from Gumine and Gembogl Districts in 1971 were in urban areas, compared with about 40 per cent of those from the Kerowagi, Kundiafa and Chuave

31Although the dominance of the Western Highlands is largely accounted for by the ease of access to its extensive plantations, it must also be pointed out that employment data are compiled in June when the coffee harvest requires considerable labour; statistics collected in March, for example, would show less emphasis on the Western Highlands.
MONETARY SECTOR WORKFORCE, 1971
MONETARY SECTOR WORKFORCE, 1971
Table 9.26

Employment of Chimbu migrants in other provinces, June 1971

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<tr>
<th>Province</th>
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<th>Casual</th>
<th>Apprentices</th>
<th>TOTAL</th>
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<td>Non-govt</td>
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<td>Gulf</td>
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<tr>
<td>Southern Highlands</td>
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<td>651</td>
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Source: Department of Labour, Employers' returns, 1971.
### Table 9.27

Chimbu in the National workforce, 1973, by industry group*

<table>
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<th>Industry group</th>
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<th>Gulf</th>
<th>Central</th>
<th>Milne Bay</th>
<th>Northern</th>
<th>S. Highlands</th>
<th>W. Highlands*</th>
<th>Chimbu</th>
<th>E. Highlands</th>
<th>Morobe</th>
<th>Madang</th>
<th>E. Sepik</th>
<th>W. Sepik</th>
<th>Manus</th>
<th>New Ireland</th>
<th>W. New Britain</th>
<th>E. New Britain</th>
<th>Bougainville</th>
<th>TOTAL</th>
<th>Percentage of Chimbu in each industry group</th>
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<tr>
<td>Finance</td>
<td>-</td>
<td>-</td>
<td>16</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>7</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>3</td>
<td>8</td>
<td>46</td>
<td>433</td>
<td>10.4</td>
</tr>
<tr>
<td>Commerce</td>
<td>-</td>
<td>-</td>
<td>70</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>62</td>
<td>70</td>
<td>87</td>
<td>67</td>
<td>13</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>3</td>
<td>8</td>
<td>46</td>
<td>433</td>
<td>5.4</td>
</tr>
<tr>
<td>Public authorities</td>
<td>-</td>
<td>-</td>
<td>140</td>
<td>-</td>
<td>4</td>
<td>7</td>
<td>104</td>
<td>461</td>
<td>45</td>
<td>35</td>
<td>10</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>14</td>
<td>830</td>
<td>10.4</td>
</tr>
<tr>
<td>Community services</td>
<td>1</td>
<td>1</td>
<td>96</td>
<td>-</td>
<td>-</td>
<td>29</td>
<td>59</td>
<td>25</td>
<td>33</td>
<td>24</td>
<td>6</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>9</td>
<td>5</td>
<td>299</td>
<td>3.7</td>
</tr>
<tr>
<td>Medical</td>
<td>-</td>
<td>-</td>
<td>21</td>
<td>3</td>
<td>3</td>
<td>-</td>
<td>17</td>
<td>8</td>
<td>13</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>8</td>
<td>80</td>
<td>100</td>
<td>1.0</td>
</tr>
<tr>
<td>Education</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>45</td>
<td>-</td>
<td>-</td>
<td>7</td>
<td>75</td>
<td>183</td>
<td>20</td>
<td>27</td>
<td>6</td>
<td>5</td>
<td>-</td>
<td>1</td>
<td>5</td>
<td>14</td>
<td>-</td>
<td>389</td>
<td>4.9</td>
</tr>
<tr>
<td>Religion and Welfare</td>
<td>-</td>
<td>-</td>
<td>8</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>19</td>
<td>115</td>
<td>16</td>
<td>7</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>72</td>
<td>-</td>
<td>172</td>
<td>2.2</td>
</tr>
<tr>
<td>Business services</td>
<td>-</td>
<td>-</td>
<td>16</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>13</td>
<td>4</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>40</td>
<td>-</td>
<td>40</td>
<td>0.5</td>
</tr>
<tr>
<td>Personal services</td>
<td>-</td>
<td>-</td>
<td>52</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>20</td>
<td>8</td>
<td>28</td>
<td>68</td>
<td>2</td>
<td>7</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td>26</td>
<td>230</td>
<td>2.9</td>
</tr>
</tbody>
</table>

**TOTAL** 1 4 1021 7 40 91 2487 1649 1092 591 102 20 4 4 204 81 163 416 7977 100.0

Percentage of Chimbu in each province 0.0 0.0 12.8 0.1 0.5 1.1 31.2 20.7 13.7 7.4 1.3 0.3 0.0 0.0 3.6 1.0 2.0 5.2

* See Appendix 2 for definitions of industry groups.

** Includes Enga Province.

Source: Department of Labour, Employers' returns 1973.
Table 9.28  
Chimbu in national workforce 1973

<table>
<thead>
<tr>
<th>Province of employment</th>
<th>Occupational level</th>
<th>Total</th>
<th>Chimbu as % of total in each province</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Professional</td>
<td>Semi-professional</td>
<td>Skilled</td>
</tr>
<tr>
<td>Western</td>
<td>–</td>
<td>1</td>
<td>–</td>
</tr>
<tr>
<td>Gulf</td>
<td>–</td>
<td>2</td>
<td>–</td>
</tr>
<tr>
<td>Central</td>
<td>9</td>
<td>91</td>
<td>94</td>
</tr>
<tr>
<td>Milne Bay</td>
<td>–</td>
<td>2</td>
<td>–</td>
</tr>
<tr>
<td>Northern</td>
<td>–</td>
<td>–</td>
<td>4</td>
</tr>
<tr>
<td>Southern Highlands</td>
<td>3</td>
<td>34</td>
<td>13</td>
</tr>
<tr>
<td>Western Highlands*</td>
<td>4</td>
<td>83</td>
<td>140</td>
</tr>
</tbody>
</table>

Chimbu  

|                | 4 | 94 | 128 | 251 | 1095 | 77 | 1649 | 20.70 |

Eastern Highlands  

|                | – | 48 | 71  | 361 | 604  | 8  | 1092 | 13.70 |

Morobe  

|                | 1 | 48 | 69  | 210 | 263  | –  | 591  | 7.40  |

Madang  

|                | 1 | 18 | 8   | 35  | 37   | 3  | 102  | 1.30  |

East Sepik  

|                | 2 | 5  | 3   | 7   | 3    | –  | 20   | 0.25  |

West Sepik  

|                | – | 1  | 2   | 1   | –    | –  | 4    | 0.05  |

Manus  

|                | – | 3  | 1   | –   | –    | –  | 4    | 0.05  |

New Ireland  

|                | 1 | 1  | 9   | 10  | 183  | –  | 204  | 2.60  |

West New Britain  

|                | – | 1  | 8   | 8   | 64   | –  | 81   | 1.00  |

East New Britain  

|                | 1 | 18 | 9   | 20  | 115  | –  | 163  | 2.00  |

Bougainville  

|                | – | 6  | 45  | 60  | 305  | –  | 416  | 5.20  |

Total  

|                | 26 | 456 | 604 | 1420 | 5377 | 94 | 7977 |

Chimbu as % of total  

| in each category | 0.3 | 5.7 | 7.6 | 17.8 | 67.4 | 1.2 | 100.00 |

* Including Enga Province.

Table 9.29

<table>
<thead>
<tr>
<th>District of birth</th>
<th>Male Rural non-village</th>
<th>Male Urban</th>
<th>Female Rural non-village</th>
<th>Female Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gumine</td>
<td>75</td>
<td>25</td>
<td>58</td>
<td>42</td>
</tr>
<tr>
<td>Kerowagi</td>
<td>61</td>
<td>39</td>
<td>51</td>
<td>49</td>
</tr>
<tr>
<td>Kundiawa</td>
<td>60</td>
<td>40</td>
<td>53</td>
<td>47</td>
</tr>
<tr>
<td>Gembogl</td>
<td>80</td>
<td>20</td>
<td>75</td>
<td>25</td>
</tr>
<tr>
<td>Chuave</td>
<td>60</td>
<td>40</td>
<td>40</td>
<td>60</td>
</tr>
</tbody>
</table>

Average, all Chimbu 65 35 55 45

Total number 8853 4801 2613 2144


Districts. These latter areas have the best education facilities in Chimbu, and it may be that many migrants from these areas have expectations of finding urban employment. These three districts also accounted for more Chimbu government employees in other provinces than did the Gumine and Gembogl Districts.

9.157 However, as Table 9.30 shows, Chimbu migrants have difficulty in finding urban employment. In 1973-74, for example, over 30 per cent of Chimbu men in Port Moresby had no formal employment, whereas the average for all provinces was only 18 per cent. Only in Lae and Goroka were the percentages the same as the national average. Table 9.30 also shows that the average wages of the Chimbu workforce in the survey towns were lower than the national average, except in Wewak where the sample was too small to be significant.

Several factors account for the fact that the average wages indicated here appear lower than minimum urban wages for
### Table 9.30

Employment and average wages in Papua New Guinea towns, 1973-74

<table>
<thead>
<tr>
<th>Province of birth</th>
<th>Percentage of unemployed (rounded)</th>
<th>Average fortnightly wage (Kina)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chimbu All provinces</td>
<td>Chimbu All provinces</td>
</tr>
<tr>
<td>Port Moresby</td>
<td>30 18</td>
<td>26.4 38.6</td>
</tr>
<tr>
<td>Lae</td>
<td>20 20</td>
<td>25.4 21.7</td>
</tr>
<tr>
<td>Rabaul(^1)</td>
<td>50 22</td>
<td>7.0 24.9</td>
</tr>
<tr>
<td>Madang(^1)</td>
<td>13 23</td>
<td>24.0 37.7</td>
</tr>
<tr>
<td>Wewak(^1)</td>
<td>25 25</td>
<td>45.7 36.8</td>
</tr>
<tr>
<td>Bougainville(^2)</td>
<td>14 5</td>
<td>49.6 59.2</td>
</tr>
<tr>
<td>Mt Hagen</td>
<td>23 15</td>
<td>24.4 35.6</td>
</tr>
<tr>
<td>Goroka</td>
<td>31 31</td>
<td>26.1 34.1</td>
</tr>
<tr>
<td>Kundiawa</td>
<td>25 16</td>
<td>32.5 43.5</td>
</tr>
</tbody>
</table>

1 The size of the Chimbu samples in Rabaul, Madang and Wewak was very small, and little significance should be attached to these cases.

2 Includes Arawa, Kieta and Panguna.

**Source:** Garnaut and Wright, forthcoming.

Table 9.30 highlights a major dilemma of Chimbu seeking urban wage employment outside their province. Because of their generally low levels of skill and education, they must compete for unskilled jobs with similar people from the towns' rural hinterlands, who enjoy comparative advantages in speaking the local language and through their

32 (Continued)
Wantok networks. The high rate of unemployment among urban Chimbu frequently leads them into crime, further lowering their reputation and increasing their disadvantages when seeking work.\textsuperscript{33}

9.159 The above analysis is concerned almost entirely with Chimbu's male population. The 1971 census showed an extremely low number of Chimbu women in wage employment, and given the small number of Chimbu girls attending school, the number of women eligible for wage employment is still low. However, of those women who do enter the monetary sector workforce (mainly as government employees), a high percentage comes from Kundiawa District and very few from the Gumine, Gembogl and Chuave areas. The percentage of absentee Chimbu women is urban areas is highest from the Kundiawa, Kerowagi and Chuave Districts, but most have migrated to accompany their husbands and are not in the workforce.

Secondary industries

9.160 Factories in Papua New Guinea are defined as 'any establishment engaged in manufacturing, repairing, assembling, preparing, treating or making up any article or substance, and in which four or more persons are employed, or where power (other than manual) is used' (Bureau of Statistics, 1974:1), but even under this very broad definition Chimbu had very few industrial establishments by 1974. Employment in Chimbu's manufacturing sector is reported to have fallen from 173 to 79 between 1965-66 and 1970-71 (OPAC, 1973:5.2). Table 9.31 shows the rate of growth in factories and numbers employed since then. A fairly stagnant period to 1973 was followed by an increase the following year, but in 1974, the numbers in employment were still considerably below the 1965 level. Table 9.32 shows the classification of Chimbu's factories by industry group in the period 1970-74.

\textsuperscript{33}Whiteman's study of Chimbu migrants in Port Moresby notes that a number of men in her survey had lived in the city for many years before being joined by their families, and during this time became accustomed to drinking and gambling (1973:138). She suggests that Chimbu men may be escaping from an unpleasant situation through their heavy drinking, or that buying drinks for kin and friends has replaced the custom of traditional food and gift displays in the urban situation. Whatever the reasons, drinking and gambling frequently lead to brawls and disruptions to peace and order.
Table 9.3

Chimbu factories and employment, 1970-74

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factories</td>
<td>Number employed</td>
<td>Factories</td>
<td>Number employed</td>
</tr>
<tr>
<td>Under 5 employees</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>5-20</td>
<td>3</td>
<td>23</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>21-50</td>
<td>2</td>
<td>53</td>
<td>2</td>
<td>46</td>
</tr>
<tr>
<td>50 or more</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>6</td>
<td>79</td>
<td>6</td>
<td>66</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of industry</th>
<th>1970/71</th>
<th>1971/72</th>
<th>1972/73</th>
<th>1973/74</th>
</tr>
</thead>
<tbody>
<tr>
<td>General engineering</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>(inc. plant, equipment and machinery)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor vehicle repairs</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Bakeries</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Coffee processing</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Joinery</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>9</td>
</tr>
</tbody>
</table>


9.161 In 1974, the latest year for which official statistics are available, the largest employers were the Chimbu Coffee Co-operative and the Chimbu Council Services Unit, which, however, ceased operations in 1975. The largest employer of labour of any of the province's factories now may well be its newest industry, a clothing factory. This factory opened in Kerowagi in 1976, is a branch of a Port Moresby firm, operating in association with the Lutheran Mission in Chimbu. At the time of our survey the factory was still under construction, but a number of Chimbu people had been selected for a training course at the Port Moresby plant.

34 Early in 1976 the Chimbu Area Authority and seven local government councils combined to form Chimbu Holding Enterprises. Its first ventures have been into transport and passenger services (*Post Courier*, 21 September 1976, p.10) and there is no indication as yet that it will revive the functions of the former Council Services Unit.
Service Industries

9.162 The province's towns and their service functions are described more fully in the following chapter. The towns and district centres offer few services in fields such as entertainment and recreation, cafes, and personal services such as tailoring, dry-cleaning, shoe-repairing and the like. The private sector has virtually no maintenance services such as plumbing, carpentry or electrical repairs, although students at Kundiawa vocational centre provide some of these services (para. 7.37).

9.163 Enterprises such as wholesaling, retailing and transport-related services are largely owned and managed by non-nationals, although there are indications that in future Chimbu businessmen are likely to engage in more urban enterprises, especially by means of business groups such as development corporations. Two or three such corporations have already been formed, and are mainly involved in transport operations, but expansion into other ventures also is to be expected. A number of the wholesaling and retail establishments are branches of larger organisations with head offices elsewhere in the country, and several urban trade stores are Chinese-owned. The Lutheran mission has perhaps the major involvement in business activities in the province, with interests in wholesaling, retailing, rental accommodation, tourism, and more recently, the clothing factory.

9.164 Tourism is at present a relatively modest industry in Chimbu, with considerable unexploited potential. In 1975 Kundiawa had one tourist agency, and a small but steady stream of tourists visited the town by either road or air, especially in the drier months. Most parties of tourists, however, are in transit between other highland centres and see little of the province. Expansion of tourism in the past has been hampered by difficulty of access to locations off the Highway, and perhaps also by the reputation of the people. However, tourists to Chimbu may see some of the most spectacular mountain and gorge scenery in the highlands, including Mt Wilhelm, and also some of the region's most impressive and colourful traditional dancing and singing.

9.165 Few of Papua New Guinea's tourist attractions stress the uniqueness and variety of its cultures and landscapes, or offer regional foods or accommodation. As roads are progressively upgraded in Chimbu, the opportunities to offer
less stereotyped tourist attractions are considerable. Sights such as the Chimbu gorge, Mt Elimbari (both with extensive cave formations), and the Wahgi and Marigl valleys are now accessible by road. A road has been built virtually to the foot of Mt Wilhelm, and improvement of the walking track is planned. A National Park is proposed for Mt Wilhelm and surveys have already been carried out.

9.166 The provision of simple lodges or rest houses at these localities, with meals (traditional mumus) and entertainment provided by neighbouring groups, and visits to rural markets (where traditional handicrafts might be sold) would undoubtedly generate more tourist trade in the future, as well as further employment opportunities. Promotion of other attractions, such as charter flights to the volcanic peaks and rugged limestone country to the south, and the unique orchids and birdlife of this region (OPAC, 1973:5.22) are further possibilities.

9.167 As far as we are aware, only one village community in Chimbu derives any income from tourism. The people at Mintima, near the Highway about eight km west of Kundiawa, perform plays which they have devised themselves to illustrate aspects of traditional life for parties of tourists organised by a tour operator in town. The group earns K.60 from each party of tourists, and additional income from the sale of trinkets and other handicrafts which they make themselves (Bill Standish, personal communication, October 1975). Their annual income from tourism is perhaps K.2000. Although this sounds impressive, the arrangement is perhaps less satisfactory for people living close to Kundiawa than for more remote groups, where such entertainment could be provided during an overnight stay. Mintima people often lose time which they could devote to other activities when tourist parties are delayed.

9.168 With the introduction of provincial government in Chimbu, the possibilities of expanding tourism in the province should be investigated. The provincial government might consider appointing a special committee to undertake promotion of tourism in Chimbu and control tourist sites, perhaps leasing concessions for accommodation and other facilities to neighbourhood groups or entrepreneurs.
Appendix 2

Statistics of employment

Department of Labour, Annual Returns

Each year all employers are required to submit a return to the Department of Labour in Port Moresby giving information on employees in the firm. The information required for each employee includes sex, age, province of birth, occupation, educational level, period of employment and wages. Tabulations produced show province of birth and province of employment, but also indicate main employment categories.

In the tabulations used in Chapter 9, employees were further categorised by type of recruitment: written contract, verbal contract, casual or apprentice. Public servants in established positions have written contracts, as did labourers working in plantations under such schemes as the Highlands Labour Scheme. Plantation labourers engaged for a season either have verbal contracts or are classified as casual. In the analysis shown in Table 9.21, verbal contracts and casual workers are combined.

An important qualification in using the Department of Labour data, apart from the normal inaccuracies occurring when attempts are made to measure characteristics such as age, is that not all employers complete their returns. For this reason, underenumeration is fairly high, but regional comparisons can be made. On the other hand, there are also undoubted cases of overenumeration. We have referred in the Introduction to the custom of coastal people and expatriates referring to highlanders in general as 'Chimbu'. But highlanders from other provinces, especially when working in coastal regions or for expatriate employers, often call themselves 'Chimbu' (see also Strathern, 1975:279-80). This custom is partly habit, and partly convenience. For example, if trouble occurs it is useful to be able to lay the blame elsewhere and avoid odium for one's own group. Thus the 'Chimbu' employees in the Department of Labour returns almost certainly include highlanders from other provinces.
Both the 1966 and 1971 censuses recorded information on workforce activity, occupation, sector of industry and industry. People were asked to state whether they were mainly employed in the monetary sector, growing subsistence crops, working at home without pay, attending school or college, or in other activities. They were further classified according to the time spent during the week preceding the census in these major activities. The categories used in 1971 differ slightly from those of 1966. In 1966 the categories were 'wholly or mainly money raising', 'mainly subsistence with some money raising', and 'wholly subsistence'.

Although the categories used in 1971 were more appropriate, there is considerable scope for overlap between categories in the revised classification. For example, a census conducted in Chimbu in June would find a large percentage of the adult population picking and marketing coffee, i.e. mainly money raising, but a census carried out in December or January might find the same people spending most of their time growing subsistence crops. Thus timing can produce a false impression of the structure of the wage-earning sector in Chimbu.

Occupation groups used in the 1966 census were those contained in the 1966 Classification and Classified List of Occupations published by the Australian Bureau of Census and Statistics. These were adapted to suit conditions in Papua New Guinea, but some extraordinary anomalies remain; for example, sago processors (a subsistence activity) are grouped with 'Millers, Bakers, Brewmasters, and related food and beverage workers', which causes some problems with the analysis of aggregated data from provinces such as the West Sepik.

A further problem with the use of census statistics is the definition of unemployment. To determine unemployment, the census asked the question 'Did the person actively look for a job in the week preceding the census?' Such a definition is too rigid, as in Papua New Guinea many people take on employment if and when the opportunity arises, rather than as a premeditated decision. This definition will omit many people who would like a job, but have not recently looked for one because the opportunity has not arisen. For a more detailed account of the problem of defining 'unemployment' in Papua New Guinea, see Wright et al., 1975.
The 'industry groups' in Tables 9.23 and 9.27 are summarised below. Numbers included in each industry group are those used in the Australian classification of industries, which has been modified for Papua New Guinea conditions.

**Industry groups**

1. **Primary:** (1-79) fishing, hunting, trapping, rural industries, forestry.
2. **Mining:** (80-92) mining and quarrying.
3. **Manufacturing:** (100-470) includes manufacture of building materials—engineering and metalwork, manufacture, assembly and repair of ships, vehicles, parts and accessories, manufacture of yarns, textiles, clothing, knitted goods, footwear, food, drink, tobacco, wood products, furniture, bedding, drapery, paper products, printing, packaging, bookbinding, photography, chemicals, dyes, paints, jewellery, watchmaking, preparation of skins and leather, manufacture of leather goods, leather substitutes, rubber goods, musical, surgical and scientific instruments, and plastic products.
4. **Utilities:** (480-491) electricity, gas, water and sanitary services (including production, supply and maintenance).
5. **Construction:** (500-519) construction and repair of buildings, and other construction works.
6. **Transport and storage:** (520-560) road transport, shipping, loading and discharging vessels, rail and air transport, other transport, storage.
7. **Communications:** (570-579) post, telegraph and telephone services, radio communication (not broadcasting), cable services.
8. **Finance and property:** (580-609) banking, insurance, real estate, building and investment companies, moneylending, hire purchase, stock and share broking, trustee companies.
9. **Commerce:** (610-649) wholesale trade, livestock and primary produce dealing, retail trade.
10. **Public authority and defence services:** public authority activities, enlisted and civil defence personnel.
   (650-679)

11. **Community services:** police, prisons, fire brigades.
   (680-689)

12. **Medical:** hospitals, all health services (including private practice).
   (700-729)

13. **Education:** staff of all kindergarten, primary, secondary schools, teachers colleges, (and students), technical colleges, agricultural colleges, universities, libraries.
   (730-739)

14. **Religion and welfare:** social service and welfare organisations (non-government), missions, benevolent institutions.
   (690-699)

15. **Business services:** consultant engineering, surveying, architecture, accountancy, auditing, industrial and trade associations, advertising, copying services.
   (740-749)

16. **Amusement, hotels, other accommodation, cafes, personal services:** including amusement, sport, recreation, private domestic service, accommodation and restaurants, laundries, hairdressing, undertaking, etc.
   (750-799)

The occupational levels shown in Tables 9.23 and 9.28 are summarised below. Numbers shown in each category are those used by the Australian Bureau of Census and Statistics.

**Professional workers**

01 - architects
02 - civil engineers
03 - electrical and communication engineers
04 - mechanical engineers
05 - metallurgists, mining, chemical engineers
06 - surveyors
07 - chemists, physicists, geologists and other physical scientists
08 - biologists, veterinarians and related scientists
09 - agronomists, foresters and horticultural scientists
10 - medical practitioners
11 - dentists
13 - professional medical workers N.E.C.
14 - teachers, universities, tertiary qualified
19 - law professionals
23 - other professional, technical and related workers
25 - other professional and related workers
26 - administrative and executive officials and managerial workers
60 - aircraft pilots, navigators, engineers, not services

Semi-professional workers

12 - nurses
17 - other teachers, universities, no tertiary qualifications
20 - artists, entertainers, writers and related workers
21 - drafrsmen and technicians N.E.C.
22 - physical science technicians
24 - social workers
27 - bookkeepers and cashiers, including bank tellers
29 - other clerical workers
30 - insurance, real estate salesmen valuers
31 - commercial travellers and manufacturers' agents
34 - plantation managers (cocoa and copra, cocoa, coconut, copra)
35 - plantation managers (coffee)
36 - plantation managers (vegetable growing)
38 - plantation managers (tea)
39 - farm managers (dairy farm, grazing)
42 - farm and plantation managers (beekeeping, cotton growing, farming (N.E.C.), flower garden, fruitgrowing, market growing, mixed farm)
57 - deck officers, ship, not services
58 - engineer officers, ship, not services
77 - telecommunication technicians
93 - fire brigade, police

Skilled workers

15 - executive teachers, secondary schools
28 - stenographers and typists
56 - ore and mineral treatment operators
61 - motor drivers including deliverymen
62 - traffic inspectors, supervisors, despatchers and others
63 - telephone, telegraph and related communication operators
64 - workers in transport and communication
66 - leather workers
67 - metal making and treating workers
68 - precision instrument makers and related workers
69 - toolmakers, metal machinists and related metal workers
70 - motor vehicle and aircraft mechanics
71 - sheetmetal workers
72 - plumbers, pipe and gas fitters
73 - boilermakers, welders and flame cutters, structural steel workers
74 - mechanics, servicemen, N.E.C.
75 - metal workers, N.E.C. engineers not professional electroplaters
76 - electricians, electrical mechanics, technicians
78 - linemen, electrical, cable jointers
79 - electrical, electronic workers N.E.C. formen, sound recording operators, cinema projectionists
81 - cabinetmakers, carpenters, joiners
84 - painters and decorators, building and construction, maintenance
85 - building and construction workers
86 - printing workers
87 - glass, clay and pottery workers
90 - stationary engine, excavating and lifting equipment operators
94 - other protective service workers

Semi-skilled workers

32 - salesmen and shop assistants, N.E.C.
51 - hunters and trappers
52 - fishermen and related workers
53 - timber and other forestry workers
54 - miners, quarriymen and other related workers
55 - well drillers, oil, water and other related workers
59 - boatmen, deck and engine room hands, ship, not services
65 - spinners, weavers, knitters, dyers and related workers
80 - assemblers, process workers, metal, electrical
82 - sawyers, woodworking machinists
83 - pattern makers, metal foundry N.E.C., polishers furniture, woodworkers, N.E.C.
88 - food and drink workers
89 - chemical production process workers, stone cutters and carvers, paper production, concrete and cast stone production
91 - packers, labellers, wrappers, storemen, waterside workers, material handling
95 - housekeepers, cooks, maids, service, sport, recreation workers and other related workers
96 - attendants, hospital and other medical, including nursing aides and assistant nurse
Unskilled workers

33 - plantation managers (oil palm)
37 - plantation managers (rubber plantation)
40 - farm managers (pig farm)
41 - farm managers (poultry farm)
43 - plantation workers (oil palm)
44 - plantation workers (cocoa and copra, cocoa, coconut, copra)
45 - plantation workers (coffee plantation)
46 - plantation workers (vegetable growing)
47 - plantation workers (rubber plantation)
48 - plantation workers (tea plantation)
49 - farm workers (dairy, drover, grazing, station hands, labourers)
50 - farm and plantation workers (farm machinery operators, field crop worker, fruitgrowing, gardener, greenkeeper, ground caretaker, groundkeeper, other crops, livestock, mixed farm, nursery garden, pig farm, prospector and mineral survey worker, tobacco plantation)
92 - tradesmen, production - process workers and labourers

Voluntary workers

18 - clergy and religious workers
16 - primary school teachers
Appendix 3

Estimate of costs for *maket raun* in Chimbu

The districts which most need mobile services are Gembogl, Kerowagi, Kamtaï, Chuave and Gumine. Other areas are reasonably well served from Kundiawa. The following are suggested localities in these districts which should be visited regularly, either once or twice a month:

Gembogl: Kanggiri, Toromambuno, Pompameiri, Gere.
Kerowagi: Nogare, Demange, Gamar, Angangoi.
Chuave: Movi, Karawiri, Gogo.
Kamtaï: Goro, Niglguma, Segima, Mani.
Gumine: Yani, Kilau, Nomane.

The cost of implementing a scheme on the lines suggested, with five district teams and a provincial co-ordinator, need not be excessive. The biggest initial expense would be for vehicles, most of which require special modifications, as indicated below. All vehicles should be long-wheel base Toyota Landcruisers. The use of trailers will not be feasible in Chimbu due to road conditions; hence all vehicles should be provided with roof racks to hold light equipment, and with protective tarpaulins. All vehicles indicated will be used for government services, and can thus be purchased duty-free. To meet vehicle costs, either overseas aid, or a special allocation through either the Village Economic Development Fund or the new Special Rural Projects fund, announced by the Minister for Finance in his 1976-77 Budget speech, would be required. Some sharing of special-purpose vehicles between two districts may be possible, depending on the schedule of visits to rural areas.

Each district team would require:*  
1 co-ordinator's vehicle, equipped with teleradio 5 500
1 entertainment unit, equipped with projection facilities, generator, film screen, film racks, turntable and tape recorder. 5 000
1 mechanic's unit, equipped with winch, spare tyres and tubes for whole fleet, full toolkit, workshop bench, generator, oxyacetylene welding kit.  

Kina 7 000

1 postal and banking unit, equipped with fully opening rear doors, counter across rear, portable steps to provide access for customers, small safe welded to vehicle, and electrical alarm system.  

Kina 6 000

Kina 23 500

It should be pointed out that only the mechanic's unit and the postal and banking unit may need to be specially purchased and equipped, as the other two vehicles will carry portable equipment and can be requisitioned from district-based vehicles as required. The Department of Information and Extension Services in Kundiawa has already indicated that it can provide the necessary audio-visual equipment. The MCH nurses, who will travel in the co-ordinator's vehicle, will not need any equipment additional to their normal patrol needs. A bank in Kundiawa has expressed interest in providing a mobile banking service in the province, which could reduce the costs for government to provide this vehicle.

Manpower costs are not included in this estimate, as there should be virtually no need to make new staff appointments, although some transfer costs may be involved to obtain suitable personnel. The fundamental rationale of the government input is to co-ordinate the work of existing field staff more effectively. It may be possible, by advertising, to lease government-owned vehicles, suitably fitted out, to self-employed mechanics as a business venture, rather than redeploying mechanics from the Plant and Transport Authority.

Some camping equipment will be necessary for team members. The Western Highlands project provides the following items for its team:

* Costs based on October 1975 prices.
For each member:
1 patrol box
1 chair
1 stretcher bed
4 blankets

[est.] total - K.70

For each rest house:
1 table
1 wash basin
1 bucket shower
5x1 gallon water containers
3 cooking pots
1 fry pan
2 pressure lamps
plates, cups, cutlery
1 pressure stove (kerosene)

[est.] total - K.130

[Estimate three per maket raun site]

The provision of mobile government services should not be thought of as a government 'handout' to rural people, but rather as a system in which they co-operate for their ultimate advantage. Thus, we do not include here an estimate of site costs, as it is felt that the communities concerned should provide site facilities as far as possible, as a self-help project. The Area Authority may consider making a special grant for materials for rest-house type accommodation, but labour should be provided volitionally. Communities should be encouraged to construct their own building for film shows, so that entertainment can be provided regularly regardless of weather, and entrance fees can be collected more easily. In the Western Highlands project, profits from screening commercial films are shared between the maket raun and the community, for its own special projects. Government films are shown free.

Once in operation, maket raun will have other ways of raising some revenue itself. For example, people will pay for the mechanic's services, whether he is on the government payroll or a private entrepreneur. Mechanics should be authorised to test private vehicles for road-worthiness, and to issue certificates for a small fee. In the Western Highlands project, the Mt Hagen Post Office gives maket raun a commission on all stamps and other postal items sold, and deposits made with the banking service are put into short-term interest-bearing deposits. These profits are used to help meet the project's running costs. Finally, although
there was no precedent for this in the Western Highlands scheme, traders and other businessmen who join *maket raun* should, after a suitable trial period, be charged small fees for any community or project facilities they use, just as sellers at produce markets are charged fees.
Chapter 10

Urban development

10.1 The growth of towns in Chimbu has been restricted by a combination of environmental and historical factors. Land and other resources necessary for urban centres are limited, and the province also lacks resources which might have attracted expatriate investment and so increased the demand for urban services. Chimbu became a separate province and Kundiawa a centre of provincial administration only a decade ago. As a result, Chimbu's towns have always been overshadowed by Goroka and Mt Hagen, a dominance which has increased rather than diminished with the improvement of transport and communication.

10.2 When the province was created in 1966 it was reported that the people were pleased because:

Kundiawa is now a 'town', not just a patrol post. Before, they said, they didn't have a District Commissioner and so they were neglected, watching Goroka and Mt Hagen on either side prosper while they were nothing. (Kundiawa Patrol Report, Waiye Census Division:3/66-7).

In 1967, when the amalgamation of the Waiye-Digibi and Yonggamugl councils with Kundiawa town council was suggested, people were said to favour the idea because it would lead to greater unity, and that in future Kundiawa would resemble Goroka and Mt Hagen:

... with many new businesses and opportunities for work for young men who do not have a high standard of education.

Older people in particular were in favour of developing Kundiawa because:

... then the young men could work in a place close to their families and relatives (Kundiawa Patrol Report, Waiye Census Division:3/66-7).
None of these hopes has yet been realised. In 1971 only 1.9 per cent of the province's indigenous population lived in its towns. A further 3.2 percent lived on patrol posts, mission stations and other rural non-village centres.

The hierarchy of central places in Chimbu

10.3 A suggested hierarchy of central places in Chimbu is illustrated in Map 10.1.

1. **Kundiawa**: the administrative headquarters of the province, population 2379;  
2. **Kerowagi**: district centre, population 1029;  
3. **Chuave**: district centre;  
4. **Gumine** and **Gembogl**: district centres;  
5. **Kamtaï, Kilau, Kup, Karimui**: patrol posts (now sub-district centres);  
6. **Womatne, Muaina, Dirima**: local government council headquarters;  
7. **Toromambuno, Gogme, Koglaï, Mingende, Neragaima, Koge, Wangoi**: Catholic mission centres;  
8. **Mu, Nomane, Omkalai, Sumburu**: Lutheran mission centres;  
9. **Movi**: Anglican mission centre;  
10. **Moruma**: Seventh-Day Adventist mission centre.

10.4 Kundiawa, the largest of Chimbu's towns, lies immediately south of the Porol range on a ridge about 100 m above the Chimbu river. The town area comprises 322 hectares, alienated from Kamanegu and Endugwa tribal territories by the Lutheran mission in 1934. Much of the town land is sloping and unstable, and only 44 hectares of the urban area is zoned residential land. The only extent of flat land is occupied by the airfield, the administrative and commercial centre, and the Lutheran mission.

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1 In the Population Census of 1971, towns were defined as 'settlements with a generally urban character, a minimum population of 500 persons and a minimum population density of 500 persons per square mile'. (Bureau of Statistics, 1971:1).
10.5 In 1971 Kundiawa's population was 2379, with an urban density of 74 per hectare. When the first population census was taken in 1966, Kundiawa had a population of 1588, of whom 8.1 per cent were non-indigenous (Table 10.1). With the proclamation of Chimbu as a separate district in that year, Kundiawa had a marked influx of senior administrative officers, and in the 1966-71 inter-censal period Kundiawa's non-indigenous population grew at a faster rate than its indigenous population. By 1971 almost eleven per cent of the town's residents were non-indigenous. As in other Papua New Guinea towns, Kundiawa's indigenous population was predominantly male, the sex ratio in 1971 being 1.4:1. The 1971 dependency ratio\(^2\) of 0.94:1 demonstrates that a high proportion of Kundiawa's indigenous population was in the working age group, compared with rural areas where the dependency ratio was 1.6:1. Most of the town's indigenous residents were Chimbu, largely from Kundiawa District, and the percentage of both men and women from Papuan and Island regions was extremely low (Table 10.2).

10.6 The ANU-UPNG Urban Survey in Kundiawa in January 1974 in general confirms the results of the 1971 census, but suggests that the revised figures for the town's 1971 population were set too high (Young, forthcoming). Between 1971 and 1974 the urban population probably grew more slowly as the public service sector reached its establishment level, while no increase occurred in employment opportunities in the private sector. The expatriate population declined during the 1970s due to localisation of senior public service positions, to the point where the Australian-curriculum primary school was closed at the end of 1975, there being too few expatriate children to warrant its continuance. However, population projections made by the Housing Commission (Ministry of Interior, 1975:25) anticipate that Kundiawa's population will increase from an estimated 4500 in 1976 to 10 000 in 1986.

10.7 Kundiawa's main function is the provision of tertiary sector services, both government and private. These include administration, commerce, and health, education and social services. Its location at the focus of road and air routes makes it a significant centre for a large population in the hinterland, and an important transit point for road traffic between Goroka and Mt Hagen. As provincial headquarters and

\(^2\)See p.59, note 16.
### Table 10.1

**Population of Kundiawa, 1966 and 1971**

<table>
<thead>
<tr>
<th></th>
<th>Indigenous</th>
<th>Non-indigenous</th>
<th>Total</th>
<th></th>
<th>Indigenous</th>
<th>Non-indigenous</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male No. %</td>
<td>Male No. %</td>
<td>Female No. %</td>
<td>Total No. %</td>
<td>Female No. %</td>
<td>Total No. %</td>
<td>Male No. %</td>
</tr>
<tr>
<td>1966</td>
<td>847 93 613 92 1460 92</td>
<td>68 7 60</td>
<td>9 128 8 915 100 673 100 1588 100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1971</td>
<td>1243 90 880 89 2123 89</td>
<td>142 10 114</td>
<td>12 256 11 1386 100 994 100 2379 100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Annual growth rate
1966-71 (percentage) 8.0 7.5 15.9 13.7 8.6 8.1


### Table 10.2

**Origins of the indigenous residents in Kundiawa, 1971**

<table>
<thead>
<tr>
<th></th>
<th>Kundia District</th>
<th>Chimbu Province</th>
<th>Highlands Region</th>
<th>New Guinea North Coast Region</th>
<th>Papuan Region</th>
<th>Islands Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>45.1</td>
<td>62.9</td>
<td>75.1</td>
<td>12.5</td>
<td>7.6</td>
<td>4.0</td>
</tr>
<tr>
<td>Female</td>
<td>58.8</td>
<td>72.4</td>
<td>81.9</td>
<td>7.3</td>
<td>7.8</td>
<td>2.3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>50.8</td>
<td>68.6</td>
<td>79.7</td>
<td>9.2</td>
<td>7.7</td>
<td>3.4</td>
</tr>
</tbody>
</table>


**Highlands:** Southern Highlands, Western Highlands, Enga, Eastern Highlands, Chimbu.

**New Guinea North Coast:** East and West Sepik, Madang, Morobe.

**Papua:** Western, Gulf, Central, Milne Bay, Northern.

**Islands:** Manus, New Ireland, East and West New Britain, Bougainville.
seat of the Area Authority, administration is by far its most important function. The town is responsible for over 160,000 people, and its District and Local Government Council officers serve the particular needs of over 40,000 people. Kundiawa is also headquarters of the Lutheran Church in Chimbu.

10.8 Commercial activities include both wholesaling and retailing, with establishments specialising in electrical appliances, clothing and stationery as well as the general wholesale and retail stores. The town also has a butcher shop, although all meat comes by refrigerated truck from outside the province. The town market has been described in Chapter 9. Postal and telecommunication services, three banks, a radio station and the electricity commission's power station are among other facilities in Kundiawa. An office of the Development Bank was opened early in 1976. Two hotels provide facilities for tourists, official visitors, and urban residents. The town has several clubs but limited sports and recreational amenities. Education is less important in Kundiawa than in Kerowagi - its only post-primary institution is the vocational school. However, medical services are the most comprehensive in the province. The hospital has the only fully-trained medical staff and operating facilities in Chimbu, and caters to patients from a wide area.

10.9 The administrative and service functions are not balanced by a corresponding development of industry. Apart from the government the only employers in Kundiawa are Lutheran mission-controlled companies such as Namasu, Kuman Holdings and Kundu Tours; a bakery; several garages and transport establishments; retail/wholesale stores, and the hotels and private employers. In January 1974, 78 per cent of male employees in Kundiawa between the ages of 15 and 44 worked for the government, with the remainder either with the missions or in domestic employment (Young, forthcoming). The lack of industrial development in Kundiawa has certainly hampered the growth of the town's population, and is a major reason for the exodus of job-seeking Chimbu to other parts of the country.

10.10 Compared with other provincial centres, Kundiawa has a very small population in relation to the rural population of its province. Its growth has been hampered not only by lack of outside investment in Chimbu, lack of industrial development, and the dominance of Goroka and Mt Hagen, but
also by the nature of the urban land. Map 10.2 indicates the present land use of the town. The urban area is divided into two distinct parts by the valley of the Ega Creek; to the east is the Lutheran mission land, the commercial and administrative centre and the airfield, and to the west are high and low convenant housing areas, not as distinctly separated as in some Papua New Guinea towns. A large no-convenant housing area, with approximately 40 houses, has developed in the valley below the hospital and within the last two years scattered squatter settlements have spread over steeply sloping land to the south and west of the main residential area. These settlements are a response to a serious housing shortage in the town, which also prevents government officers from being appointed to new positions, and which obliges urban workers from nearby areas to commute from their villages.

Urban land tenure

10.11 As Map 10.2 shows, large areas of the town are undeveloped, but much is unstable sloping land useless for building purposes. In addition, many 'developed' sections are under-utilised. The extreme shortage of usable land within Chimbu's towns requires that available land be used as effectively as possible. In 1975 the system of administering urban land in the province was neither efficient nor effective. Examples were found where lease conditions had not been fulfilled, where forfeitures were due but had not been carried out, where the purposes for which leases had been granted had been radically altered without reference to the Land Board, where leases which had been granted had been forgotten entirely by the leaseholder, and where rent reappraisals, due initially ten years after the taking up of a lease, had never been made.

10.12 Many of these inefficiencies and irregularities were undoubtedly due to staffing shortages in the former Department of Lands. No officer from that Department had ever been posted to Chimbu, although one was expected to be appointed in the near future. Most land matters therefore were handled by a Provincial Officer (Lands), the Provincial Land Board, and during occasional visits by regional officers from the Department of Lands. Few records of urban leases are available in Chimbu, most being held at Mt Hagen. Without such records on hand it seems doubtful whether the province can adequately administer and regulate alienated
land under its control. A brief visit by a Goroka-based Housing Commission officer in December 1975 revealed some 80 Kundiawa sections on which no improvements had been made. While some of these sections undoubtedly included unstable land, many were unrecorded in Mt Hagen, and Kundiawa itself had no records on any of them. In a town in which many departments blame the shortage of urban land for their staffing difficulties, this situation seems somewhat surprising.

10.13 We recommend, therefore, a thorough review of all urban leases (and of unleased, alienated land). It is hoped that such a review will result in a complete and up-to-date inventory of urban land, including the status of unused sections and their suitability for development, the state of improvements in relation to lease conditions, the status of rents, and realistic rent appraisals. This data should be on file in Kundiawa, and updated regularly. The CILM's recommendations (1973:143-4) regarding rent revisions, and their frequency, provide important policy guidelines.

10.14 It was noted earlier (para. 5.46) that several Chimbu witnesses before the CILM expressed their dissatisfaction with business leases for which rents are paid directly to the national government. These criticisms take on the more force in certain urban situations. In Kundiawa, some buildings on sections rented from the national government for nominal fees (less than K.100 per year) are sub-leased for several hundred kina per month. We consider that real rents should be paid by the leaseholders of such urban land, not to the central government but to the local government council responsible for the urban area, to help underwrite the cost of urban services.

10.15 The 1975 Chimbu Land Board, under the chairmanship of a Chimbu member of the National Land Board, included the Provincial Commissioner, a young Chimbu public servant and a Lutheran missionary. Taking into account the small proportion of the province's population resident in towns, and the large Lutheran land holdings in both Kundiawa and Kerowagi, this membership cannot be said to represent a wide range of interest or opinion. We note however that no criticisms of the Board's decisions were made to us. Nevertheless if it is accepted that the '... towns of Papua New Guinea are for the benefit of all Papua New Guineans,' (CILM 1973:68), it would seem appropriate for the Board to draw upon a wider representational base.
10.16 The housing problem is not easily solved, given present zoning of land use. The extremely high rural population densities on the land of the neighbouring Kamanegu and Endugwa tribes precludes extension of the town boundaries to any significant degree. The development of Kerowagi as a satellite town with expanded functions (including relocation of some government departments from Kundiawa) would involve further difficulties, particularly in regard to the cost of additional infrastructure and other services to deal with an increase in its population. Expansion of Kerowagi as a 'dormitory' town for Kundiawa would require the installation of telephone connections between the two towns, and the provision of regular bus services connecting the two.

10.17 More housing might be made available in Kundiawa by redesigning the existing residential areas and by constructing more medium-density housing. At present much residential land is wasted by the design of allotments and the type of high-convenant housing erected on them. We recommend that the Housing Commission undertake a study of Kundiawa's residential area with a view to replacing high convenant bungalows with more appropriate medium-density structures. Virtually all Papua New Guinea's towns face problems in urban expansion, and such a programme would have wide application throughout the country.

10.18 It would seem that any future growth of Kundiawa must also depend on replanning other current land uses. Fundamental to any significant development is the closure of its airfield, and the release of this land for other purposes. Although the airfield only has an area of some five hectares, this is level, drained land which could be used almost entirely for central business district purposes at its northern end, and for additional residential land beyond.

10.19 We are aware that Kundiawa's airfield has been the subject of considerable debate between opposing interest groups for some years. Its closure, with transfer of flying operations to Kerowagi, has been opposed by the Kundiawa council on the grounds that the development of tourist and other associated businesses would be hampered, and by the Department of Transport, on the grounds of cost. In 1972 the Department of Transport estimated that the cost of relocating aircraft operations to Kerowagi would be $230 000, and that operationally Kerowagi would have no advantages [in terms of aircraft capacity] over Kundiawa (Provincial
Office File 4-1-2). On the other hand, the District co-ordinating Committee in the early 1970s recommended the transfer of air services to Kerowagi, and in early 1974 the Co-ordinator of Works, in correspondence with the Secretary of the Department of Transport, commented:

From your memo ... on the future of Kundiawa aerodrome, I think it is fair to say that your department is perhaps looking at aerodromes in the area somewhat in isolation rather than as part of the total development of the area ... The government is spending considerable money in upgrading the main roads in this area, and the days when it was necessary to have the airstrip right at the District headquarters seem to me to have disappeared, especially when the land is so urgently required as in Kundiawa (File 4-1-1).

10.20 The transfer of aircraft operations to Kerowagi involves some difficulties. Flights to all Chimbu airfields are unreliable due to weather conditions and to delayed connections with other services. Passengers frequently must wait long periods for aircraft. To avoid considerable delays for passengers from Kundiawa at Kerowagi, improved access between the two towns by means of telephone installations and bus services would also be required in this context. For more rapid transit, the road link between the towns, especially that sector between Kerowagi and the Highlands Highway, would have to be upgraded.

10.21 If Kundiawa's airfield were released for other purposes, significant rezoning of the urban land would be possible. We suggest that the present complex of provincial and district offices, and associated government agencies, be transferred to the northern end of the airfield, in the area of the present terminal buildings. In their present location the government offices are congested and inconvenient. Rural people seeking access to their services are frequently confused by the design of buildings such as the Provincial Office, and by the location of others, such as the office of Community Development and Welfare. Relocation and redesign would markedly improve such problems of physical access.

10.22 The present Area Authority building occupies a site in the commercial centre. When plans for a new building were displayed in Kundiawa in 1975, it was proposed to erect it on the site of the present provincial and district offices.
However, we consider that this site may be used more effectively for other purposes, and recommend that if proceeded with, the proposed Area Authority or Provincial Government headquarters should also be located on the airfield land.

10.23 The area now occupied by government offices should be converted into a 'community centre' for both the townspeople and visitors from rural areas. At present Kundiawa has virtually no public amenities. There are no resting places except the footpaths and verandas of stores; no public toilets, no public drinking fountains, no cafes and refreshment kiosks. Public toilets and drinking fountains, to be administered by the council, should be constructed, shelter houses (haus win) provided, and more trees planted.

10.24 The market should also be relocated on part of this land. The present location is inconvenient for both buyers and sellers in that it is at some distance from the commercial centre and involves a steep climb, and the site itself is small and congested, and cannot be extended.

10.25 Thus we envisage this site as multi-functional. Its perimeters will form an extension of the commercial centre and include the market. The central knoll will become a people's park, in effect, where people may meet, rest, and take refreshment within easy access of the central commercial area.

10.26 Reference was made in Chapter 6 to the lack of adequate PMV terminals in the town. At present passenger vehicles have no suitable pull-off zones, and passengers must often wait long periods in rain, sun and dust for the irregular services to their villages. Parking bays are particularly required for the terminal points for Highway passengers, and for travellers commuting between Kundiawa and Gembogl. These should be provided with shelters for waiting passengers, and litter bins.

10.27 Neither Kundiawa nor any other centre in Chimbu has inexpensive hostel accommodation. The need in Kundiawa especially for a hostel such as Mt Hagen's Kimininga Hostel or Goroka's Minogere Hostel is urgent, for both visitors and single wage-earners. In addition, Kundiawa and each district should provide some form of accommodation for villagers who are obliged to spend a night or two in town. Villagers often come to Kundiawa to meet returning kinsmen.
or farewell those migrating elsewhere, and if mail and flights are delayed they must either return home or hope to find a friend who can accommodate them. Accommodation for such transients might be very simple structures of local materials but should include facilities for cooking. In other parts of the province, accommodation of this type could be provided at either district centres or council headquarters.

**Kerowagi**

10.28 The town of Kerowagi (Map 10.3) is located on a terrace above the Koro river at the point where it emerges from the Bismarck Range. Lutherans from Madang Province established a mission station at Kerowagi in 1934 after entering the area by the upper Koro valley, and after the Second World War the administration bought land alongside the mission airfield for the construction of a hospital. Kerowagi did not become an official patrol post until 1955, although before then it had been used as the main departure point for Highlands Labour Scheme recruits leaving from western Chimbu. It remained solely an administrative and mission centre until 1968 when the first government high school in Chimbu was established on land adjacent to the southern end of the airfield. In 1972 its function as a service and transit centre on the Highlands Highway between Kundiawa and Mt Hagen was reduced when a new section was opened, bypassing Kerowagi about five km to the south.

10.29 Kerowagi has an urban area of 176 hectares, and had a population density of 5.8 persons per hectare in 1971. Between 1966 and 1971 the town's population increased rapidly from 506 to 1029, at an annual rate of over 15.8 per cent, the main increase being among expatriates and students. In 1971 most of the indigenous residents came from Chimbu Province (74.8 per cent), predominantly from Kerowagi (41.2 per cent) and Kundiawa (21.4 per cent) Districts. The next largest group in the town were a number of Finschhafen missionaries from Morobe Province. All figures are derived from the 1971 Population Census.

3 The Housing Commission has estimated that Kerowagi's population will be 1400 in 1976, increasing to 2400 in 1986 (Ministry of Interior, 1975:28).

10.30 Kerowagi today is an important district administration
centre, second only to Kundiawa, and the headquarters of Kerowagi Local Government Council. This Council's wards include the largest areas of land available for cash cropping and animal husbandry in northern Chimbu. The rural health centre is the best-equipped outside Kundiawa. Education facilities in the town are very important, shown by the fact that at the 1971 census about 60 per cent of the indigenous residents were full-time students. In addition to the high school which takes pupils from all over Chimbu, Kerowagi has several mission and government primary schools.

10.31 Commercial activities include wholesale and retail stores, petrol sales, and the town market. Entertainment facilities have been limited since the destruction of the hotel by fire about three years ago, but the town does have a sports and social club.

10.32 Most wage earners are either mission workers, teachers or other government employees. In 1975 a branch of a Port Moresby clothing factory, designed to employ about 50 people, was constructed on mission land close to the airfield. Production is planned to start in 1976.

10.33 Kerowagi's future is dependent on developments in Kundiawa. If the Kundiawa airfield is maintained, Kerowagi's airfield may have to be closed and converted to residential purposes. If this option is adopted, Kerowagi might experience a period of expansion with a corresponding increase in urban amenities and services. We believe, however, that the arguments presented above in favour of developing Kerowagi as the province's main airport carry the greater weight.

Chuave

10.34 Lying on the Highlands Highway 31 km east of Kundiawa, Chuave was established as a temporary ANGAU post during the Second World War. In 1953, the year in which the vehicular road from Kundiawa to Goroka was opened, it became a patrol post and has since developed into an important transfer point on the Highway, both for people from outer parts of the Chuave hinterland travelling to Mt Hagen or Goroka, and for through travellers.

10.35 Until 1973 its only functions apart from district administration were as headquarters of Elimbari Local
Government Council, a small commercial centre, and a centre for primary education, health services and a mission. In 1973 the third Chimbu high school was constructed in Chuave and since then the increase in its population of other Papua New Guineans and expatriates has caused an increasing demand for services. So far, because of the proximity of Kundiawa, these have not developed, but future plans include the building of a tavern. Chuave, with its high school and location on the Highlands Highway, probably has more potential for growth than the other smaller district centres in Chimbu.

Gumine and Gembogl

10.36 These two small district headquarters lie off the Highway and their functions are confined to administration and some commerce. Gumine Patrol Post was set up in 1954 and patrols from here made initial contact with many people in the Karimui area. Gembogl, in an area that entered the colonial period well before the Second World War with the establishment of the Catholic mission at Toromambuno, was an ANGAU post during the war, but did not become a patrol post until 1959. In the same year the vehicular road link with Kundiawa was finally completed. Both centres have, in addition to the district offices, wholesale and retail facilities, a market, rural health centre, and primary schools. Neither centre is the headquarters of the local government council.

Kamtai, Karimui, Kup and Kilau

10.37 These centres are essentially patrol posts (now sub-districts) in function though Kamtaï and Karimui have administrative functions akin to those of a district centre. Kup base camp was planned in the period immediately after the War when its airfield was cleared, and at one time was suggested as the possible site for the administrative centre for the whole of Chimbu. It is now a patrol post of Kerowagi District, an important Catholic mission centre, a police post and, very recently, a rural health centre.

10.38 Karimui patrol post was set up in 1960, after initial contact patrols from 1954 onwards, and although it is still officially administered from Kundiawa District Office, its isolation from the rest of the province means that its functions are similar in range to those of a full district centre although it serves a small and very
scattered population. Both its educational and health facilities are conducted largely by the Lutheran mission.

10.39 Kamtai and Kilau were both established in the 1960s as patrol posts of Kundiawa and Gumine Districts respectively. Kamtai is now, in effect, a district centre, administering the Sinasina area, but it has fewer services than other district centres, for example, no bank or post office, and no retail or wholesale facilities. These would possibly have developed if Kamtai had not been relatively close to Kundiawa. Of these four patrol posts, only Kup is not also a centre of local government, although the headquarters of Sinasina local government is not immediately adjacent to Kamtai, but situated several kilometres away at Muaina.

Womatne, Dirima and Muaina

10.40 In these areas the headquarters of local government councils are not located on government stations. Dirima and Muaina are close to the government stations and have developed few other functions apart from council administration. Muaina, however, has potential for growth because it is next to the new high school in Sinasina. The third centre, Womatne, is about 10 km from Gembogl, the district centre, and is also an important Catholic mission centre. It has grown into a subsidiary centre for the upper Chimbu valley and Mt Wilhelm council recognises this by operating two markets at which gate fees are charged.

Mission centres

10.41 Both Lutheran and Catholic missions have administrative centres scattered throughout the province. Some, such as Toromambuno, Mingende and Mu, have existed for over 30 years, others are of more recent origin. Many mission stations were at one time the only centres with schools or health facilities, and in centres like Mingende these functions have expanded and are a major reason why villagers come to the centre. Larger missions also run wholesale trade stores and provide postal services.
Other characteristics of urban centres

10.42 High population turnover. Although the province has comparatively few non-Chimbu residents they are an important segment of the community since they hold most of the senior positions in both the public and private sectors. Since most non-Chimbu in the province are urban dwellers, the towns are particularly affected. Because the towns' individual residents are continually moving elsewhere the development of a stable community and the growth of an urban character and identity are prevented. This is particularly relevant for rural people who visit the towns infrequently, as it increases the problems of access, especially to government agencies and officers.

10.43 Some evidence on the rate of population turnover in Chimbu towns is provided by the population census of 1971 and by the ANU-UPNG urban survey of 1974. Data from the 1971 census on the length of residence in town was asked only of those born outside the province, thus does not include information on the mobility of urban residents from nearby rural communities. In Kundiawa and Kerowagyi, these represent over 40 per cent of the men and over 50 per cent of the women. Table 10.3 analyses the rate of population turnover in these towns among those born outside Chimbu. In 1971, well over half the non-Chimbu residents in Kundiawa and Kerowagyi had lived in these towns for less than two years. Kundiawa had higher percentage of recent residents than Kerowagyi, but also a higher percentage of people who had lived in the town for over five years.

10.44 For the largest group, the Chimbu-born, 77 per cent of the men in Kundiawa had been resident for less than two years, whereas 55 per cent of the men in Kerowagyi had been resident for more than two years. This may reflect Kerowagyi's more limited opportunities for casual work, compared with Kundiawa, in that Chimbu people who have employment in Kerowagyi tend to hold their jobs there. Although one might expect a higher turnover rate among Chimbu-born residents because of the ease with which they can move back to their villages, it is also possible that they come from villages with very limited resources, and urban employment represents a security which they could not otherwise find.

10.45 In the urban survey of 1974 (Wright et al., Table 4), the proportion of recent residents was higher in Kundiawa than in any other town in the country except Minj, surpassing
### Table 10.3

Province of birth by period of residence in town - population aged 10+, born outside District (percentages, rounded)

<table>
<thead>
<tr>
<th>Province</th>
<th>KUNDIWA</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>KEROWAGI</th>
<th></th>
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<tbody>
<tr>
<td></td>
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<td>Less than 2 years</td>
<td>2-5 years</td>
<td>More than 5 years</td>
<td>No. of residents</td>
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<td></td>
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<tr>
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<td>M</td>
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<td>M</td>
<td>F</td>
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<td>14</td>
<td>17</td>
<td>18</td>
<td>467</td>
<td>205</td>
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</table>

even the figures for the new towns of Alotau and Kimbe. In all the small highland towns the rate of turnover was considerably higher than in small coastal towns such as Kerema and Daru, which suggests that perhaps ease of movement along the Highlands Highway is an important factor in mobility. The most mobile are probably unskilled highlanders who, after a short period in Kundiawa, move on to a larger town with the anticipation of greater opportunities. Finally, as mentioned earlier, Chimbu's poor image also contributes to the high turnover among other Papua New Guineans in the province's towns.

10.46 Concentration of non-Chimbu in urban areas. Most non-Chimbu people in the province live in the towns, where wage employment opportunities are concentrated. They have little contact with rural people, and as a result of pre-conceived ideas about the Chimbu prefer not to extend that contact. Each group tends to remain in ignorance of, and isolation from, the other. Decentralisation of employment opportunities would alleviate this situation, as would the proposal (made at the Chimbu Planning Workshop in December 1975) to provide orientation periods in rural areas for new arrivals in the province.
Chapter 11

Conclusion

11.1 In this report we have attempted to provide a 'benchmark' study which not only portrays Chimbu Province and its people in the mid-1970s, but analyses the evolution of its socio-economy and suggests some means by which present conditions may be improved. This study is not based exclusively, or even largely, on original research, which would have been impossible given our terms of reference and the time available. We have made use of many secondary sources of data, and have deliberately made extensive reference to these sources, to indicate the wealth of information which is available and ways in which it can be used by those involved in area planning and improvement.

11.2 This study has identified a number of acute shortages in Chimbu, both tangible and intangible, which help explain the present condition of the province. Among the tangible shortages, scarcity of arable land, natural resources, modern skills and employment opportunities in Chimbu are by now well known, but we have also tried to indicate the dimensions of these shortages and their implications. Although we have not presented an exhaustive analysis of Chimbu's position in relation to the rest of Papua New Guinea, we have shown that for selected indicators of 'development' such as educational attainment and opportunities, health services, wage levels and employment opportunities, levels of government inputs in agriculture, business and industry, credit and marketing facilities and the like, Chimbu consistently ranks among the lowest two or three provinces in the country.

11.3 In the Introduction we commented on Chimbu's dependence on government for modernising innovations. The scarcity of resources in the province has not only meant a heavier reliance on government in Chimbu than in many other parts of the country, but regrettably has also resulted in a scarcity of government inputs. Much of Chimbu's present backwardness may be attributed to the fact that both policy makers and those responsible for implementing policy have taken the line of least resistance, by either by-passing the province in favour of other regions, making token inputs, or concentrating on the more easily developed parts of the province, thus creating not only regional spatial inequalities but also internal inequalities. Two striking examples are provided by agricultural and education policy, but we have also
indicated others. Policies suitable for more favoured areas, but inappropriate in Chimbu have nevertheless been applied without modification to local needs, while strategies urgently required have been neglected. The Eight-point Improvement Plan might have been written with places such as Chimbu specifically in mind, yet it scarcely exists for rural people, and its goals are not the goals of the politicians and bureaucrats of the province.

11.4 Chimbu's only real resource is people, but the human resources of the province are under-utilised. In combination, the scarcity of all other resources has created a situation in which rural areas are stagnating, society is becoming stratified into poor peasants and a rural elite, and the work of many government agencies is moribund. Most of the innovations made during the colonial period have not led to modernisation; rather, the innovations have been traditionalised and the economy marginalised. The Chimbu, while thus locked in traditional structural forms, nevertheless aspire for participation in the modern economy, although many seem despairing of their chances. During the rural workshops many speakers prefaced their remarks with the same rhetoric:

Since colonial contact, we have had many forms of government. We have had the luluais and tultuls, we have had councils and self-government. During all changes, nothing in our lives has really improved. Now that we are independent, will things be any different?

Comments similar to this were expressed so frequently that in the interests of space we excluded them from the transcripts which follow this chapter. The dilemma of those caught without options between two cultures helps to explain some of the frustrations and tensions which find outlets in incessant tribal fighting, in social problems such as heavy drinking and gambling, and in the out-migration of the most able, all now so characteristic of the Chimbu.

11.5 Although these characteristics of Chimbu society are widely reported, they are not well understood. It is all too easy to dismiss the people in derogatory terms, or to divert attention to more stable regions. The literal meaning of 'public servant' is all too often forgotten. But efforts to redress the neglect of the past and to avoid crises in the future can no longer be deferred. Furthermore, what is happening in Chimbu now holds a foretaste of things to come
in those regions which, although more favourably endowed, have considerably higher rates of population increase than Chimbu and will be facing similar pressures within a few decades. We have attempted to identify the directions to be taken in developing policies and priorities in respect of land, agriculture, population, social services and the diversification of the economy. These are multi-faceted problems which cannot be solved by piecemeal or intermittent means, nor by only one section of the community.

11.6 In earlier chapters we have echoed the concern of many people in the province, both Chimbu and others, by stressing the lack of communication at all levels. We would reiterate the necessity for increased communication and cooperation between all sections of the Chimbu community: the provincial commissioner should sponsor a planning workshop similar to that held in December 1975 as a regular annual event; the provincial commissioner should hold meetings with rural people in their own precincts from time to time; the Provincial Coordinating Committee should be revitalised for more effective implementation of policy; each year several sessions of the provincial government should be held in centres outside Kundiawa; district government personnel and council leaders should form a consultative body to coordinate their programmes for district development; a system of mobile markets and service units should be sponsored in those districts which have least access to Kundiawa to provide more effective services for rural people; district agricultural shows should be promoted to provide a new stimulus for rural communities; students should be involved more closely in local data collection to provide more relevance to their curriculum and greater identification with their society; more effective use should be made of radio by government departments in the province.

11.7 A greater effort is required from the Chimbu people themselves. They are generally aware of their bad name in the country, and that they are used as scapegoats by other highlanders when it is expedient to transfer culpability. The Chimbu are probably not fully aware of the extent to which they are disadvantaged by their reputation. Government servants from other provinces are often unwilling or afraid to work in the province, and the services they render are the poorer, both quantitatively and qualitatively. Chimbu applicants for land, employment and other opportunities are often passed over in favour of others. In a sense, the Chimbu are their own worst enemies, and only they can alter
this situation. To do so calls for a conscious effort throughout the province by community leaders from the sub-clan to the provincial representatives, to increase awareness of the consequences of those activities which bring stigma to the Chimbu and to provide new direction, purpose and incentives for rural people and Chimbu migrating to other regions. It would seem that the Chimbu people must make more effort to adapt their traditional socio-economy to contemporary situations, and greater effort to compromise and cooperate with their fellow citizens, to increase self-reliance, to publicise the positive achievements of their people; in sum, to strive for a new image for the Chimbu.

As this report shows, Chimbu's problems have been discussed, researched and reported for several decades. Enough is now known about them to take action.
The rural workshops

The locations for the workshops were selected with some care, in consultation with members of the Area Authority, in that each represented specific local problems as well as conditions common throughout the province. It was stressed to Area Authority members that the principal function of the workshops was to sample opinion in rural areas from as wide a range of people as possible, and to gather information which might assist the Area Authority, especially in the allocation of Rural Improvement Programme.

Arrangements were made in consultation with the Chairman and Vice-Chairman of the Area Authority, and those members representing the places selected. Each of the latter acted as overall co-ordinator for the meeting in his community. The logistics of travel, accommodation and meals were kept as simple as possible to avoid strain and reduce expense for the host communities. Most visitors were assisted with transport by the local government councils, and were accommodated overnight in men's houses.

Each workshop was attended by several hundred people including farmers and their families, councillors, teachers, store-keepers, mission workers, government officers and extension workers. The visitors included a member of parliament, a magistrate, senior government officials, the chairman of the Chimbu Coffee Co-operative and Chimbu students from the university as well as Area Authority members and councillors from other areas. Each meeting began about mid-day on a Sunday, continued into the night after a meal break, and resumed the following day, concluding about noon. This arrangement allowed visitors to arrive and return home in daylight. As far as weather permitted, the gatherings were informal sessions in the open, chaired by the local Area Authority member. At Womatne and Keu, smaller group discussion took place in the late afternoon and evening sessions, in hamlets, men's houses and council chambers. Each host community was in a different language group, and all discussion required translation between the local language and Pidgin. In the case of the Keu meeting, held on the borders of two language groups, dual translation was necessary.

After the workshops concluded, the study team, assisted by Mr Bill Standish, prepared a transcript of each session in English and Pidgin. As well, the topics most frequently raised were summarised in tabular form. The English version of the transcripts follows. At the Area Authority meeting in November 1975, the study team presented its preliminary findings and distributed Pidgin transcripts of the meetings to all members. Workshop transcripts were also distributed to all councils, to relevant government departments and some schools, and to the province's radio station.

Gumine meeting of Area Authority members and Chimbu Study Team, 21-22 September 1975, at Gumine LGC

Visitors:
Mr Siwi Kurondo, Chairman, Chimbu Area Authority
Mr Siwi Agai, Kerowagi LGC
Mr Kumai Sundu, President, Mt Wilhelm LGC
Mr Miuie Bina, Mt Wilhelm LGC
Mr Kuima (Michael) Gende, Kundiawa LGC
### Summary of main issues raised at rural workshops

<table>
<thead>
<tr>
<th>Location</th>
<th>Gumine</th>
<th>Womatne</th>
<th>Keu</th>
<th>Total</th>
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</thead>
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<tr>
<td><strong>Problems connected with business:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. 'factory' for slaughter, storage and sale of pigs</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>2. Vegetable storage and sale</td>
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<td>3</td>
<td>4</td>
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<td>2. Coffee buying system</td>
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<td>3. Fertilisers</td>
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<td>4. Coffee factory for Nambaiyufa</td>
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<td><strong>Social problems:</strong> drunkenness, gambling, fighting, unemployment, prostitution, school-leavers, attitudes to women</td>
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<td><strong>Concern at brideprices</strong></td>
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<td><strong>Problems of land shortage and terrain</strong></td>
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<td><strong>Concern about agricultural extension service</strong></td>
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<td><strong>Educational problems (including demand for more schools)</strong></td>
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<td><strong>Need for Development Bank office in Chimbu; problems of obtaining loans</strong></td>
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<td><strong>Demand for women's clubs and business enterprises</strong></td>
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Other selected issues included widespread concern at the ineffectiveness of councils; an expression that excessive compensation for traffic accidents and fatalities be abolished; a request for more aid-posts in Nambaiyufa, and the extension of the Ramu power transmission line to Gembogl.

* Numbers represent the number of times each issue was raised at each workshop, and the last column indicates the total for the combined workshops.
Mr Nebabe Kubule, Gumine LGC
Mr Nebare Kaman, President, Salt-Nomane LGC
Mr Launa Miule, Elimbari LGC
Mr Aure Kampa, Sinasina LGC
Mr Gari Waiaki, President, Nambaiyufa LGC
Mr Yauwe Moses, Nambaiyufa LGC
Mr Ninkama Bomai, M.P.
2 Mt Wilhelm Councillors
1 Elimbari Councillor
Mr Nilkare, businessman, Omkalai
Mr Nogai Kora, Kundiawa
Mr Lukas Kaupa, President, Gumine LGC
Mr Biria Kia, former President, Gumine LGC
Mr Dominic Bre, Chairman, Chimbu Coffee Co-operative
Mr Matthew Siune, clerk, Area Authority
Mr Matthew Towa, DDC, Chimbu Province
Mr Francis Kaglwaim, Magistrate, Kundiawa
Gumine LGC advisor
Bill Standish, ANU
6 members, Chimbu Study Team

21 September, c.1pm-4pm - First Session


Pari Andreas (Gumine, former police sergeant): Welcomed the visitors. We people outside have only heard your names before, now we see your faces.

Kobola Bai: We have self-government (SG) and independence (I) now. We're pleased with the council, we pay taxes, but what road can we take to earn money? What development can help us? We want development.

We think a road to Karimui will be the answer. There is money at Karimui. Here at Gumine the population is big, we're full up with people. At Karimui, we can make business with pigs, sawmills. All you big men have come, can you help us with this road?

We plant a little coffee here. However you've stopped the road for coffee buyers [presumably referring to restriction on outside buyers buying in Chimbu].

Wemin Aure: We have SG and I now. But we have only coffee. No man has much coffee. Coffee price is very variable.

All the ground here is full up with people. We haven't got anywhere to expand. We are Chimbu, we don't want to go to Rabaul. We want to go to Karimui. If we have a road, we can go down to Karimui. Not only us from Gumine, but others from all over Chimbu. We know that everything grows well at Karimui. Within the one big-name Chimbu, we have 4 divisions: Kobon (Chuave), Kuman (Kundiawa-Kerowagi), Geril (Mt Wilhelm) and Bomai (we here in the south). The Kuman is bordered on the west by Hagen, Kobon on the east by Goroka. We only have room to move in two corners, north from Geril to Madang/Ramu, and south from Bomai to Karimui area. These are our two 'roads' to development. If you are strong, can you help us?

[DH replied: Diversification and possible disadvantages of Karimui.]

Wemin Aure, cont: Yes, but what other businesses can we start? We have coffee and it's alright, but what else?

We have pigs: we should have a slaughter house in Kundiawa. We can raise pigs for slaughter. DASF can help with new breeds.
Vegetables are not big business. The demand for them is too small (you eat only a few potatoes and drink a little *kurru*). The demand for pigs is larger. Pigs are in general use throughout the area.

Kobola Boi (replying to DH): Re-emphasises the availability of land at Karimui and Ramu.

DH: Disadvantages of Karimui: leaching of soil and malaria.

Kobola Boi: I think there's money at Karimui (i.e. opportunity for money). Road there could be joined with one to Daru.

Henrik (Gumine LGC advisor): Offered information on present state of action on Karimui road. A surveyor is awaited. And emphasised that building road will be a slow business.

Siwi Kurondo: Stating that there is good ground at both Karimui and Ramu-Bundi, recounted how he had been to Moresby with Kelaga Eremuge for talks on proposed resettlement in Karimui. He noted that there was not a lot of land at Karimui, that there were difficulties with both leaching and malaria, but stressed that he and others had argued hard for an attempt to be made.

He suggested some hard thinking about the road to Karimui, noting that the District had put aside money for a small road. The councils could allocate money for this too, thus spreading the responsibility. With independence, everyone should co-operate to work on road. (Kobola replied that they could make the road by hand, with help from the government.) 'OK', said Siwi, 'but the money at present is only enough for the surveyor.'

Biria Kia: (i) Compared to other parts of PNG, Chimbu is full up with people. What change can we make here in Gumine with independence? What products are needed by other people?

(ii) We are good gardeners, but land is short. We could increase production and improve both chickens and pigs.

(iii) A sawmill is also a possibility.

(iv) Coffee price fluctuates too much. The Coffee Marketing Board should stabilise the price higher.

(v) My suggestions must not be put in your pockets and forgotten.

Wamil Dimin (Omdara, Maril headwaters): Land short, many children. What business can we follow? I have a little ground, a little coffee, but many people have no coffee, and will have to move elsewhere. The government must find vacant land, where we could produce cows, pigs, etc.

Wemin Mani (a woman from Mul): Other parts of PNG have empty land, we don't. Here at Gumine the land is mountainous, and there are too many people. We have a little coffee, but it is dry during the dry season. This is a stony place. What can we do now with independence? Agriculture Department tells us to plant all different kinds of vegetables to help prevent malnutrition of children. But when we plant them they don't grow well.

The men don't cut new bush for us (to make gardens) - they waste time in the towns. We plant a little; put it in the market, but there are few outsiders here, so very little is bought. We don't have a good thing with vegetables. Demand is too small. Agriculture Department should be able to help us with all these problems, i.e. with fertilisers, etc. Can Agriculture Department help us?
Nebabe Kubule (councillor): (i) Coffee buyers should compete in order to get better prices for growers.
(ii) We need more high schools. Present locations mean transport problems.

Dominic Bre (Coffee Marketing Board): Where can we get money from? Coffee is our primary business throughout the highlands. We should ask the government to help us with fertiliser, because at present the coffee lasts only a little time, then it is dry. Fertiliser is very expensive. Some form of subsidy needed to purchase coffee fertiliser. It should be distributed to the people.

Alphonse Yoba: Too many people: land is short. There are three 'roads' to business: things can be grown, processed, and then resold. Up to now we have grown things, but the government has been slack about processing primary products. Too few factories. We have only one factory in Chimbu. Area Authority should be strong, and get secondary industry: sawmills, etc. also slaughter-houses for pigs, etc. One major advantage: money will stay in area, won't go to other districts and countries.

We should also think about by-products, and diversifying land use. Previously coast at an advantage re transport. But now highlands have good roads. Government should get more trained people from overseas to work in rural areas. People with limited knowledge are of limited use.

Yar (Dirima, prev. a tultul): Suggested that the restriction on coffee buying by non-Chimbu based concerns wrong because it resulted in low coffee prices. Due to shortage of business opportunities here, this is a bad thing.

Kua Galumai (Omdara): The other speakers have said they want to go to Karimui to find money, but I'm too old to go elsewhere.

Pigs are a Chimbu business. We need a factory at Kundiawa for pigs. We need crossbred pigs. Unlike coffee which is restricted to only a few months each year, pigs can be raised throughout the year. Cows could be raised at Karimui and Bomai, but here pigs, because its mountainous.

Siwi Kurondo: Replied to the effect that a slaughter-house already under construction at Kerowagi. Advised them to send pigs there.

Gelumai (Onowi): Land is short, and we only have coffee. Some of you have been to Australia, and have seen the businesses there. You should attract more business here, and then the District can go ahead.

Present coffee buying system should be supported. If District is opened up to other buyers, the Co-operative will fall.

Sukukini Pyui (Dept Agriculture): Pigs are a backbone of the local economy. But they grow slowly. Therefore we need to cross breed, and speed up growth. The government has been slow to help with boars. The same with chickens, which are needed for improving nutrition, as the nurses come and advise you.

The present retail system of seeds is wrong. Seeds are too expensive, they should be cheaper. Fertiliser for coffee is also too expensive.

Wemen Aure: Is there any copper in the highlands? If so, the government should hasten to develop a mine.

We need to get more fertiliser and insect killers for our crops.

LGC adviser: Requested that advice be given to tradestore owners and other people wishing to work business.
[J. Arba and N. Bomai ask for women's opinions]

DH asks Wemin Mani what she would do if she earned more money.

Wemin Mani replied: Spend it on sewing machines, helping husband with buying car and business, pay children's school fees.

First Session ended at c.4pm.

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22 September, c.9.30am-12 noon - Second Session (in LGC chambers)

Mrs Kuman Dai (Gumine): (i) Asked for financial assistance with weaving project, wool and building.

(ii) Said that they could also make pulpuls, bilums, etc. and sell these.

Mrs Wemin Kondi (Gumine): We have no money. There are three ways in which we lose money - the traditional pig-kills; the traditional 'head' payments, and (compensation) at death; and the traditional marriage payments. We should stop these three things, then we could make more money. We need new ways of getting money. Dept Agriculture should help us.

Naiyo (Gumine): We want a women's club at Gumine. Can you big men help us with money? The Development Bank money does not go to women. The Council doesn't help us. I'm asking the Area Authority.

Mrs Ninkama Bomai: Men do not help us. We help them with children and gardens, and look after all their business. We have few ways of making business. I support the other two women.

Wamil Bomai: I want the schools to be strong. Educated children can help us. We need educated people. It is no good if the schools are a long way away. We need help from the council for school materials. We need more teachers and more schools.

Bal Tana (Mt Diginie): We understand the ways to get kina and pigs, but not the way to get money. We invested much money in the Chimbu Coffee Co-operative. Coffee and Pyrethrum fluctuate too much in price. Better if way is opened for many companies to buy coffee(?) I want many companies to come here.

Summary speeches by Siwi Kurondo and Kumai Sundu.

Kumai mentions that the councils have attempted to restrain the prices of customary payments (i.e. bride price), but the fact is that councillors are few, and others constantly break the council rules.

James Arba replies to Bal Tana, explaining the work of the Coffee Marketing Board. Replies also to women about education, and cutback in Australian aid. Also stresses need to diversify.

Nogai makes summary speech. Also attacks customary payments.

Barunke Kaman summary speech, picking up major themes, and stressing manufacturing, and determination of coffee prices.

Kobola (i) wants Skulanka idea for dropouts in all districts.

(ii) Does not like falling coffee price, Society cheating.

(iii) Compensation payments: [unclear, but apparently would like to abandon such payments in the case of traffic accidents].
Womatne meeting of Area Authority members and Chimbu Study Team, 28-29 September 1975, at Womatne LGC

Visitors:
Mr Siwi Kurondo, Chairman, Area Authority
Mr Siwi Agai, Kerowagi LGC
Mr Kuima (Michael) Gende, Kundiawa LGC
Mr Kuman Dai, Vice-Chairman, Area Authority
Mr Kelega Eramuge, Sinasina LGC
Mr Launa Miule, Elimbari LGC
Mr Yauwe Moses, Nambaiyufa LGC
Mr Ninkama Bomai, M.P., Gomine
Mr Nilkare, businessman, Ombalui
Mr Matthew Towa, DDC, Chimbu Province
Mr Matthew Siune, clerk, Area Authority
Mr Peter Kama Kerpi, student, UPNG
Mr Thomas Tamun, student, UPNG
Mr Frank Yur, Manager, Gui Vocational School
Radio Chimbu
Bill Standish, ANU
5 members, Chimbu Study Team
Mr Am Tsumuno, Kerowagi LGC
Mr Gari Waiaki, Nambaiyufa LGC

28 September, c.1pm-3.30pm - First Session


Kaugwa: Requested a 'big highway' to Madang to bring business to Chimbu; leaders present here have power over finance and must consider this road.

Mrs Kunauna: Women are only labourers for men ... have to care for children, pigs, etc. Two kinds of business: young men and women; coffee. Does not want the bride price reduced or fixed.

Nime Mangema: Our land is poor. (i) Must open roads to Madang and Karimui. (ii) Need high schools in Gumine and Mt Wilhelm. (iii) Do away with compensation for road accidents. (iv) Men who have given long service to LGCs should get pensions.

Mende Auro (mission leader): All the leaders here today have business but the average man has nothing. Our area is full of mountains and rivers. You must help us make business with vegetables and pigs - or we won't pay taxes. Our main resources are men and money, not land. Area Authority members must try to attract companies here.

Ninkama Bomai: Reply ... suggested that big money could be won from development in Ramu and Karimui.

Peter Kauwage (teacher): Business is of many kinds, e.g. small village development projects. (i) Clans or subclans should form small corporations to take out insurance policies for accidents. (ii) Would like Bundi to be incorporated into Mt Wilhelm LGC - Bundi gets no help from Madang. (iii) Must build roads to Madang and Karimui. (iv) Should encourage tourism to help business development - many people have traditional artifacts which tourists would come to see. (v) The only Women's Association in the district is in Kundiawa - none in the sub-districts.
Kaima: Our young educated people keep leaving; Mt Wilhelm area is isolated; leaders should try to stop the fighting; I don't want men to be afraid when they travel elsewhere.

Apa Kauagl: Our coffee and pyrethrum have failed. Wants roads to Madang, and to Papuan coast via Gumine so people can start business there. If I can make money I'll pay my taxes.

Siwi Kurondo: Must help to find blocks for people short of land.

Mrs Kumai Sundu: We only get cash from coffee and pyrethrum - coffee can't be grown above Gembogl and frost has damaged pyrethrum. Men can go away to find work but the women must stay put. Can you help the women start business?

Bun Auga: Government has allocated some funds for Marafunga road; can Public Works Department make roads to Madang and Karimu?

Tagai: I don't want to have to pay compensation for road deaths.

Koxlia (Director, Coffee Co-op.): Wants a boarding high school for Mt Wilhelm and for Gumine.

John Duwa: Supported Mrs Kumai. Although our ground is poor we can still grow things; the problem is how to sell them?

Nigl Onggugo: Coffee and pyrethrum prices low. I want the government to help with money for the road to Madang.

Mrs Samu Korai: Can we have a law to forbid contributions of money and other things at pig festivals? Very expensive.

Ninkama Bomai: Reply to John Duwa - good point about the problems of selling things. The three avenues for cash in Mt Wilhelm are potatoes, cabbages, coffee. Forget about pyrethrum or tea. Prices too low.

Kelaga Eramuga: Area Authority is the voice of the electorate. Road to Madang was discussed at a PNG Regional Conference in Manus 1966. Will cost $11 million. Take another 4-5 years to complete. So far, we only know of small ways to make money, but if Gembogl people formed a corporation they might get government support. Suggested bulk store, hotel.

Mrs Korai: Has various vegetables in her garden, but the market is small and she only makes a little money. Would like a factory to preserve or can vegetables. Would like a Development Bank loan to set up her own business. Women too should have business. They want the same things as Europeans.

Siwi Kurondo: Reply to Korai - very difficult to get Development Bank loans. The officer asks many questions.

Gamba (Gembogl LGC): Upper Chimbu is the only part of the District without coffee. I don't want any more fluctuations in coffee prices.

Yauwe Moses: Everyone worries about coffee prices. Area Authority and LGCs should discuss price for coffee - inform Cabinet.

Nauru: (i) Wants a local high school. Children worried about going to school in enemy territory. (ii) Wants a big loan from the Development Bank.

Komba: Now we have Independence, will our children away at work on the stations come home and look after us as before?

Siwi Kurondo: We still have the old customs too.
Matthias Marumba (trade store owner): (i) Many people are worried about the change from Australian to PNG currency. Should keep Australian currency for 3-4 years yet. (ii) Many people want to start businesses such as trade stores but the cost of goods is very high. (iii) Price control is needed.

29 September, 9am-11.30am - Second Session

Darambugl: (i) School fees are now very high. (ii) We want a pig factory in Kundiawa.

Siwi Kurondo: Reply re Gui abbatoir.

Bare (A.P.O.): Aid post orderlies should get pensions. We older APOs have been displaced by better-educated people. Should be given allowances.

Goga: Politicians and Area Authority members rarely do anything for us, only make promises. Don't do anything to explain and help us when coffee prices fall. Coffee Co-operative should distribute dividends.

S imbai: Complaint about former Lutheran mission school at Simburu.

[Several exchanges followed re role of mission, council, etc. over this school.]

M uno (Gembogl): Now that we are independent, will we get big factories? We already have planes, cars, guns. As a mountain man, I only have vines, pigs, etc. - no good road to business. I want missions and white men to stay here.

Ongugo: Where is the factory which makes our currency? [DH explained it is in UK, and BS that PNG controls the supply of money.] Wants the mint to be in PNG.

C l r Aguá: We have coffee and pyrethrum but don't get enough money from them. We have enough pigs but must have a factory to earn money from them. Factory could name days when a car would come to buy pigs and slaughter them.

Y ani: We don't have enough money. We know it's around but how can we get it? We are in the 'backside' country and your report must help us 'backside' men. We want blocks in the good land in Madang, Markham, Karimui, beyond Kerowagi.

Mrs K argil: We don't get money for nothing. Men, women and children must work together, sell food in the market. Some factories must be built in Chimbu. Money must be circulated to the outstations as well as the town. Prostitutes take our money from the men - should live somewhere else.

Siwi Kurondo: What kind of factory?

Mrs K argil: Tinned foods.

K oglua: Many are concerned that the people in remoter areas get less income from their cash crops than people near the highway. Loans must flow into our area. You big men must help us.

M alai (Director, Chimbu Coffee Co-operative): Brief outline of recent history of Chimbu Coffee Co-operative. Present state of world coffee market due to frosts in Brazil. Said coffee prices should remain high for next 7-8 years; warned people to take good care of their coffee to get the good prices.

Constable lst-class Joseph Gura: Gembogl sub-district needs extra vehicles: for an ambulance and for the police.
Cir Gende Wena: Everyone cries for money. Do they think a plane will come and drop it? You must get a company to build a road to Madang. The Gumine people also need a road to Moresby. Prices for coffee and pyrethrum are poor - we need ways to sell our crops.

Mrs Waugma: We women look after the pigs but the men kill and cut them. Men have many avenues for business but women only have crops. If men made enclosures for our pigs, the women would have more freedom to travel too. It's the pigs that tie us down. If they are fenced we can make money from our food crops.

Kunaunai (old man): Concern that fighting continues and worsens even with introduction of LGCs. Beer drinking, gambling and traffic accidents all contribute. Also have land troubles even though some cement markers have been set up. Wants Port Moresby to pass a law to burn weapons.

Gereg (government interpreter): Worried about low salary, even after eleven years' service.

Mrs Sia (old woman): We have some coffee and pyrethrum, not much land, but can sell some vegetables for a little money. However, the men waste our money on prostitutes and their families are neglected and go hungry. Men have more opportunities than women and children to make money.

Matthias Kaman (young man): (i) Many 'mistakes' have come to this region. Sales of beer should be prohibited in trade stores and villages, and only available in the club and hotel in town.

(ii) Roads should be opened to Madang, and from Gumine to Karimui, so that people short of land can get blocks.

(iii) Gembogl and Gumine should have high schools.

(Reply by Matthew Siune: Necessary to defer building of high schools due to aid cuts.)

Witne (former luluai): (i) We should ensure that we elect suitable people as our leaders.

(ii) We want a road to Madang.

Maigum: Men waste their money on gambling. When I have to pay tax, I get bush rope and sell it. I don't have much money. Government must build a road to the Ramu and help us get land there to make money.

Discussion with women at Womatne, Sunday, 28 September, 4.30pm-6.30pm.
[with D. Howlett, E. Young, J. Arba]

Kaungge Gande: (i) Would like the road opened to Bundi.

(ii) Has vegetables but no means of selling them.

(iii) EAY asked about previous practice of Toromambund mission airfreighting vegetables to Madang. Apparently this no longer operates but no one knows why.

(iv) Would like a Development Bank loan for chicken project. So far no loans granted here for chickens, although Matthias has a small piggery, also the LGC. (Heard about Development Bank on radio.)
Mrs Kumai Sundu: Women have to look after gardens and pigs and have no way to make money from them. Wants pig factory in Kundawa. No 'highway' in Chimbu valley. Have a lot of pigs and want to make a profit from them. Says wouldn't have any trouble with men over pigs if they were killed at an abattoir. DH asked re building a small slaughter house in Womatne — storage in a refrigerator. Discussion re power for refrigerators — mentioned kero refrigerators. James offered to enquire re cost, etc. of refrigerators.

Agnes Waugu (Skidiwe): Wants Ramu power to be brought into Chimbu valley. [Discussion of small hydro projects.] If we had power we could store produce in refrigerators. Wants road to Asaro via Pompameri.

Veronica Kekene: Wants a road to Bundi and Madang to be able to sell produce in Madang.

[DH asked women what they would do if they had money:
(i) Would save up for a car to send food to market;
(ii) (younger woman) would help any friend trying to buy a car;
(iii) (older woman) would put it toward pig and poultry project;
(iv) Korai — would like a Development Bank loan to start a cafe. Discussion followed on what would be needed to set up a cafe — building, cooking pots, firewood, grease, etc.]

Agnes Waugu: The women would like to have a club and make things with their own hands. Although some have sewing machines, they either don't know how to use them or they need repair. Agnes' daughter has been to Minggende Vocational School — charges 20c garment to sew things.

James: Business Development office can help get supplies of wool.

[Discussion re Council Welfare Assistant — who is about to get married. Taught the women how to play softball, how to sew, run a meeting, and a bit about cooking for children.]

Women mentioned that the last time they were visited by Community Development staff the welfare women spent most of their time at Gembogl station, and only called at Womatne to use the toilet before returning to town. Women started saving funds for a club 6-8 years ago, 20c a time, and have about $14, but have never had any assistance in getting a club started.

Korai: (i) Wants roads to Madang and Asaro.
(ii) Wants a better local market.
(iii) If above roads opened, would like to talk to Yangpela Didiman about growing crops such as soybean, rice, sunflower.

Notes from Henry Bi, Womatne meeting

Re Bride Price: both sets of parents should contribute the same amount of money, pigs, chickens, etc. and give them to the new couple to make a good start. Both sets of parents would share the cost; would reduce ill feeling between couple and parents; marriage would be more stable; the new couple will have resources to start a family.

(Present: R. Hide, Bill Standish, Thomas Tomun, 9 other men and 3 women.)

Degumba: Suggested the need for a factory for processing foodstuffs in the Wilhelm area. He thought there could be a factory at Torambuno, Goroka and Kundiawa.

Yuainde: Complained strongly that coffee buyers cheat the growers. Whereas the factory (Chimbu Coffee Co-operative) buys copra bags (full of coffee) for K.42-45, the drivers only pay growers K.20. The drivers 'steal' the rest of this money for themselves. They also cheat growers in other ways: they turn back the scales (i.e. using the 'key' on top of the scales), so they are not properly calibrated to zero. Yuainde considered that middlemen buyer-drivers should be got rid of. Instead growers and the coffee should be transported by the Co-operative's cars to the factory gate where growers themselves could receive the full price for their coffee.

Tinagle: Contrasted the peacefulness of the Upper Chimbu with the prevalence of fighting in other parts of the Province. He looked back to the early days of the colonial period when kiaps were tough and all lived peacefully. During that time, he said, both Europeans and local people shared responsibility, but today the Europeans have gone. While his message was 'conservative' in expressing a desire for Europeans to 'stay', he stressed that the government should act strongly against lawbreakers - asking for a law allowing hanging of troublemakers ...

Gende: There should be an electric power link from Kundiawa to Gembogl, both for power for businesses and for lighting of houses.

Standish: Asked generally if anything else besides business opportunities were needed - things to improve the way of life. The response was that the Upper Chimbu was full up with people, and the land no good. The government should make provision for blocks of land for resettlement at Karimui, Markham and Ramu.
Keu meeting of Area Authority members and Chimbu Study Team, 4-6 October 1975, at Keu Primary T. School, and Koroa Market Place

Visitors:
Mr Siwi Kurondo, Chairman, Chimbu Area Authority
Mr Kelega Eramuge, Sina Sina LGC
Mr Kuman Dai, Vice-Chairman, Area Authority
Mr Yauwe Moses, Nambaiyufa LGC
Mr Gari Waiaki, Nambaiyufa LGC
Mr Kumai Sundu, President, Mt Wilhelm LGC
Mr Miuge Bina, Mt Wilhelm LGC
Mr Nilkare, businessman, Omkalai
Mr Lukas Kaupa, President, Gumine LGC
Mr Nebabe Kubule, Gumine LGC
Mr Nebare Kaman, President, Salt-Nomane LGC
Ke Keri Bariau
Mr Wena Obe, Karimum LGC
Mr Waine Sliune, Kundiawa
Mr Kuri Mori, Elimbara LGC
Mr Wemin Aure (+ 2 from Sina Sina)
Mr Kutma Gende, Kundiawa LGC
Mr Nogai Kora, President, Kundiawa Council
Mr Ambane
Mr Matthew Sliune, clerk, Area Authority
Mr Siwi Agai, Kerowagi LGC
Mr Baundo, Kerowagi
Mr Wagl Kagl, businessman, Mingende
Mr Witne, farmer. Womatne
Mr Francis Kaglwaim, magistrate, Kundiawa
Mr Roy Yaki, Central Planning Office, Mt Hagen
Mr Matthew Towa, DDC, Chimbu Province
Bill Standish, ANU
6 members, Chimbu Study Team

4 October, 4pm-10pm - First Session (Koroa men's house)

[James Arba, Henry Bi and Roy Yaki]

Mama: Europeans have made it possible for us to move around easily and have brought development. Our children will show us how to obtain money. The missions were the most powerful force in this area.

James Arba: Emphasises self-reliance and use of our own resources as well.

Kuman Kopon: Chimbu has many resources - copper, vegetables, pigs, chickens. We need companies to exploit the copper, a food processing factory. Problems of growing vegetables as a cash crop - in connection with shifting cultivation systems; marketing difficulties. Only a few people benefit from the small amount of money we have and most of it goes on brideprice payments. We must fix the brideprice.

James Arba: Explains about mineral exploitation and problems connected with this.

Kuman Argaua: The European has done little for us. We need a vegetable factory so that we can make money from selling food (a cold storage factory).

Roy Yaki: Explains where factories come from, and stresses that people must not expect the government to do everything, but must be self-reliant.
James Arba: Development depends on the women working alongside the men, not on the men alone. Women are not the slaves of the men.

Mrs Move Bainam: We look after the coffee but the men get all the money. I want a permanent house like other people have, but unless we work together I will never get this. My husband does not let me make decisions. I have a son. I should decide on bridewealth. A woman is not profitable, but we waste money on them. The bridewealth should be K80 and two pigs. If I can sell my vegetables and pigs at the market I can live well. I want a pig factory so that I can sell my pigs to the cold store in town.

Mrs Teine Komane: I have a daughter. Girls are business. Men cannot exist without women. High school girls should fetch high bridewealth - K200, feathers and food.

Mrs Ogan Wire: I have a daughter. The bridewealth should be K200, five pigs, ten plumes.

Mrs Apera Kobulkale: I have seen all the different kinds of meat they sell in town. How can we work this kind of business? We need a cold store. When we kill pigs we have to eat all the meat at once. Agrees with bridewealth suggested by Ogan.

Mrs Yuai Bare: We should keep our traditional customs. But money and work depend on each other. The bridewealth should be abolished. If I had money I would spend it on a car, a factory, a cow.

Kuman Kopon: We get no dividends from the coffee factory, and the buyers cheat us. We need a small coffee factory here, and a vegetable factory so that we can use our resources. Otherwise the only way to get money is to work in town.

Roy Yaki: Points out that if there were too many small factories they would not be economic.

Kuman Argawa: If we want to start a factory we must raise some of the money ourselves and then the government will help us with the rest. I heard this idea on the radio. We should each contribute half.

Roy Yaki: Emphasises rural development - over 90% of people in PNG live in villages.

James Arba: All of us want roads, bridges and factories, but where are they to come from? (no answer!)

Mrs Goie Kaupa: I want a women's club where we could sew, cook, etc. and make money. I saw these in Hagen and I was a member of one in Chuave (but it was too far away). If we had a club we could keep the money we earn instead of all of it going to the men. We want Business Development to help us to buy wool, etc.

Wemin Wi: We must have strong laws so that we can control fights and make it possible for people to move around safely. The new weapons of today are money, tools, etc.

Mrs Tene Komane: Sometimes when I go to market I cannot buy what I want and at other times I cannot sell my produce. Why? [James Arba - crop rotation, famine or feast. Why do you not sell other items at the market?] True. When I sell traditional items I have no trouble getting rid of them.

Gigmai Keringa: [Answer to James Arba - how can you keep your money?] Few people here have passbooks. We spend what we get. If we want to start a factory we will need the money. [People had not heard of different types of banks. James Arba said that for small businesses savings and loans was the best.]
Josef Dama (storekeeper): Problems of being a businessman: attacks on coffee buyers; compensation claims on PMV operators. The Development Bank asks for securities and asks too many questions. It is too inflexible in its demands for repayment.

5 October, 11.30am-3.30pm - Second Session (Keu Primary School)
Attendance approximately 1000.

Introductory talks by Gari Waiaki, D. Howlett and Siwi Kurondo

Kobon Kumare: I have only a little business from growing coffee, and only have enough money to buy food in the stores. If I want to start a bigger business I must borrow from the Development Bank - but where is it? In Hagen, in Goroka? We must have a local office of the bank here in Chimbu District, and we in Chimbu must control the money that is spent in Chimbu District. Another problem - the Bank asks too many questions about me, and instead of borrowing money I come back home with nothing.

Komuna Wemin (Nambaiyufa): The government has not helped my area in the way it has helped other parts of the district. I used to work for the government on the roads when I was young, and now I am an old man but the Nambaiyufa road is still no good.

Gori Yori (President, Elimbari Council): We know how to look after pigs and plant crops but we have problems because our ground is so stony. We need to be taught by an adviser how to improve our agriculture. We want the limestone quarry to be developed.

James Arba: Money has been allocated for the Nambaiyufa road. Is there no agricultural officer in Chuave?

Gori Yori: Yes, but we never see him. We want our own Elimbari agricultural officer.

Mrs Dau Kaupa: I have a store but I make very little money because I have to pay so much back to the Development Bank. Will you [Area Authority] lend me some money so that I can improve my store?

Nin Mori (Eigun): Foreigners who stay in Chuave do not spend their money there. They earn money and go away. We only have a little business and things in the stores are too expensive for us. We must be able to make our own sugar, and to sell our pigs to a pig factory.

Baida Rafaue (Nambaiyufa): K50 000 is not enough to finish the Nambaiyufa road. We want the old loop road improved as well. We have no good schools and aid posts in Nambaiyufa.

Bomboi Onopia (Chuave): Companies persuade us to invest our money but we make no profit to make business in the village. The companies in Hagen, Goroka and Chimbu only put money into their own pockets. We get no dividend from the coffee.

Mrs Seve Waiake (Nambaiyufa): The road to Nambaiyufa has not been improved yet like the roads to Elimbari.

Kuno Emeri (Chuave): We must work together but we have problems. We need the roads to Karimui and Ramu so that Chimbu can get land. We need a new hospital in Chuave. People spend all their time playing cards instead of looking after their children or their business. Playing card factories must be closed.
Kuman Dai: It is time we heard of some of the problems of the ordinary men and women, instead of only from the councillors.

Mrs Fono Goro (Chuave): Too much money is spent on brideprice and we have nothing to show for it. Fix the brideprice at K100.

Mrs Ginabe Buku (Chuave): My husband paid only K4 for me, but now we throw away big money on brideprice. We have nothing to show for our money, and use it to buy fish, beer, etc. I want the brideprice fixed at K100.

Naka Lolu (Nambaiyufo): In Chimbu we only have two kinds of business - coffee and pigs. We have a coffee factory but not a pig factory. We got the coffee factory by forming a co-operative, and must do the same for the pig factory.

Kapu Yalupa (Nambaiyufo): We lose our money in all sorts of small ways. Fines imposed by village courts are a nuisance. The money for brideprice is too large and often the women do not stay. Fix the price at K100.

Koma Tabie (Elimbari): The means of making money must be available to all. Only people in towns are able to make much money. Here in Elimbari we need our own coffee factory, and we need a road to the Eastern Highlands.

Kaupa Maima: Chimbu people have little business, and now we have trouble as well. Plenty scoundrels are going to town all the time and breaking the law. These people should be put in jail for life.

Tabie Arime (Elimbari): We want to start a hotel in Chuave. Give us something to show for our tax money.

5 October, 5pm-6.30pm - Third Session (Yauwe Moses' compound, Nambaiyufo)

Amoi Yagere (Nambaiyufo): This is an isolated area and it has less government aid. The road gets K50 000. We want bulldozers to do the work. We will have many St. 6 drop-outs in our area and we must use them to help us all.

Mond Ungare: Why has the enrolment dropped at Pila School? The government must provide materials to build permanent houses there.

Yokondo Koi: The Council said that they would put up permanent buildings at the school but they have not done so. (School chairman: there is some money and next year we can build two classrooms.)

Meku Korawaima: We have no cars in Nambaiyufo and the hospital is too far away. We need some more aid-posts in Nambaiyufo. Movi aid-post does not have enough supplies.

Michael Borove: Coffee prices fluctuate too much and it is hard for us to pay our taxes or our school fees. Prices should be the same in all parts of Chimbu District.

Mrs Kaupa Nomane: My ground is poor and I can only grow a little coffee. There are no cars to take it to the selling points. We need a small factory here in Nambaiyufo.

Womane Ungo: People talk about all kinds of business, but the most important person to us is the agricultural officer.

Noimbano Kiage: We have many people in Nambaiyufo. We need a local coffee factory because we are isolated. The Development Bank is only in the big towns like Port Moresby, Hagen and Goroka. We need a branch in Chimbu.
Mrs Biauno Oa (Chuave): I look after the coffee but my husband pockets all the money and spends it on beer, cards and prostitutes. In my old age I want a permanent house but all I will get is a grass hut.

Mrs Bainim Kaupa: I had a Development Bank loan for my store but all the money went on repayments.

Bunam Komona: Chimbu population is very large and we in Nambaiyufa are as plentiful as ants. We need a coffee factory here.

6 October, 8.30am-10.45am - Fourth Session (Koroa Market)

Mama: We all take our coffee to the factory at the Chimbu River but we have never seen our dividends. We need another factory here, and one in Gumine, Gemboi, etc.

Yauwe Moses: When things go wrong at the coffee society it is the fault of our young people who run it, and of the manager. The cars break down, and things cost too much. If you tried to run your own factory you would have the same problems.

Kironi Bane: Here in Elimbari we are isolated, and the Council does little for us. I won't pay my tax because I see nothing for it. We need a pig factory so that we can sell our large pigs and make money to pay our taxes.

Kuire Onopia (Chuave): Our coffee society has a bad manager. Our profits go to building houses for George Leahy in Hagen. We grow the coffee but the manager does not look after the money and we get no dividends.

Kuman Dai: Tell this sort of story to the Councils and let us hear about other kinds of worries.

Baugo Erimo (Chuave): When Australia looked after us and we wanted to try some business we were told to wait. But now we are Independent. In Chimbu all we want is money, but we plant vegetables and cannot sell them in the market. We have been told that here in Elimbari our stone would be good for a cement factory, but it hasn't come. We need a vegetable factory, a cement factory and a money factory. We do not want to wait any longer.

Wemin Nubu: We heard on the radio that Germany had sent money for the white stone at Goide. But we have not seen it. The central government is still holding it.

Barunke Kaman: The government chose two possible places for the cement factory – Lae and Elimbari, but they have chosen Lae.

Kai Arumo: I think the Finschhafens have tricked us out of the factory. We want one here as well. Our ground is no good and the pigs spoil it. We need a pig adviser to teach us how to organise our pigs, and then we can run a pig factory.

Wai Kaima: Bride prices are far too high. I would like to fix the brideprice at K100.

Pogora Opa (Chuave): We are always having trouble with pigs breaking into the school grounds and spoiling them. We would like the Council to give us some strong wire so that this does not happen. Plenty children are not at school, and there are too many drop-outs.
Henry Bi: The whole country has problems with St. 6 leavers. Before, people with a little education could get jobs but now they can't. At the moment Highlands children who have been to high school can get jobs, but not all coastal children can. We must teach the children to work in the village.

Kelage Erimuge: Too many school kids are arrogant.

Mundo Kapaka: We have forestry business and coffee business but we haven't yet earned any money from the forestry. Now we have to look after ourselves, but there is not enough of everything to go round. Here in Chimbu we need some more business. We would like a food factory. We would have preferred business to be started first, and independence to come later. We want the 'good' factories to come first and others, e.g. hotels, to come later. We have no confidence in our young leaders.

Kuman Yori (Lutheran Pres.): Vocational school - we need a large central vocational school where St. 6 leavers can learn to do all sorts of things which will help the village. Local language schools get no support from the government. We must have good Pidgin schools and the teachers must be government employees.

James Arba: Government is giving K50 000 for the road, but the contract must be kept within the Chuave SD. Bulldozers are too dear. Development Bank - you cannot expect to get money for nothing. We all want factories, but such things do not happen quickly; we must start work from the bottom and build up gradually.
Appendix 5

The Chimbu Planning Workshop, 16-18 December 1975

In this appendix we reproduce the official report of the Planning Workshop. The workshop was attended by about 80 invited participants, representing a broad cross-section of the Chimbu community. Observers attended from the Public Service Commission, the Central Planning Office, and the Village Economic Development Fund.

The participants first met in a plenary session to identify the main problems of the province. A list of 28 problems was produced during this session, and then grouped into seven related clusters. The report below begins with these. Thereafter, participants were allocated to working groups and assigned a set of problems to discuss in further detail. Each working group had about ten members and represented as wide as possible a mix of interests and occupations. At the end of each day a concluding plenary session was held to report the findings of each small group to the full meeting.

The official report consisted of two parts: the findings of each group were summarised first, and followed by the recommendations of each group. For convenience, in the text which follows we have re-arranged this order of presentation in order to include each group's recommendations with its findings.

Problems of the Chimbu District

1. Lack of co-operation and communication
2. Land shortage
3. Education
4. Business opportunities
5. Compensation for deaths
6. Tribal fighting
7. Public servants
8. Police
9. Reality falls short of expectations
10. Department of Agriculture
11. The power struggle
12. Inappropriate government policies
13. Bride price
14. The urban drift
15. Missions
16. Hoarding of money
17. Regionalism
18. Overpopulation
19. Government transport
20. Banking
21. Coffee is the only cash crop
22. Pigs
23. Local government councils
24. Prisoners
25. The Chimbu reputation
26. Health
27. Equal distribution
28. Gambling

Group 1

1. Lack of co-operation and communication
2. Public servants
3. Government policies
4. Transport

Group 2

1. Land shortage
2. Drift to towns
3. Population
4. Equal distribution

Group 3

1. Education, missions, local government councils
2. Missions
3. Local government councils
4. The Chimbu reputation

Group 4

1. Business
2. Banking
3. Use of money
4. Expectations

Group 5

1. Tribal fighting
2. Compensation
3. Bride price
4. Gambling
Group 6
1. Police
2. Prisoners
3. Regionalism
4. Health

Group 7
1. Department of Agriculture
2. Power struggle
3. Only one cash crop - coffee
4. Pigs

GROUP 1

1. Social Problems
   (a) People do not get together to discuss issues which could help their own villages.
   (b) The education system does not give any instruction to help the way of life at village level.
   (c) Both young and old people do not think alike. A lot of young people leave the district to go and work in other areas.
   (d) No way of settling disputes in the villages.
   (e) Population in the Province is far too high.
   (f) Alcohol.
   (g) Venereal diseases
   (h) No recreational facilities.
   (i) Bride price and head tax.
   (j) Tribal fighting upsetting village life.
   (k) Police confusing people.
   (l) Missions confusing the thinking of people.
   (m) Jails - some people seem quite proud to go to jail.

2. Politics
   (a) People are always calling to the government, thinking that it has all the answers.
   (b) There are no strong leaders.
   (c) Members of Parliament do not travel within the Province to find out what the people are thinking.
   (d) Powers of the Area Authority and Council are not clear.
   (e) Work of various departments is not clear. There is confusion between departments, e.g. Business Development.
   (f) Many civil servants do not work properly.

3. Business
   (a) People say that the business is far too high.
   (b) People want a lot of money for little work.
   (c) There is no way for money in villages to be accumulated or put into business.
   (d) There are not enough banks to get loans. There are no branches only agencies here and it is very hard to get loans.
   (e) The problems of coffee buying and the difficulties associated with it.
   (f) Agricultural officers do not visit the villages.
   (g) There is a shortage of land in Kundiawa.
   (h) The government does not follow its own policies on people from districts getting land in other areas.
GROUP 1

Problem 1 - Lack of Communication and Co-operation

I

1. (a) A Provincial Committee called The Provincial Development Committee must be formed.

(b) The following should have representatives in this committee:

(i) Representatives from the departments of Prime Minister; Public Works; Agriculture; Health; Community Development and Business Development

(ii) Missions

(iii) Private enterprise

(iv) Area Authority R.I.P. Committee

(c) Minutes of proceedings of the Provincial Development Committee must be taken and kept as a record.

(d) The Provincial Commissioner should be chairman of the committee which should also have an Executive Officer.

(e) Committee meetings should be held every 2 months. The Development Committee should be held on one week and on the following week the Area Authority meeting should be held.

2. The Committee should make a Provincial Plan and also one for each sub-province.

II

1. There should be more power in the hands of one man to direct the work in and development of the Province. This man should be the Provincial Commissioner who represents the Prime Minister. The P.C. should have the power to direct departments in the province particularly when they are not working properly or when they are not co-operating properly.

2. The Assistant Provincial Commissioner should have the same power to co-ordinate work in the sub-province.

3. The Provincial Commissioner and Assistant Provincial Commissioner should consult with other Provincial Departmental Heads but it should be clear that the PC and APC's are in charge.

III

1. The group could not reach agreements about the problems of Local Government Councils and so offers no solutions.

GROUP 1 - RECOMMENDATIONS

1. Public Service

Government officers must work together and must travel together in what is known as the 'market run' and they should stop at village centres and stay overnight.

When public servants are being trained they should be made to put up a bond guarantee that they will remain at work for the government for a certain time. If they leave their employment they should refund to the government the cost of their training.

Public servants should not be permitted to keep changing jobs. They should be made to stop in employment for which they are trained. Also they should not be transferred as often as they are but should be left to work in one area.

There must be a method for people within the district to take action if the Public Service is not operating properly. There must be one public servant whose responsibility it is to hear complaints about the Public Service and who has the power to take action. The person who can best do this job in the sub-district
is the Assistant Provincial Commissioner who can hear complaints about the public servants in his sub-province. The PC should have strong disciplinary powers. There must be very strong incentives to encourage effective officers to remain in the field. For example, a good promotion system or upgrading postings to the field must be based on performance. At the moment all effective officers are transferred to headquarters.

When public servants visit the village on the government round they must be able to spend the night in the village.

2. (a) The N.B.C must re-introduce its former programme time, that is there must be a programme from 6 a.m. - 8 a.m. This time should be used for passing on information to the people for changing public information or for educational programmes.
(b) A government liaison officer must improve contact between the people by having meetings each month. Newsletters to improve team work. Swopping of officers and helping each other out with their work.

3. Transport
(a) The Plant and Transport Authority needs more control over their vehicles. They should have inspectors to see what drivers are doing and where they are going. In sub-districts the A.D.C. would be the inspector.
(b) There should be more clarification of the right to use government vehicles after hours, particularly by Assistant Provincial Commissioners.
(c) The police should check drivers and their licences.

4. (a) There should be at least two female representatives in the Area Authority.
(b) There should be at least two female representatives on the District Education Board.
(c) There should be at least two female representatives on the District Development Committee.
(d) Female candidates should be encouraged in both local and national elections.
(e) Both men and women should meet together for the government round.
(f) Women's clubs should be encouraged in villages and other centres.
(g) The government, Area Authority and Councils should give such assistance as is necessary including financial assistance to women's clubs or projects. For example, Yangpela Didiman at Wahgi Bridge.

QUESTIONS
Siwi Kurondo asked why is it that men relax in the afternoons and drink but not the women?

The Police Inspector said that he supported the idea of 'market rain' very much. When the Department travels around it should take some traditional leaders with it. The most important thing to get co-operation is to stop the fighting and make different groups friends.

The Chairman of the Area Authority stated that the reason that women do not mix with the men socially is not the women's fault but the men's. There are no women councillors or Members of the House of Assembly.

The Group Leader said that if there was trouble in the villages it should be the leaders in the villages who settle the problems. They should not have to bring it to Kundiawa. Therefore my group strongly supports the creation of village courts.

The District Nurse said that it was alright here, everybody supports the women but in the village if a woman has an idea the man just says forget it, it is only a women's idea.
1. Tribal Fighting

(a) Most of the tribal fights are over land.
(b) There are also a lot of fights over women.
(c) Drivers picking women up on the roads both married and single women.
(d) Stealing of pigs and other things.
(e) Car accidents although not a direct act of murder the mere fact that there has been a death causes fighting.

2. Compensation

Mainly through motor accidents, compensation because of certain tribes wanting revenge of large sums of money. The question is whether this happened in traditional times or not. Compensation for destruction of property.

3. The Public Service

(a) DASF local officers are not working as well as expatriates used to. They just drive around in motor vehicles doing nothing.
(b) There is no central experiment station established by DASF so people can see agricultural projects.
(c) People do not think that agricultural officers are giving the right information.
(d) There is no co-operation between departments at the district level. Group 2 feels that all departments should help each other especially with transport throughout the district. The main complaint is against the clerks in the offices.

1. Delegation of Powers to District level - not in Moresby.

2. Market Round
   Programme
   - All officers travel in one vehicle
   - Patrol - Sub-district level
   - Plus District Central Control

3. Jealousy
   All officers within departments.

4. Strengthen District Co-ordination
   Committees - include Sub-district representatives.

5. Area Authority
   Meetings be conducted in Sub-district level (Council).

6. Provincial Commissioner
   Control all departments - delegate to ADC in Sub-district level.

7. Bureau of Management Services
   Disrupts all departments.

GROUP 2 - RECOMMENDATIONS

1. Shortage of Land and Pressures of Population

The reason for our land shortage is our large population.

(a) There must be re-settlement. At present these schemes are not effective. We should also set up small factories.
(b) If we set up industries in the Chimbu it will give employment and will stop the drift to the towns.
(c) The Chimbu people do not stay in villages. The Chimbus live on their own land and their houses are separated.
(d) There is a real shortage of fertile land and the Department of Agriculture must be asked to try and do something about this.

(e) Agricultural officers, Kiaps and Magistrates should explain to the people about the usage of loans.

2. Agricultural Officers should go to the schools to assist the teachers in training the children about agriculture.

3. There should be family planning. This does not mean that you are telling anyone how many children they should have. They are just given advice and leave them to make up their own minds. There should be family planning talks given at villages and also in primary and secondary schools.

4. The government is not following its own land re-settlement policy.

5. The Chimbu reputation is made worse by the fact that people from Mount Hagen, Mendi, Goroka are all known by outsiders as Chimbus. Therefore if a Mount Hagener does something wrong the news media and people say that a Chimbu did it. Newsmen and the radio must be made to distinguish between the groups.

QUESTIONS

The O.I.C. of N.B.C. said that the N.B.C. reports correctly in Mount Hagen, Goroka and Chimbu. The trouble is that in the coastal areas anyone who is a Highlander is called a Chimbu.

The Magistrate said that what was meant by the government not following its own land re-settlement policies was that when there are applications from Chimbus the government seems to reject many of them.

James Arba said before we send people to the Bomai area for re-settlement we should send somebody to study the fertility of the land.

The A.D.C. stated that there used to be no fertility problem but because a system of shifting agriculture was used, now the extra population and cash crops have used up all the spare ground and so you are using all the fertile land and it does not have a chance to get fertile. Therefore it is most important the point made that Agricultural Officers must go to the schools and teach the children how to fertilise the land.

GROUP 3

1. Population pressures in the Chimbu district.
2. Land shortage.
3. Poor terrain for development.
4. Lack of variety of cash crops.
5. Lack of co-operation within the government as well as between the government, missions and business groups.
6. Customary approach to people who could be successful entrepreneurs.
7. Tribal fighting. Wastes a lot of time consequently people do not think about starting businesses, also prevents a lot of civil servants coming to work here because they are frightened of Chimbu people.
8. Too much power in central government. Decisions are made in central government and those making the decisions are not aware of problems in the rural areas.
9. Lack of education of Highlanders. Vocational schools are not training properly and there should be more technical schools in the district to give skills to young people.
10. School dropouts.
11. Local government council is ineffectual.
15. Lack of police action.
16. Transport charges. All sorts of cars are used as passenger motor vehicles. There should be some regulation to control which vehicles are more suitable because of the number of accidents.
17. Wrong emphasis on education. There should be more technical schools.
18. Land disputes.
19. Lack of contact between the MHAs and their constituents.
20. Friction between old and young people in the Province.

GROUP 3 - Answers to questions 1 and 2.

1. Provincial government
   (a) Businesses and Missions should be represented.
   (b) The Provincial Commissioner should be a member of and work with Provincial Government.
   (c) Executive Committee should work with departmental heads.

Answer to question 3.

Local government
   (a) A council executive should work more closely and more often with Central government departments.
   (b) There should be a change in the system of Local Government and a system involving area communities similar to those used in Kainantu, should be used.
   (c) All ward committees should have more authority and responsibility.

Answers to questions 3 and 4.
   (a) Departmental Heads both at District and Sub-District level must co-operate much more with each other.
   (b) There should be a committee or a person to check up on the behaviour, working hours, absenteeism, etc. of public servants, and this committee or person should have the power to discipline public servants.

GROUP 3 - RECOMMENDATIONS

1. Education
   (a) There should be a Senior High School in the Chimbu District serving all the Highland Districts.
   (b) There should be a change in priorities in education.
      (i) schools should teach the children ways of helping their own needs
      (ii) school children also should be taught about their past and traditions
      (iii) there should be a retraining scheme for teachers to give them new ideas.
   (c) There should be more technical schools.

2. Missions
   Missions should have representation in Councils and Area Authority. There should be one Catholic Mission and one Lutheran representative in the Area Authority.

3. Local Government Councils
   (a) We must reduce the number of Councils.
   (b) Councillors should be trained in the work and responsibilities of Councillors.
(c) Village government should be introduced to the Province.
(d) Councillors should spend more time in the villages that they represent and they should advise the villagers of what the Council is doing and find out what the villagers want to have done.

4. Equal Distribution
(a) Because the Chimbu District has a big population the Central government should give a lot more money to the Chimbus.
(b) Self-help.
(c) All positions in the public services should be equal.

QUESTIONS

A councillor said that councils are criticised but the trouble is when the councils want to do something the people say get the money from the government. We go to the government and they say get the money from the people. If the people supported councils they would be able to function properly.

President of the Sinasina Council and the Vice President of the Kerowagi Council both said that councils worked well before. What has happened is that the House of Assembly members have destroyed councils and taken away their authority and made unfair promises to the people. For example, before their elections many members promised that they would either do away with council tax or reduce it. Because people followed their thinking and accepted a reduction councils were forced to reduce tax and many people started to refuse to pay tax.

GROUP 4

1. Land shortage.
2. Population increase which relates also to the shortage of land causing problems of development.
3. There is not enough work. There are a lot of people migrating from the province. Problems for people working in the urban area of Kundiawa especially civil servants who want to come and work here but are frightened of the Chimbu people. There is also a lack of business companies establishing firms here to create employment.
4. DASF have started crops which will bring a return of money but have neglected nutritional crops which would help the way of life for the village.
5. People do not believe in the Eight Point Plan because it has not been explained properly to people in the rural areas.
6. The question is what is money. A lot of money is used for drinking beer. Should money be made to work for us or what? There is no direction of how to utilise money.
7. Friction between old and young people. The thinking of the young people are that young women should be educated on the same level as the men and developed together.
8. A lot of young people do not want to stay in their home areas. The government should encourage young people to stay within their home areas.
9. The people are not satisfied how the police work in this Province.

GROUP 4

What is the reason for saying co-operate and work together? What do you want to achieve?
1. Is it to make us bigger people? No.
2. Or is it to improve the quality of life of the people?
   (a) The Government

Before we depended for most things on the government. It was like a mother. Now there is time for us yet, there is time for self-reliance.
(b) Business
For example, Chimbu Coffee, Namusa, Goroka Coffee.

(c) Missions
Before we like the Government. We relied on them. Now many Missions are businesses.

(d) Now we have some Government at our Province. This is the Area Authority.

(e) The people.

All these groups above should co-operate and work together.

GROUP 4 - RECOMMENDATIONS

1. Business
The people of the Chimbu want money. It is very difficult to get money in the Chimbu District.

2. The ways that money are used in the Chimbu are:
   (a) to buy a wife or pigs.
   (b) to pay compensation for deaths.
   (c) alcohol.
   (d) to buy trade store goods.
   (e) clothes.
   (f) gambling.
   (g) gifts to old people.
   (h) school fees.
   (i) Council tax.
   (j) fares.

Some of these ways of spending money are alright but others are not. For example, drinking and gambling. Also the price of some things is too much such as bride price and compensation are both far too high.

3. We must find a way to reduce the costs of some things such as bride price and compensation and what is saved can be used to start businesses. What kind of businesses should we have?

There are five ways that money can be used:
   (a) to build better houses.
   (b) to buy better crop seeds.
   (c) to build good pig fence.
   (d) start youth centres.
   (e) start women's club.

These are not businesses but they are ways to improve our methods. It would also be a way to reduce the drift way to towns.

GROUP 5

1. Transport
   (a) A lot of drivers drink and then drive.
   (b) Government transport.
   (c) PMV fares.

2. Education School Fees
   (a) School leavers.
   (b) High school selection.

4. **Police** - relationship with police.

5. **Local Government**
   - (a) Village Court and Government.
   - (b) Fund raising/business.

6. **Business Development**
   - (a) Extension services.
   - (b) Marketing.
   - (c) Trade store.

7. **Population** - Chimbu should be a manpower supply.

8. **Tribal Fighting** - punishment

9. **Planning**
   - (a) Town plan.
   - (b) Planning activities.
   - (c) Market Round.

10. **Didiman** - someone to advise on soil technology and find markets.

11. **Concern over the Chimbu reputation.**

12. **Compensation and Bride Price.** There should be a fixed price.

13. **Prisoners** - there should be more work.

**GROUP 5**

1. What is needed is a strong Provincial Committee to encourage and check that departments are co-operating.

2. There should be more communications between departments and Local Government Councils. Departments should inform councils continually of what they are doing and what they are trying to achieve. Councils must also keep the Government advised in what they are doing and trying to achieve.

3. The solution to this problem is village government.

4. There must be decentralisation of decision making in the Province. The system known as 'market round' should be instituted.

5. Officers should be trained and should understand the customs of the Chimbu people. Before the officer starts to work he should visit a number of places in the Chimbu District to see how we live and what we are trying to achieve.

**GROUP 5 - RECOMMENDATIONS**

1. **Tribal Fighting**
   The main reason for tribal fighting is about land. Village courts are good because they can help settle a dispute before it gets too big. If a dispute arises the village court can hear it and usually settle it immediately.

2. **Health Compensation**
   This is another reason for tribal fighting. There should be a set payment for compensation. This should be set at K.2,000. Then there would be no arguments. The limit should be set by the National Government.

3. **Bride Price**
   There should be a fixed bride price and this must be fixed by the Provincial Government and should be policed by village courts.
4. **Gambling**

We support the National Government's policy but provinces should have the power to make provisions to suit their own requirements. Gambling in the province should be policed by village courts.

**QUESTIONS**

Father John Nilles said in the discussions there have been talks about Provincial Government as a method of solving many of our problems, but we do not have Provincial Government. Siwi Kurondo was asked to answer and he said that people do want Provincial Government.

The question was asked how to stop people gambling. The group leader said police cannot control gambling. There should be control of gambling by village leaders or policed by village courts.

It was said that a suggested limit of K.2,000 for compensation for deaths was far too much and that it should be no more than K.400.

**GROUP 5 - ADDITIONAL**

5. **Public Service**
   - Police.
   - Law and order - village courts.

6. **More Local Business**

7. **Education**
   - Education system in Chimbu not adequate.
   - School leavers.

8. **Social Welfare**
   - Bride price payments.
   - Drink.
   - Gambling.
   - School leavers.

9. **Local Politics**
   - L.G.C.
   - A.A.

**GROUPS 4 & 5**

1. Departments should work together. When visiting villages they should use only one car and all go together. They should help each other with each other's work.

2. This inter-departmental team should spend the night in the village as this is the best time to talk to the people.

3. Councillors should also accompany the inter-departmental team.

4. There should be a similar procedure for village work in the Sub-provinces.

**GENERALLY**

If Public Servants are not working properly or are misbehaving the PC should have the power to fine them or to dismiss them. This power would not cover the Police, Corrective Institutions or the Army.
1. **Tribal Fighting**
The consequences disrupt family life at home, business and people travelling around the district to work.

2. **Compensation for Death**
There is no difference between compensation for murder or an accident.

3. **Card Playing**
Wasting a lot of time as well as disrupting business and a lot of stealing in the town area.

4. **No Integration between People of Other Districts in the Province**
Chimbus want Chimbus to be in charge in their own area and the group feels this way of thinking is not good for the district.

5. **Government Services**
These should be properly assessed within the province and priorities considered.

6. **Care of Pigs**
Pigs destroy food, instigate fighting, instigate anger, and people waste a lot of time caring for pigs.

7. **No Co-operation between People in the Rural Areas and Government Offices**
A lot of politics upsets Government work. The thinking of people still relies very much on white Government Officers rather than Papua New Guineans.

8. **N.B.C.**
   (a) Revert to former hours.
   (b) Departments adequately use allocated time.

9. **Co-ordination News Release**
   Especially fights, accidents - for best results under PC name.

10. **Charges and Dismissals**
    Delegated District level.

11. **Police**
    (a) Educate people on law and order rather than frighten them.
    (b) Longer training.
    (c) Village leaders - Councillor must be consulted to stop fights - A.D.C.

12. **Postings P.S.**
    Visit L.G.C. Area Authority and districts for familiarisation.

13. **Missions**
    In business educate people and liaise with local areas.

14. **Business**
    (a) Better co-ordination.
    (b) Rent proportionate to profits made.
    (c) Form business - Chamber of Commerce.
    (d) Tax local business men.
    (e) Development Banks - Office in Chimbu.
1. **Co-operation between Business, Missions and Government**

There should be a Chimbu Provincial Development Committee. The following should be included:

- P.C. - Chairman
- Departmental Heads
- Mission Representatives
- Business Representatives
- Prominent Community Leaders
- Representatives from Department and Group concerned.

This Committee should meet once a month and act as consultants. The Committee should have the authority to reject or postpone request.

2. **Government Departments do not Co-operate Together**

Due to short-term services of Departmental Heads. They should serve in the province for at least three years.

Centralise all departments. Clerical and administrative staff detachments in appropriate locations.

3. **Local Government Councils are not Effective and They are not Working with Departments**

More young educated people must involve themselves in Councils. Meeting houses must be built in every council ward (people to assemble when they are wanted by their councillors or Government Officials).

Councilors must be well informed of their duties to consult appropriate departments regarding the people's needs and problems.

4. **Local Officers do not Move Around the People**. They do not visit the people or sit down and talk with them.

Departments must give enough notice before visiting the people.

People must not expect Government Departments to visit them - people must try to see Government Officers at their place of work.

5. **The People Themselves do not Co-operate with Local Officers**. They do not tell them their problems.

People must be educated enough to understand the authority that the Local Officers have. Explanation of self government and independence.

Local Officers must change their attitudes towards the people they serve e.g. police and hospital.

Mrs Nombri said that all the problems that have been listed are about men in the District. The women have been forgotten. She said that she would like to include another problem, that is women in the province have not got a voice in the Central Government. There is no way their voice can be heard. There is nobody to advise them on their work and they are not looked after well in the province.

It was agreed that this problem should be included for consideration.

6. **Recommendations**

1. **Police**

   (a) Village courts must be established immediately in the province. This would reduce the load on the police as many matters would be solved at the village. For example, disputes, pigs, stealing.

   (b) Policemen are carrying women in their cars. They should not do this unless
on official business. All of us see this and talk about it but do nothing. If we see this we should go straight to his Senior Officer and report the matter. There should be women police officers to deal with women's affairs.

(c) Police often seem to help their friends more.
(d) Police must change their approach and attitudes towards people.

2. Corrective Institutions
Prisoners are not made to work hard. They must be put to work on projects for the Development of their province. Their living conditions should be the same as at present.

3. Regionalism
All people want to return and work in their own area. This will lead to corruption. People must educate themselves into realising that these Officers from other areas have knowledge and experience as well as ability to do their work.

4. Health
(a) A Nutritional Programme is underway however there must be more co-operation from Departmental Heads in sub-province local G.C. and the people.
(b) Medical orderlies are not full time employees. They have to work in their gardens when the people are not there to see them.
(c) We recommend that the Area Authority must give its first priority to a larger, better equipped hospital.

QUESTIONS
Prisoners should not be left to live well and eat well in the Corrective Institutions. They should be given hard work such as cleaning the towns, building roads, preparing resettlement areas and so on. The Magistrate said this is good but who was responsible for them escaping while they are working outside. It was said that this would be the joint responsibility of the Corrective Institution's police.

GROUP 7
1. Public Servants
(a) Lack of Co-ordination
   Government workers don't work together. There is no co-ordination in the use of Government vehicles.
(b) Lack of Communication
   If the Departments work together business would be better.

2. Fighting and Compensation
   This has all been discussed before. It has been discussed by Area Authorities, councillors, government officers but no one has come up with a solution.

3. One Crop Economy
   We only have one crop - coffee. Everybody was happy and made money when it was young. The coffee is now growing old and the Agricultural Department is not helping us to plant more.

4. School Leavers
   We have got no work for our school leavers. Where are they going to find work - with Government or private enterprise? Vocational schools are no good. Can we change the vocational schools for something else. Leavers who don't have work only make trouble.

5. Drift to Towns
   A lot of people are moving to the towns such as Lae, Madang and Moresby. They have not
got any work so they make trouble, perhaps steal, women prostitute themselves.

6. **Departmental Staffing**

Localisation in the Public Service. The average person is asked to go and see a local officer who treats them with contempt, so the people would rather have European officers in the Government.

7. **Struggle for Power**

Government officers are more concerned with advancing their positions than attending to the work they should be doing. Educated children are ignored in the village by the elders. The expertise they have obtained is wasted.

**GROUP 7 - RECOMMENDATIONS**

1. **Department of Agriculture**

The Agricultural Department has found the main problem in this District to be shortage of land. They have tried to bring new ideas and crops but because of the shortage of land there has been a great population problem. Three hundred children are born in the Chimbu District every month. We cannot solve this problem of land shortage and population. It will increase.

Central Government must look and find vacant land in other districts such as the Markham Valley or the Ramu Valley and a lot of the Chimbu population must be re-settled.

Another problem is that the Agricultural Officers do not contact and work closely with people. They have cars but one of their problems is that they are short of finance. They must get finance and recruit a lot of young village people and train them in the village for two or three weeks. Then they will understand how to better crops and how to get the best results from their limited land. It is most important that finance is made available. One Agricultural Officer is not enough to visit all the villages and assist them in the Chimbu District and so this is why they have to train young people to help the villagers.

Yet another problem is that the Agricultural Officer is usually from another district and cannot speak our language. We believe that a Chimbu man should work with the Agricultural Officer and accompany him when he visits villages. Agricultural Officers should stop in the villages at night and have a projector and film to show how other districts and countries live, garden and eat. When the Agricultural Officer visits villagers, so that people will not forget when he is finished talking he should have copies and what he has said in simple Pidgin and he should hand them out to the people.

The Agricultural Officer does not have enough staff. Young boys and girls should be recruited and trained to become Agricultural Officers at vocational schools, and then come back to work in the district with the Agricultural Officer.

Agricultural Officers spend too much time in their offices and travel around in cars. They should spend very little time in their offices drinking coffee and spend more time with the people. Another problem is when the Agricultural Officers try to improve our methods people do not use their suggestions because they often revert back to their traditional beliefs which sometimes clash with new ideas and methods.

2. **Power Struggle**

There is a power struggle between the traditional leaders and the young people. There is suspicion and distrust between the two groups. The young people want to take control of affairs. There are men who say they do not want this to happen because they believe that they have the experience, know the traditions and have the money.

The old leaders must learn to respect the younger men and to seek their advice. However the young people should also take notice of traditional methods of leadership and use some of them and respect these traditional methods.

3. **Cash Crops**

There is a land shortage. There must be more search to find new crops.
4. Pigs

People must be shown how to make pigs sties and should be encouraged to build them and keep their pigs in them. The Department of Agriculture must give more assistance in caring for pigs particularly in the control of disease and in finding better pig feeds for the animals that are locked up.

QUESTIONS

It was suggested that instead of Agricultural Officers showing films this should be done by the Office of Information. The small group leaders said this was not a good idea because the Office of Information did not have the technical knowledge about agriculture.

It was stated from the floor that the problem of pigs and cash crops was not as important as Question 1 which is the really important task. The small group leader agreed. James Arba said the most important work of agriculture was not to raise cattle or teach how to look after pigs but to find markets.

The speaker complained that the Agricultural Officers do not visit the villages. They do not leave the roads.

The Provincial Commissioner closed the meeting for today saying that one important job still remained. That was that a committee must consider and sort out the problems and solutions that had been identified by the meeting. It was agreed that the following people should be members of this committee and they should meet next week.

Provincial Commissioner Mr J. Bagita
Executive Officer M J. Arba
Pastor Nii
Mrs M. Walker
Mr T. Ekenie
Mrs A. Nombri
Mr H. Bi
Mrs V. Gevi
Mr J. Mek

The P.C. thanked everybody for coming to the workshop and said that the small committee on their behalf will sort out the recommendations and they will send copies to all members. He thanked the officers of the Public Services Commission for assisting.
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