

EASTERN HIGHLANDS PROVINCE

By Cathy G. Haley

Miss Cathy Haley was Provincial Rural Development Officer for the Eastern Highlands up to the end of 1975. She was the first woman in DASF to hold a PRDO position. She came to Goroka from Brisbane in March 1972. In mid 1974 she was appointed PRDO, and she remained in that position until this year, when Mr Karo Vali took over as PRDO. Miss Haley is now with the Fresh Food Project in Goroka.

The Eastern Highlands Province consists of six administrative subprovinces. DASF has a seventh centred on Korofeigu.

South of the Bismarck Range the Eastern Highlands Province consists of grassland valleys of the Asaro, Bena Bena, Dunantina and Upper Ramu Rivers. This area supports most of the province's population. The altitude here ranges from 1 500 to 2 100 m.

The climate is uniform with cold nights and warm days. The temperature range is from 14° C to 30° C. The annual rainfall varies from 1 520 to 3 300 mm, and there is a distinct dry season from June to October.

Thirty per cent of the province is grassland. Light scrub on the foothills leads to dense forest in the more mountainous areas. There are about 47 000 ha of natural timber.

The total area of the province is 14 447 sq km. Only 1.2 % is suitable for all crops; a further 1.6 % is suitable for cropping with varying local limitations; 10.1 % is suitable for grazing, leaving 76.5 % unsuitable for agriculture.

It is estimated that of the total land available, 20 to 25 % is under active dispute and 60 % under latent dispute. This then makes it unavailable for commercial agriculture. Pressure on land must increase with population growth.

The road network is extensive. Those parts of the province lacking road access are the most thinly populated. In the south Marawaka subprovince there is air access only. Radio and telephone communication throughout the province is satisfactory.

People

The population is 264 200. Migration from the village is considerable, leaving the village work force short of young men.



Cathy Haley

There are 17 language groups in the province

Generally, education does not seem to have aided agricultural development.

There are 133 primary schools, 7 secondary schools, 1 skulanka, 1 senior high school (opening this year) and 5 vocational centres. The national secondary teachers' training college is at Goroka, associated with the University of Papua New Guinea. There is a school of nursing at Goroka.

People are keen to have children attend schools but are very unwilling to assist with land.

Sweet potato is the staple, providing up to 90 % of diet. Small quantities of tapioca, taro and yams are grown and normally provide food during time of shortage, at the end of the marked dry season. Sugar-cane, bananas, maize, edible pit-pit and a number of leafy vegetables are grown. Wing-bean, a nutritionally valuable plant, is grown seasonally below 1 700 m for its leaves, tubers and pods.

Major illnesses of the area are pneumonia and diarrhoea, the latter related to poor village water supplies. Malnutrition is a serious problem in the province, and is considered to be at least 27 % of the 0 to 5-year-old group.

Economy

Coffee is the main crop. Tobacco and fresh vegetables are exported from the province to the rest of Papua New Guinea. The beef cattle industry is growing, and should reach self-sufficiency in a few years.

Five coffee plantations have been purchased for local participation, and more are under negotiation.

Highland Weavers and Handcrafts is a successful business with K 1/2 million turnover.

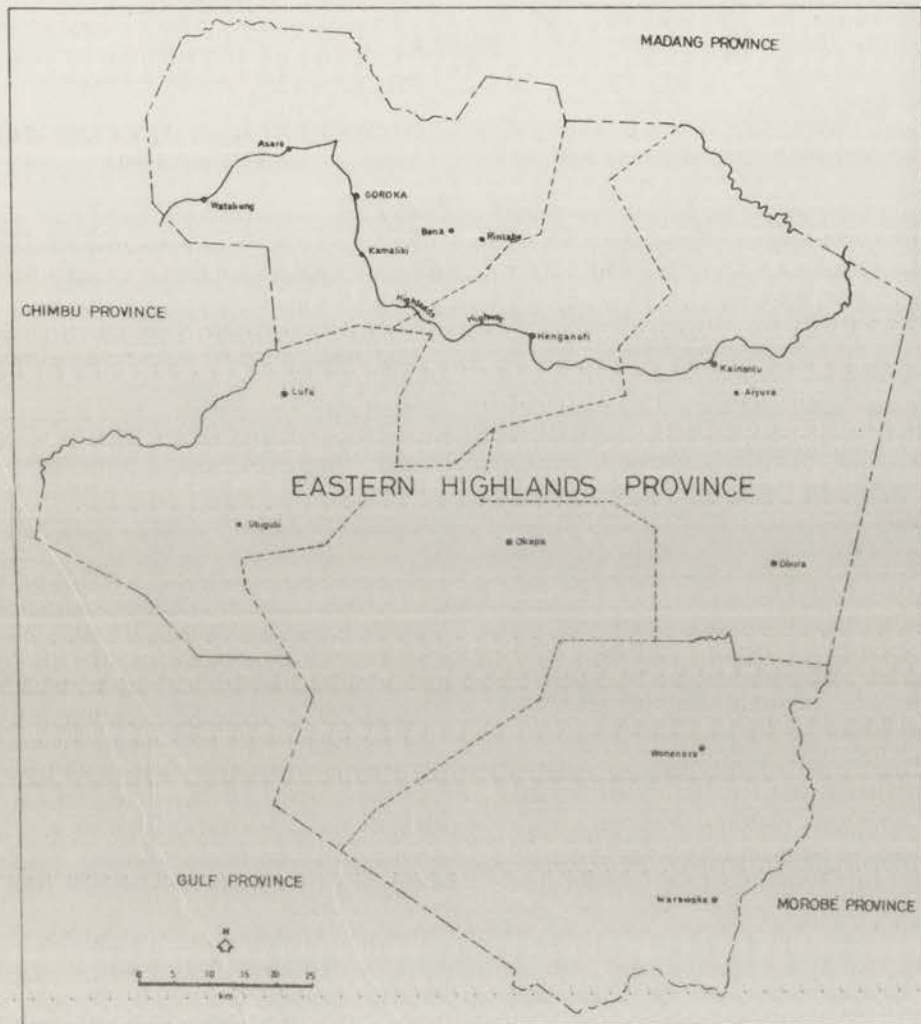
Ninety-five per cent of the Development Bank loans of the province are rural loans (compared with the Western Highlands where the majority are for hire purchase). The number of loans doubled in the last 12 months.

A popular form of investment is a business group under the Business Groups Act, where shareholders contribute capital for investment in medium and large-scale businesses. One group has accumulated K200 000 of assets in 12 months. Another group is at present considering takeover of businesses totalling K450 000.

One Savings and Loans Society exists, incorporating all old savings clubs.

The development of the Ramu Hydroelectric Scheme in the Kainantu area should lead to further development in the province.

Maximum development is associated with road systems and ease of marketing.



DASF branches

DASF has three research units in the province. These are: Tropical Pig Breeding Research Unit, at Goroka, Highlands Beef Research Unit, at Bena Bena, and Highlands Agricultural Experiment Station at Aiyura. Aiyura takes an important part in extension in the province, holding monthly field days directed at training both DASF staff and farmers.

Missions

Major missions involved in agricultural enterprises are the SDA, Lutheran and Swiss. The Summer Institute of Linguistics at Aiyura has a sawmill, cattle and involves itself with translations of local languages.

The SDA mission at Kabiufa and the Lutheran mission at Asaroka give agricultural education.

Self-help groups

As mentioned before, most groups are investment groups. Akepe Miakwe, MP for Goroka, is associated with one of these.

There are five farmers' clubs generally with emphasis on livestock producers. The President of the Area Authority, Ono Aia, is president of one such association, and the Minister for Culture and Recreation and MP for Kainantu, Moses Sasakila, is a member of the same group.

The Asaro-Watabung Rural Development Corporation is a growers' body associated with an expatriate plantation owner. It owns a coffee mill. Sinake Giregire, MP for Daulo, has been involved with this corporation.

Other groups are the Bena Tobacco Scheme, Ufeto Coffee Weed Control Scheme, and Lufa Women's Clubs.

The Kainantu subprovince has developed several meeting areas called Eria Communities. The Speaker of the National Parliament and regional member for the Eastern Highlands, Barry Holloway, has assisted in their development.

Community leaders

Other politicians not mentioned above are the member for Henganofi, Bona Asanifa, the member for Obura, Onamauta Beibe, the member for Okapa, John Pokia, and the member for Lufa, Suinavi Otio.

The foundation members of the Country Party are from the Eastern Highlands Province.

In addition to the politicians, there are a number of other traditional influentials: Nomi (Kainantu), Kopie (Goroka), Homate (Goroka), Igau Nasav (Kainantu Sonopi), Anarai (Kainantu Punano), Kutinama (Henganofi Gintinu), Eseyamo (Henganofi Yontebe), Bamba Namba (Lufa Degi), Aia (Lufa Kogoraipa) and Muriso Warebi (Okapa Miarasa).

There are eight local government councils, and their tax rates are as follows: Asaro Watabung (K4 to K10), Lowa (K8), Henganofi (K6 men, K2 women), Kainantu (K5), Lemari (30 t to K2), Lufa (K2 to K5), Okapa (K7) and Yelia (60 t).

The Area Authority is reasonably effective, and is beginning to become interested in agricultural developments.

The degree of political awareness is low in some sectors of the community, placing a heavy burden on the elected members.

AGRICULTURAL DEVELOPMENT PROGRAMME

Coffee

Coffee is the major cash crop. Production in 1974-75 was 980 tonnes of green bean (29 % of PNG production).

Sixty-five per cent of production is from 54 000 small holders, about one-fifth of the province's total population. There are 46 plantations, 3 owned by Papua New Guineans, 3 owned by councils, 3 by locally owned companies, and 2 with 25 % local equity.

There are 33 coffee mills, 10 of which are wholly or partly locally owned.

Present production is 199 000 bags, worth K5 750 000. Smallholder production is 129 000 bags, worth K3 715 000. Average production from smallholders is 150 kg per grower, giving an annual income of K69.

The price for green beans between October 1974 and September 1975 ranged from 48 t to 71 t per kg, with an average of 48 t per kg.

In recent years there has been little replanting and general disinterest in pruning and maintenance. However, there has been a recent upswing in production in line with increased prices.

Local Government Councils have allocated Rural Improvement Programme funds for training and employment of coffee "inspectors", who will promote improved



Members of the Area Authority discuss the Eastern Highlands Agricultural Development Programme with PRDO Cathy Haley. (From left to right: Yape Noruka, Momba Ombo, Doe Kafia, Cathy Haley.)

maintenance of coffee gardens in the villages.

During the next five years, a major objective is to maximize coffee production. Production from present plantings is to be increased, and abandoned and sterile plots are to be replanted.

In 1976 up to 30 % of staff time will be spent on coffee in most areas.

Marawaka plantings will be expanded by 40 ha.

Nurseries of the better variety Arusha will be established at Marawaka, Simbari, Wantakia, Wonenara, Obura, Frigano and Ubigubi, each about 16 sq m.

DASF staff will have in-service training on plantation management so that they may assist village people buying expatriate plantations.

A fall in coffee prices may affect the programme. Growers may also be satisfied with their present per capita income and may not support the programme.

The local government coffee inspectors will assist with explaining the importance of pruning etc. Local Government Councillors have been asked to show their appreciation of

the importance of the programme by setting an example with their own coffee gardens.

If the coffee inspector programme is successful, the numbers will be increased in 1978, with fund allocation from Local Government Councils and the Area Authority.

In 1978 the anticipated smallholder production will have increased to 149 000 bags, and the Eastern Highlands total to 219 000 bags.

With on-going success of the programme, smallholder production should increase to 157 000 bags, 70 % of the anticipated 225 000 bag provincial total, by 1981.

Vegetables

The Eastern Highlands Province is suitable for vegetables. There are nine local markets (three with over 100 sellers).

Two marketing organizations, the government Fresh Food Project and the Lowa Marketing Co-operative, are mainly supplied by surplus production. There are annual gluts from April to July.

Most suppliers are smallholders, with six full-time local producers, and four expatriate including Kabiufa mission.

In 1975 vegetables exported from the province were 1 047 tonnes per annum. This included 510 tonnes of sweet potato. Twenty four tonnes of bananas, 13 tonnes corn, 227 tonnes pumpkin and 315 tonnes sweet potato were sold to government institutions in the province. An estimated 430 tonnes of sweet potato is sold through the Goroka market.

At least 10 vegetable farmers are providing reliable and continuous production. The marked dry season throughout most of the province prevents continuity of supply from other growers.

In 1976, present production will be maintained. In addition, 10 tonnes of seed potatoes will be imported for Kuru, Kesavaka and Kainantu areas. Small $\frac{1}{4}$ ha plots will be established for onion production in the Korofeigu and Bena Bena areas. Production of European leaf vegetables will be discouraged in favour of local leaf vegetables. If coastal areas increase production, local exports of sweet potato may fall to 125 tonnes.

After 1976-77, a quota system for supply of vegetables to the Fresh Food Project may be introduced, and this will possibly discourage further production above the 1976-77 levels.

Processing of vegetables is being examined as a means of overcoming problems of seasonal production. Freezing machinery is being tested.

A sweet potato drier has been installed at Goroka and will commence production in 1976. Eight Taiwanese sweet potato shredders will be purchased in 1976.

In 1975, Cottees Passiona (NG) Ltd withdrew from Papua New Guinea, and passionfruit purchase will be taken over by the Fresh Food Project. Export of passionfruit concentrate will be discontinued, but juice and frozen pulp will be manufactured for PNG consumption.

Tobacco

Two types of tobacco are planted, one for flue-cured and one for fire-cured tobacco. Flue-cured tobacco is used in cigarette manufacture, and fire-cured tobacco is used for twist tobacco, or sold in local markets. The majority of fire-cured tobacco is sold in the markets.

At present there are 97 ha used for flue-cured tobacco. Thirty-two ha are planted three times a year. There are eight village barns, and eight company-owned barns.

The average yield is 570 kg per ha. There are about 500 growers.

Flue-cured tobacco is a popular crop in the Goroka area. A large part of the extension programme is managed by the companies, thus reducing government commitment.

In 1976 the area for flue-cured tobacco is to be increased in the Goroka and Asaro areas, bringing the total area to 120 ha. To keep pace with the increased production, three more village barns will be built.

Crop management will be improved to bring the average yield up to 600 to 620 kg per ha.

A tobacco-growers' meeting house will be constructed in 1976 at a site to be decided by the growers.

Seed for fire-cured tobacco will be distributed to Okapa and Lufa, to increase local market sales.

Forward planning beyond 1976 depends on the definition of a national policy from the central government. The establishment of a National Marketing Authority is at present under consideration.



A woman tobacco grower.



A village tobacco barn under construction.

Cattle

There are 10 233 head of cattle of which 5 533 are locally owned on 433 projects, mainly in the Kainantu area. Expatriates and missions own 2 000, DASF 700 and ELCOM at Yonki 2 000.

There is a single DASF-operated abattoir near Goroka. Throughput in 1974-75 was 1 800 beasts with 420 from local projects. Production from the abattoir satisfies most of Goroka's fresh beef requirements.

In addition to the turnoff through Goroka abattoir, about 300 cattle are killed annually for singings.

There are Cattle Farmers' Associations at Kainantu, Okapa and Goroka. In general there is a low standard of village cattle project management throughout the province.

The main objectives are to increase the productivity of the village cattle industry. An annual expansion of 15 % is aimed at. All new project owners will attend training courses of one to two weeks, and refresher courses will be held for at least half of the established cattle farmers each year.

New projects planned for 1976 are Kainantu 20, Oburu 3, Okapa 12 and Korofeigu 5.

A stock-holding paddock will be developed in 1976 at Okapa, and the following year one will be established at Obura.

A road being built into the Wonenara area will enable development of village cattle projects in this area by 1979-80. The potential for this area is good as there are large areas of natural pasture.

In addition to management training, DASF field staff make at least two visits per year to all projects. Tuberculosis and brucellosis testing is at present being done on all cattle in the province, and this is expected to be completed in 1976.

Pasture improvement is being carried out on some projects. In 1976 pasture seed plots of $\frac{1}{2}$ ha each will be established at Marawaka, Kainantu and Okapa.

The Goroka abattoir has reached peak capacity. In 1976 work will begin to expand the Goroka abattoir and chilling facilities, and an abattoir at Kainantu will be commenced. The Kainantu abattoir should be completed by 1978. In 1977-78 a slaughter slab will be built at Obura.

With the increased slaughtering facilities available, in 1978-79 we will attempt to increase abattoir sales and reduce singings consumption. The Kainantu throughput will be 15 to 20 beasts per week (20 % of this will probably be from Markham and Ramu).

In 1979-80 slaughter slabs are planned for Korofeigu and Okapa.

Present turn-off for cash from village projects is about 7.5 %. By 1980 it is planned to increase this to 25 %.

By 1980 at least 80 % of all abattoir throughput will be from village cattle projects. With increased confidence and training in managerial and technical skills a greater involvement of Cattle Farmers' Associations in the running of the industry is anticipated by this time. Presuming a natural increase held at 70 % with steers turned off at $2\frac{1}{2}$ years, and expansion maintained, the total village cattle project herd could number over 16 000 head with an annual production of 300 tonnes.

Pigs

There are about 100 village projects at present assisted by DASF, involving 350 pigs, mainly in the Goroka, Asaro and Watabung areas. All pig meat sold at shops in the province is imported into the province.

Because of the high price of protein food, village expansion is being discouraged until a cheaper source of protein is obtained.

Farmers find that the sale of fresh foods is more profitable than feeding surplus food to pigs.

For the present, existing projects will be given advice and assistance. Little change is

expected over the next five years, until cheaper protein and other foodstuffs are readily available.

If the price offered by local butchers reaches an economic level (K2.11 per kg) three fattening units will be established near Goroka where pigs supplied from a central breeder will be fattened on a complete ration.

Poultry

There are 15 indigenous projects with 1 390 birds. One expatriate and one Papua New Guinean producer supply eggs for the urban market.

Expansion of meat and egg production is continuing. "Backyard" projects are also being established in all areas. These projects are free-range during the day and housed at night, with no supplementary food. DASF is encouraging these projects by distribution of Australorp roosters.

Intensive type poultry projects will be expanded to a maximum of 20, where farmers show interest. At the present time these projects sell live birds at local markets. In 1976 DASF will survey the main local markets to determine the live-bird potential.

At present development is held up due to a shortage of day-old chicks. DASF will endeavour to ensure supply from Lae.

Ducks are already established in some villages. In 1976 duck projects will be established at Marawaka and Lufa.

In 1977-78 DASF will encourage local government councils and private enterprise to handle and store feed, and if this is achieved, there will be increased promotion of egg production.

In 1978 facilities to produce day-old chicks in Goroka may be established. There is also the possibility of commencing commercial broiler production with processing in the Goroka area at this time. Provided feed supply and day-old chicks are available, the province could be self-sufficient in poultry meat production by 1980.

Sheep

There are 9 smallholder projects established, 8 at Kainantu, 1 at Okapa, and 5 new ones awaiting stock. These will be stocked with 50 head of Bena Bena sheep in 1976.

A combined DASF and New Zealand research project is at present examining the

suitability of sheep for smallholder projects where cattle are unsuitable.

Further development of the sheep industry will be delayed until the research project produces its results.

Meanwhile, advisory services to the present projects will be improved, with training sessions for staff and farmers.

In 1977-78, if the initial results of the research programme are successful, five pilot projects will be established, in localities yet to be decided. The projects will be where cattle projects are not feasible due to topography or high population density. In the first year 50 wethers will be put on the projects, and in the second year, 50 ewes. The industry will still be in the research stage, so further plans are not yet decided.

Fish

Carp ponds have been built at many villages. In recent years carp ponds have been discouraged as they were considered non-economic units. However, these are now being encouraged particularly in more remote areas where they can be of nutritional value.

In 1974-75 extension efforts were concentrated on encouraging carp ponds in remote areas of Korofeigu and Lufa. In 1976 development of carp ponds will continue in Frigano, Ubigubi and other remote areas.

Trout have been introduced to the rivers of the province. In 1974-75 500 000 trout fingerlings were put into the Henganofi, Marawaka and Asaro Rivers. Trout of about 1 kg have been caught in the upper Bena rivers from fingerlings distributed 18 months previously.

The main breeding centre is at the Kotuni trout farm, which is privately owned with indigenous shareholding. It has an annual turn-off of 9 tonnes of trout at K2.64 per kg. Their main market is the Papua New Guinea catering trade, but local people buy some for local consumption.

Local people are successfully fishing the Omahaiga River and selling and eating what is caught.

Rivers stocked in 1975 will be surveyed in July to August 1976. Local people will be discouraged from catching trout in rivers newly stocked for at least 12 months.

Distribution of trout is paid for by the Area Authority, using Rural Improvement Programme funds. In 1976 the Area

Authority is to purchase a 40 % interest in Kotuni farm, for approximately K16 000.

The attitude of the Eastern Highlands people is favourable towards development of a freshwater fishing industry. Government and private knowhow is adequate to support the enthusiasm of the village people. It is feasible that within 5 years all the rivers in the province could be seeded with trout and all still water with other appropriate varieties of fish. This will give both improved diet and a basis for expanded economic production.

Chillies

Chillies are grown only at Marawaka, in an area which is accessible only by air.

Present area is estimated at 10 ha, with a production of 2 098 kg per year.

Good quality birds-eye chillies are produced, but production is not fully realized as people are not picking their full crop.

More promotion of the crop will be carried out in the Marawaka area to encourage the harvesting of all production. In 1976, 3 ha will be planted. In the following year the area of chillies will be increased by 1 ha to 14 ha.

If the high price continues, expansion will continue in the Marawaka area.

Bees

DASF has about 300 hives. The honey is purchased by Public Health Department, for 80 t per kg, at the rate of 600 kg per month.

Lack of expert knowledge has prevented expansion to village production. It is hoped that an expert from overseas will be recruited in 1976, and the present colonies will then be expanded to 500 hives in 12 months. This stock will be used for training, research, and supplying stock to interested people.

If results are favourable, extension for smallholder bee-keeping will begin, with about 20 to 30 hives per man.

The number of smallholder hives in 1977-78 would be 1 000, with production of 20 kg each. Income would be about K14 000. The number of hives would double each year until the market potential is filled. By 1979 the project should be becoming self-sustaining, employing its own management.

Subsistence gardening and nutrition

Ninety-two per cent of the population live in villages and are subsistence gardeners. Ninety per cent of the diet is sweet potato, and protein is low in the diet. There is insufficient appreciation among the village people of the

need for improved nutrition.

Public Health Department have nutrition gardens of $\frac{1}{2}$ ha each at Goroka, Kainantu and Henganofi.

New nutrition gardens are planned for Lufa, Okapa and Marawaka in 1976. All gardens will be increased to 1 ha each.

All DASF subprovince centres will establish and maintain a permanent collection of all subsistence food plants, to improve the knowledge of staff and others of these plants. These gardens of $\frac{1}{4}$ ha each will be established in 1976.

DASF supplies information to the Provincial Nutrition Committee for the radio programme on Radio Goroka (Krai bilong Kumul).

The present DASF programme concentrates on increased peanut production. The Area Authority and other bodies are being encouraged to purchase tractors and ploughing equipment for hire to villagers.

The Yagaria Rural Co-operative buys peanuts for roasting, and also supplies seed to growers. DASF provides facilities to assist the Co-operative with buying when required. The Co-operative purchased 6 tonnes of peanuts in 1974-75.

The 1976 programme will give particular encouragement to planting of corn and peanuts in all areas.

The long term programme will maintain the level of propaganda particularly with regard to nutrition through both schools and radio.

In 1977 more emphasis will be placed on commercial peanut growing for local consumption.

Essential information being gathered in current research projects on subsistence crops, particularly on crop rotation, will be passed on to the farmer.

Wildlife

There are at present no wildlife activities in the province. In 1976 negotiations will be held to establish one wildlife management area, possibly at Goroka, Lufa or Okapa.

A small cassowary project will be established at Ubigubi in the Labogai area.

In future years DASF will continue to encourage local government councils or influentials to define wildlife management areas. One such area for each subprovince is aimed at for 1977-78.