

This book evaluates the alternative development choices open to Papua New Guinea today: either to allow economic giants to destroy the environment and undermine existing local social groups, or to empower people to find ways of developing their land and other resources themselves.

Drawing upon his practical experiences first as Chief Planner and then as Premier of his home province of Morobe over the past nine years, the author outlines his perspective of a self-reliant development in which communities produce their own food and service their own needs on land held in customary tenure.

The empowerment of people to develop their own resources begins with a recognition of their traditional cultural units as the basis of the economy and the decision-making process. In Morobe Province these cultural units are now the foundation of a community government system. The book discusses examples of types of technology which people can handle themselves in small-scale farming, industrial and commercial development projects.

The basis of the development strategy being advocated is a *partnership* between people and the natural environment, not resource exploitation; not social and political domination, but a recognition of the *equality* of the diverse communities, each with its own separate identity. This form of development extends the principle of co-operative social organization fundamental to communities in Papua New Guinea: that of giving and receiving, which creates ties through a system of rights and obligations between persons and groups.

Readers of this book, who are living in an era of the growing plunder of the earth, are given the opportunity to reflect upon a development experience with profound implications for people everywhere.

Utula Samana is a graduate in Arts from the University of Papua New Guinea (1974) where he majored in politics and public administration. Following his work as Premier of Morobe Province, in July 1987 he moved into national politics. He is now leader of the Morobe Independent Group and a Minister in the PNG Government.

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Cover: Poi Amike, Dua Dua Theatre Company dancer from Garaina, Morobe Province

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PAPUA NEW GUINEA: WHICH WAY?



UTULA SAMANA

Papua New Guinea: Which Way?

By Utula Samana, Arena, Australia, 1988

Utula Samana of Papua New Guinea was a board member of the South Pacific Appropriate Technology Foundation when I worked there as its financial advisor 1984-86. His thinking as expressed in this chapter is exemplary of Melanesian philosophy. Note the anchoring in a grounded spirituality of community of place, the elemental understanding of what place is, and the magnificent perspective on people's ownership of the land - for example, his last line on p. 32: "But the land - the vital resource - is communal; it is held in trust by the custodians of the community." That is precisely the spirit that some of those of us involved with land reform in Scotland (leading up to the passing of the Land Reform (Scotland) Act 2003) have sought to communicate. It is indigenous to our way also, especially in Hebridean Scotland. But in my own case, it was not until I went and worked in PNG via VSO in 1977-79 and 1984-86 that I came to understand my own culture, because I learned how to read it from the influence of people like Utula Samana, Andrew Kauleni (then director of SPATF, Margaret Ogomeni (SPATF) and Bernard Narokobi (whose chapter from the Melanesian Way can also be found on my website at www.alastairmcintosh.com/general/resources.htm).

From what I can see on the web Utula became PNG's ambassador to the United Nations, but other than that I don't know where he is now. But this document is posted on the web for sharing widely and in appreciation to the influence that people like him - though I never knew him personally very well - had and continue to have even as far away as modern Scotland. Alastair McIntosh.

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The Choice for Papua New Guinea: Self-Reliance or Mutual Destruction?

On Independence Day in 1975 Papua New Guinea inherited institutions that PNG people had been trained to run. An administration had been established by the Australian colonial government. The entrenched élites, who were trained to administer the colonial instruments of control, are now in powerful positions to influence the elected leadership. The public servants eat up three-quarters of the nation's total budget in salaries and benefits. What happens to the bulk of the population is not regarded as important.

There is a direct contradiction between the current institutions of government maintained by the state, the entrenched element of the society within the public service system and the fundamental objectives of the Constitution: to realize people's aspirations to develop an economy that will give PNG citizens equality, dignity, self-respect so that they will feel that they are in control of their own land. In most cities and towns, even in the rural villages, people generally feel that they are not really independent. The credit institutions in the country are foreign owned, and it seems that people do not have an easy access to credit to build basic things like houses.

You have a situation where even now political institutions such as parties are weakly established. Through the public service system, through existing instruments of government, development is heavily tied in with Australian aid. The Australian Government feels that if it fails to keep PNG government institutions afloat the international community will claim that it has not really built independence for Papua New Guinea. Australian governments

have this kind of paternalistic view. Secondly they feel that if they do not pump in aid to maintain that administration the social services will decline so providing the conditions for some political instability. To maintain social stability Australian aid becomes an important means of supporting the incoming élites, who are now governing Papua New Guinea, to the detriment of mobilizing the people in their own development. Political parties have remained only as electoral machines and parliamentary factions rather than as tools to mobilize people to influence decision-making or to come up with alternative development models and policies. In fact the ownership and directorships in the party investments are controlled by party leaders who then create political patronage down the line by providing cash to particular representatives to develop their own businesses, or by giving them money for their election campaigns. They tend to create political patronage to maintain the existing trend of politics and government in Papua New Guinea.

The people of Papua New Guinea feel that they have not really achieved anything since Independence. The aspiration that was spearheaded by Pangu Party—that with the coming black government and independence we would find our own way to develop ourselves and take control of our own land—has not been realized over the last eleven years.

THE PROCESS OF SOCIAL DESTRUCTION

Today in Papua New Guinea whether you like it or not, mines based on large-scale extraction are here. They have already been constructed, some are being constructed, and some of the benefits that are derived from these resources are being paid in taxes, which the government then puts into its budget for the upkeep of the school system and other extension services. Whether the whole system works or not is beside the point. I think that if the state depends so much on these mines and on large-scale development generally, then it is not promoting development for the people—that is, human development—it is promoting 'devil-upment'. The signs of 'devil-upment' are very clear: destruction of the environment and the livelihood of the people, destabilization of the social units, which contribute directly to rural-urban drift. Because you are creating enclave development and putting less emphasis on a communication system, on the creation of infrastructure to develop agriculture in order to strengthen the social organization that

already exists, people are forced to look for opportunities in urban areas and mining towns. Through this large-scale development you are promoting what the author of *Small is Beautiful*, E. F. Schumacher once called the process of mutual destruction; actually he called it the process of 'mutual poisoning'.

In concentrating upon big centre development, the exploitation of resource areas and the development of towns as commercial centres and points of export and import, rural development is being neglected. Rural life becomes a poison because the Government is not assisting rural development. Concentration on the urban areas means that in the rural areas where the techniques are not being modified to take account of increased use of land, the water supply is being polluted, people are getting sick and health services are not maintained at adequate levels, and access to better schooling is absent. This rural neglect and enclave development directly influence migration patterns. You may be providing a school system for the people but you are not helping them to apply their energies to their land. You are educating them to move out of the rural areas to the cities and this itself results from the need to gear the whole administration to serve the interests of enclave resource extraction by multinational corporations. There is less investment in the land where you should be stabilizing your population, hence, you are poisoning the rural areas. People are therefore running to the city to find the answers and creating more and more squatter camps. There are not enough urban amenities to meet the requirements of a population growing at a rate far beyond the natural growth rate in the rural areas. In some urban areas, population increases are now sixteen per cent over the last ten years. The population is growing beyond the capacity of governments and city authorities to maintain. And therefore, you are creating human congestion—a process of mutual poisoning. I call it 'devil-upment'.

Thus you have your law-and-order problem, the growth of 'raskalism', where sections of the newly-created landless are organized into criminal gangs often operating under crime bosses. That kind of 'development' is benefitting only a few. And how can you stabilize the rest of the people? You can only stabilize them on their land. In the model of development that I shall outline, there is an opposite process: building upon what people already have. You create a kind of development that assists in the process of 'mutual depoisoning'. You provide a better environment and quality of life in the rural villages. You control the city by em-

powering people to solve their own problems and create what I am calling a 'Melanesian city': peri-urban areas in which people service their own needs. This might be called a 'settlement-type' development rather than a 'supermarket-type' development.

As far as mining is concerned, you cannot say: 'Okay, pack up gentlemen and go back home.' You cannot say that for the sake of international stability. You might cause rifts and frustrate the overall goals you hope to achieve. Therefore, we may need to live with the existing mines, under foreign control, for some years to come. But we should create a national policy directed towards establishing a moratorium on mineralization in this country. We would, then, encourage people to engage in small-scale mining but not allow too many mines to open up in the next decade. And then you might use some of your mining benefits not on recurrent expenses of government budgets but on long-term resettlement schemes for people who are short of land.

You have the demand for large-scale development which is supported basically by the state and foreign investors. I am not saying that you must do away with large-scale development altogether. There is a role for large-scale development so long as governments have an overall policy and a framework through which they can limit investment activities in the interests of the majority of the population. You have that demand on the one hand and on the other, a pressure to stabilize the bulk of the population, who are basically subsistence farmers, on their own land. By concentrating too much on large-scale development of resource extraction like copper and gold mines, on timber development, on large rubber and oil palm estates, supported by foreign monetary funds, you tend to create enclave-type development in certain locations with an infrastructure that goes with providing the raw materials for industries overseas. In so doing you ignore the potential of the people. By failing to empower them to develop their own resources for their own immediate needs and requirements, you also fail to establish a long-term basis for industrial development within the country. Over the last twelve years since Independence our people have not been empowered to develop their own land and resources. Nor has internal marketing been improved to supply areas that are lacking resources or to those which are sharing the benefits of the resources they have with the rest of the country. I think that is a real problem in Papua New Guinea.

EMPOWERING PEOPLE THROUGH TECHNOLOGY

Now to empower people to develop their resources within their own land requires an appropriate technology policy. For instance, if you aim to minimize large-scale exploitation of timber resources, you must come up with a small-scale approach to timber development which takes into consideration a concern for the environment and for conservation in the interests of people now and of citizens in the future. In Morobe Province we have developed such appropriate technology in the small-scale sawmill, which we call the *wokabaut* sawmill: four people can carry the mill to the logs rather than carrying the logs to the mill. To carry the logs to the mill is an expensive exercise. Ordinary village people cannot afford to organize themselves financially and technically to engage in that kind of large-scale enterprise. But they can carry a small mill to the logs; they cut down their trees and saw them on the spot. They can benefit directly from this process by using the by-products for their housing and selling any surplus to the immediate local market, or to some of the major centres within the area. This has proven a very profitable exercise for a number of village groups in Morobe Province. This is an example of the way in which the use of appropriate technology may empower people to engage in industrial and commercial development.

You can do the same with fishing: you develop your fish resources by using appropriate technology, engaging your population rather than bringing in foreign investors who concentrate on large-scale fishing activities. Similarly with mineral development: instead of developing big mines and having, say, a fifteen-year programme which exhausts all the resources, you encourage small-scale mining and therefore you self-employ a lot more people over a longer period. Otherwise after a few years when the mine is exhausted, you have created a ghost town for future generations.

What has been the experience in the past when PNG governments have pressed the idea of a partnership between government and foreign investors for large-scale mines and large-scale development? The experience has been that the people have actually rejected the government's proposals. You will see even today in Papua New Guinea that most village people do not support the government's moves towards large-scale development; they can see and feel that this kind of development is not really directly benefiting them and that there are lots of social problems being created

by it. Large-scale mining and large-scale development are actually destabilizing the ethnic-cultural groupings, destabilizing the society to the degree where the government will not be able to stabilize the population in ten or fifteen years time. In a way, government support for large-scale development involving foreign investment and planning from the top, without engaging the people, is actually causing long-term instability and contributing to the law-and-order problem.

AN ALTERNATIVE MUST BE COMPREHENSIVE

In my view, there are three very important problems that Papua New Guinea must address itself to nationally today. The first is how to stabilize its youth population. The demographic factors are very clear: almost forty-five per cent of the total population of 3.5 million consists of young people up to the age of fifteen. That is a very important factor when we talk about Papua New Guinea's future development. The current trend of development is destabilizing the social system of Papua New Guinea and at the same time not raising the level of development to directly meet the basic requirements of the village population: land availability, food production, basic water supply, basic infrastructure to increase mobility so that people can have some cash coming into the villages. You have a section of the young population that goes through the school system coming into the urban areas looking for jobs. If these young people do not find jobs then there is frustration and dissension against the state, against the rules and even against society. So the PNG Government is concerning itself more and more with the so-called law-and-order problem; but I believe it is a problem of the orientation of development which does nothing towards stabilizing the population in the rural areas. This to me is the most important problem of Papua New Guinea today.

Second is that the Melanesian land tenure system seems to be in contradiction with the state which is promoting a kind of development that is based on a foreign land tenure system. The problem relating to the traditional land tenure and the introduced land tenure is a time-bomb for Papua New Guinea and it is going to be a very serious time-bomb with the other pressures added on: the increase of population, the production levels of subsistence agriculture declining, the best land of the country put into cash crop development, less emphasis on helping directly the basic food

production of the country. If it goes on then it is going to force a lot of people into the towns looking for jobs; then you have a real problem of unemployment, or underemployment.

Third is the problem of education: the education system is not geared towards helping young people to understand the realities within Papua New Guinea and providing them with the skills to develop the resources within their own environment to realize their full potential. These are three key policy areas that the PNG Government has not really adequately addressed itself to.

HOW TO IMPROVE THE BASIC QUALITY OF LIFE

The question of quality of life is one that needs to be raised more and more because Papua New Guineans are being taught to see change in terms of material things. If there is a road going through they say: 'Now development is coming.' Then all of a sudden people realize that along that road come drunken people, road gang hold-ups and all kinds of negative effects. Therefore, I think that we need to look at the quality of life as a very crucial question for all Papua New Guineans at all levels. For instance, the development of cash crops is seen as development, but how do people benefit from cash crops? You find that most of the money earned by people is probably spent on material goods. That may be alright for the improvement of lifestyle. But to improve the quality of life you must look at matters like health, better water supplies, better education, better sanitary services, improvement of the basic transportation system to assist the struggling population in the rural hinterland who have to carry goods on their backs along bush tracks. We need to look at development from the point of view of people, rather than building roads and bridges for an economy that does not meet the basic requirements of the majority of our people.

In our first five-year development plan in Morobe Province, which we called Tuam One, we spent a lot of money on village water supplies. We endeavoured to improve village aid posts and we upgraded the salaries and positions of aid-post orderlies who are not recognized by governments as public servants. We, in the Morobe Government, recognized them and improved their conditions because we believed that they are the front-line workers right there on the spot. In a way they are barefoot doctors living amongst

the people and I think they should be recognized as important agents in the process of providing basic services to the people.

All this experience we have had in Morobe Province may be generalized to the rest of Papua New Guinea. Nationally now we need to establish priorities on transportation and communication for instance. Without that priority we do not know where we are going. If we want to develop the economy and we say we wish to engage people in developing it, then basic transportation and infrastructural development are necessary. We cannot just talk about development and say: 'Economic development is going to be the goal for the next ten years'; and then fail to provide the necessary infrastructure. This is like putting the cart before the horse and then telling the horse to move. I think it is illogical to talk about development without talking about costs and priorities on basic infrastructure.

Ecological Farming and Total Human Development

Total human development requires a definition of co-operative principles of human relations and a recognition of the need for a partnership between people and the natural environment. These provide the overall guide to the shaping of the economy.

DISCOVERING THE PRINCIPLES OF A PARTNERSHIP WITH NATURE

In order to develop policies and programmes which are based upon a partnership between people and nature, one must take into consideration certain principles relating to four main areas of the environment. These are Land, Air, Water, Sun — the L A W S of nature.

Land

EARTH AIR WATER FIRE
THE 4-ELEMENTS!

The first is land, and the Melanesian people's attitude towards land; how they regard land as a vital resource and how they have developed their land in the past. Given the current pressures of economic development and population growth, land is the single most important issue for the future. It is already an issue at present, just as it was a critical issue in the past: tribal warfare has always been based on one tribe trying to gain access to valuable land. In the future land is going to be a time-bomb in Papua New Guinea if the state does not take into consideration the seriousness of the problem.

To me Papua New Guinea has the most beautiful land in the world. I have travelled over most parts of the world — in South East Asia, Europe, the Pacific Islands and the United States — and I still think Papua New Guinea is the most beautiful country in the world. Being a Papua New Guinean I think I can say that.

We have a land size of 464,000 square kilometres and that is twice the size of the Philippines. The island of New Guinea is the second biggest in the world and Papua New Guinea has a population of 3.5 million. In a way there is more land than population, but there is a concentration of population in certain areas because parts of the land are mountainous and rugged. Therefore there is a problem of how to give people the opportunity to cultivate land continuously for food production and for survival.

I believe that the way in which Papua New Guinea looks after and develops its land is very important for the survival of the family unit and for its survival as a nation. In the past the colonial administration introduced laws that negated customary laws and the system of land tenure. It came up with new crops based on a form of economic development that forces people to sell their land so that the industrialists and cash croppers from outside may come and develop it. Outsiders sought to teach Papua New Guineans the industrial way of life which is supposed to solve the problems of their existence as members of a new nation. But today I think that that system in Papua New Guinea is now threatening the very social system that united people as social units.

The changes in land tenure patterns must, in my view, maintain the collective principle of the 'Melanesian way'. This collective principle means that the land, as a vital resource, is collectively owned. Family members have a right to cultivate, but they do not own the land. In the new economic system, the land is becoming an economic unit that can be bought and sold. Individuals must have a clear title to it if they are to benefit from other economic relations within the introduced economic system: for instance, the banks, the legal system, the credit facilities are all geared to this exchange. In this introduced system, you are encouraging a process of erosion of the old patterns of relations. Land tenure, the social system, the customs, the beliefs, tended to bring the Melanesian family together. The new economic system, the new legal system, are beginning to dismantle the existing social system. Enclave-type development in Papua New Guinea is an example of a Western model of development which draws everybody into the towns to

look for jobs. You have a big population beginning to develop in peri-urban settlements. People in these peri-urban settlements are migrants from the rural areas waiting for the opportunity to participate directly in the urban economy merely as labourers. Some of those who have gone through the education system and know the techniques of the introduced economic system, get themselves entrenched and become part of that system. However, you find a lot of Melanesian people dispossessed from their land, squatting around urban areas, without jobs, but trying to find some means of survival.

It adds to my point, that land is a very important issue that Papua New Guinea needs to look at very quickly given the population increase. Today there are 3.5 million. The national average population growth is 2.5 per cent per annum, which is one of the highest in the world. It has been projected that by the year 2015 Papua New Guinea will have between seven and ten million people. If you are already experiencing population pressure in certain areas of Papua New Guinea and you have problems with food production using slash-and-burn techniques, then that problem will definitely escalate with population increases. It is, therefore, imperative to embark on a policy that endeavours to address this problem immediately, and over the next fifteen years you may improve the situation. That is why I feel that the current failure of governments to deal with any customary land problems, or even to embark upon a policy that will bring about changes that link with land tenure, is like making a time-bomb. You are just waiting for it to blow up in fifteen years time.

I believe that to develop a policy around land tenure one must maintain the collective principle that the land belongs to the clan, that the clans own the land. The individual has the right to cultivate it. If you do not continuously cultivate you eventually lose your right. Those people who continuously carry on cultivation are reinforcing their right to be there and to cultivate the land. One needs to adopt a policy whereby you recognize the basic principles of Melanesian land tenure and the basic concepts of clan land ownership and build that principle into the government system.

In Morobe Province we have adopted a community government system based on land-owning groups and ethnic groups that have a similar custom and history. You do not have to go and create a new unit; the unit is already there. You design your economy within that unit. I believe that production, say of new cash crops,

like coffee, copra, cocoa, is based on the individual family unit. They have a right to cultivate and benefit directly from that work. But the land still belongs to the clan. If there is going to be any registration of clan land, it should be registered in the name of that clan. Some portion of the money they derive can be paid in the form of lease payments in the name of a clan. That money goes to the collective body. In this case all the members of those land-owning clans plus those village people in the geographic area who own no land but have traditional arrangements with the clan that owns the land, can also make these payments in the name of the clan. The payment goes to the collective entity through the community government system to be used for public purposes: for building roads, aid posts, schools for the collective good of that community government and its population.

That is the way I see how you extend the principles of land tenure into the principles of the government system, first on a small scale in the community government then to the big state — Papua New Guinea. Now if people can resolve their problems in a small way in that fashion, I think they can understand a state policy. But if the state makes a policy and pushes it down the throat of an autonomous community, the community will see state as an enemy rather than a friend trying to solve the people's problems. I do not think the state can solve any problem by *imposing* policy, but I think the state can solve the problem by *evolving* policy, by directly involving the people at the community government level. I think they can appreciate the problems much better that way. I believe that policies of changing land tenure, or tackling the problems of population pressure, shortages of land and how to resolve allocations must be done directly by the people so long as the government provides a channel which ensures that people who influence policy can tackle their own problems.

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Now let me explain the source of a current problem arising from existing land tenure. If you look at those people migrating to towns and squatting around the fringes of the cities on either traditional customary land or vacant government land you find that most of them are from highly populated areas, or from the most neglected areas. Further assessment of the situation would indicate that the settlers' home areas are rugged and mountainous, where the population is growing very fast and the land size is small.

These people are solving their own problems by migrating elsewhere and looking for opportunities.

I believe that the state must create national resettlement schemes based on the principle of land tenure where the land is a collective asset of the people. If you look at land in this way at a national level it is a collective asset of the citizens of Papua New Guinea. The government as the custodian of that collective asset would create national resettlement schemes and resettle people on the same traditional basis where certain allotments are assigned to family units for particular crops: first, crops that will meet their subsistence requirements and then other crops which can be marketed within the country. That is the way I see of solving the problem of pressures on the traditional land tenure system and developing alternative policies to cater for population increase and the low productivity of the slash-and-burn technique of subsistence agriculture.

You will find that the state has a number of big tracts of land in Papua New Guinea. Some of this land has been given to private companies, yet I think there is no need for those private companies in agriculture. There are big plantations that are owned by foreign firms and I think the state should take these over and subdivide them for resettlement purposes. I think we should involve our people directly in the agricultural development of such land.

For example, we are producing rice on what is called 'vacant government land' at a settlement called Three Mile in Lae. This means that we are carrying out productive work on government property without permission. The settlement blocks are very small. You can only build a house for your family and that is all you can do; it is too small to grow crops. The size of the average block is about 15 metres by 30 metres. They are meant only for dwellings, and to survive the men have to sell their labour. So what happens to your wife and children who are sitting around not doing anything?

We have gone ahead in using vacant government land for rice production, because that particular area in Three Mile is marshy land, which is suitable for rice. Some of the population in that settlement are unemployed. They stay on looking for jobs and if they find jobs they are lucky, but if they are sacked or retrenched later they cannot go back home because they may have spent much of their lives in the towns. If they go home they are most likely to face problems in having their ownership rights recognized;

because of distance and transport problems their children may not have the same opportunity of going to school nearby. So they feel that it is important for them to stay on for the sake of their children's future.

We have collectively designed what should be appropriate plots for each family and we have gone into production of rice. In 1986 we produced 1.6 tonnes of rice and half way through 1987 we had already produced two tonnes. So you can see that production is rising. We have a small tractor with a tiller to prepare the rice fields which is used collectively by the Three-Mile Rice Growers' Association, a co-operative body that has its own executive. We are going to introduce technology to help our production and processing; those machines and tools must be owned collectively because each family cannot afford to own a tractor, it would be impossible to maintain it. First, the single family cannot even buy a tractor; they do not have enough income and cannot derive enough income from their small plot of rice to maintain it. Initially the tools and machinery would be collectively owned in the Association's name and the Association could then levy each farmer. If you have about twenty-eight farmers, or one hundred farmers, who each contribute say ten kina, then you have enough money there to look after your machinery. When it comes to threshing the rice we can get a rice thresher for about K2,000 from say the Philippines or Japan which can thresh about five tonnes of rice per hour. But each farmer cannot afford to own that kind of machine. All of us work together to raise the money and, with government assistance, we can buy a motor-powered rice thresher. Harvesting and processing become easy and labour can be saved for other work; the amount of time put into threshing rice will be shortened through the introduction of appropriate technologies.

To sum up, the policy that we are proposing is that production is done by family units. The land belongs to the collective, be it the clan, or the community government, or the central government. Therefore where individual families go into commercial production of any crops, you might actually formalize the arrangements so that they can lease the land from either the landowner or the community government (if the community government has a collective resettlement scheme), or obtain land through the state resettlement schemes. The tools and the processing plants are collectively owned so that each individual family can benefit from them.

I thought for instance that the rice industry in Australia was owned by millionaire companies, but I discovered that it is owned by individual farmers working through a co-operative. They have developed an industry worth millions of dollars and they are very successful. In Papua New Guinea a collective workforce and collective ownership of land is here already. To me, the introduction of technology and processing plants must not be left to one individual who will control the rest of the farmers. I do not think that would be the right way although it is already happening in some parts of Papua New Guinea where some big farmers are able to establish say their own coffee mills and control the buying of coffee from small producers.

I am not saying that individuals should not own coffee mills, or that individuals should not own cocoa fermentaries or cocoa driers. But in principle it is not right for two or three thousand small-holder farmers in one community government area to feed their products to only one company which controls the processing and marketing. If you want a fair share of the benefits derived from hard work, you have to design your policies in such a way that the producer participates directly in the economy. And you can still apply the same principle in other areas of resource development like timber, fish and manufacturing industries. Kum-Gie Corporation is an engineering works in Lae where the workers collectively own the industry themselves but where the overall facility is owned by the government; the alternative is where you have one man controlling the productive unit and all the workers are turned into labourers.

In terms of Melanesian attitudes land is not an economic item: it is a form of social being. When you die you go back to your land; you are buried back in your land. There is a spiritual bond between the Melanesian people and the land; land is your identity. So it is important that the language of land is not land as a commodity but land as a total concept of human existence. Land is a physical environment as well as fulfilling a spiritual and a psychological function. If you want to develop a country you must recognize that existing social bonds and cultural units are very important for a stable nation.

Air

Now to the second principle concerning air and the environment: I think the environmentalists would understand that we must keep

our air clean. Why? I am emphasizing air because I have travelled abroad and I have come to realize how important it is to keep the air clean. My experience in travelling through the city of Manila — say from the airport to your hotel — is that it takes you two hours because of traffic congestion, even though the hotel may be only about fifteen kilometres away. I think there are some sections of cities in the United States which are even worse. At peak hour everybody is rushing, but you are travelling at only about five kilometres an hour. It is madness. The air pollution in the city of Manila is so bad that after you have gone that distance in two hours, if you get out your handkerchief and wipe your forehead you see a black residue. And that is unhealthy. It is the same in Bangkok or Hong Kong. The first time I went to Bangkok thirteen years ago I could hardly breathe.

Air is very important and in Papua New Guinea we have fresh air: perhaps one of these days we will bottle fresh air and export it to the industrialized countries! I believe in Papua New Guinea we do not always realize the connection between pollution of the environment and certain forms of development. But I am relating the concept of clean air with the total environmental concern of maintaining the environment rather than destroying it. We in Morobe fought against the introduction of a multi-million kina port development project in Lae and when we did that a lot of people criticized us for stopping 'development'. Even some of our Morobe politicians said we were limiting the opportunity of job creation for the jobless both in Morobe and elsewhere in Papua New Guinea. Now we believe that if you are going to develop such a multi-million kina project, the question is: whose project is it and who is going to benefit from it? The big highways all link up to where the produce comes in, particularly coffee and other cash crops. When you look at the ports they are linked up with where the copra flow is, where the coffee flow is and where the cash crops go for sale. The whole trading system is one-way: getting the raw materials from the country, selling them abroad to the industrialized countries. Who is going to benefit? Of course the state gets its revenue. The entrepreneur-producers get money. The factory owners get their share. The exporters get the lion's share of the money. But when it comes to the villagers who own the land, or whose land has been alienated and who live around the land say at the mouth of the Markham River and beyond, they get the 'benefit' of pollution of their water. The ecosystem is completely destroyed. The fish that thrive in a natural environment

have been destroyed; yet these villages are fishing villages. Now the villagers have to go away from their own fishing grounds to fish elsewhere, and when they do that they interfere with other villagers' fishing areas and then you have conflicts. Who is going to solve those kinds of conflicts? The state is not going to worry about them. It is going to send the police in and put those villagers in gaol because they have broken state law. But the state does not understand that in fact it is the state itself, through its development policies, that has destroyed the people.

The big ships are polluting the water at the mouth of the Markham River. They come in and discharge oil. What used to be clean water and a clean environment, where you could go down and catch as many fish as you wanted, is polluted. Now you cannot even catch fish there. You have to go further and further away. The environment of that waterfront is no longer as productive as it used to be. It cannot maintain the livelihood of the village population, and there are new pressures. The young people in the villages seek employment at the wharf as labourers, but they cannot succeed in getting that kind of job because the city has a pool of unemployed labour that is always occupying the space. The villages around there do not benefit at all from that kind of development. So the stand we took in the Morobe Provincial Government was to support the villagers in stopping the port development in Lae from going ahead.

If the plan had gone ahead, there would have been costs in the future. In the next say fifteen years, depending on the extent of environmental destruction, both national and provincial governments may have had to remit the cost of resettling or rehabilitating the livelihood of the people by training them in inland fishing and by getting experts to live amongst the villagers to do the training. Of course the state did not want to meet the social costs which the port development would inflict on the people. And we said: 'If you do not want to meet the social cost, if you want to displace our people, the port is not going ahead.' And we stopped the port development.

As we have seen, only a healthy environment provides the breeding grounds for fish and other resources which in turn offer some direct benefit to the population of the fishing villages. We know for a fact that in some large cities the environment has become unhealthy: the amount of polluted air that the average New Yorker inhales in a day is equivalent to smoking thirty-eight cigarettes a day!

We believe that the Melanesian man — and when I say 'man' I mean Melanesian person, men, women, everybody — respects the environment. When a man goes hunting he must relate psychologically to the environment, and he must respect the area to which he is going. He must utter certain words to the guardians of that particular area before he even enters the jungle or bush. When he goes hunting he must prepare himself and the family must not know about these preparations. The wife and the children must not talk about his hunting or fishing expedition, they must be silent. When the fisherman goes out nobody knows. He wakes up early in the morning when nobody knows and away he goes. If the wife and children do not talk about his expedition, if they do not worry about the fisherman or the hunter, then he succeeds and returns with the fruit of his expedition. But if they think about him and they talk about him then he is most likely to miss out.

In the old times partnership with the environment meant you must be psychologically part of the bush to which you were going. In modern terms that partnership is still very important: the question is how far you can go in destroying your own environment without destroying yourself. So I think that in modern times this attitude must be seen as a positive value but in new terms. The environment is alive. It is not only people that are alive; nature is alive too and therefore you are forming a partnership with a living system.

There is a very interesting story. I went to a village meeting where two groups were fighting over an area of land. The reason they were fighting over this particular area of land is because a certain forestry company was logging in this area and beginning to dish out benefits, in terms of royalty payments to the villages. Certain groups felt that they were not benefitting and that as part-owners of this particular area they should do so. There was a conflict so they held a meeting in one village. I went to this meeting and just before we started talking a lizard fell down from the top of a mango tree and landed right in the middle. Everybody was so scared that they started running away and my secretary grabbed hold of the lizard and put it in his pocket and then everybody came slowly to the meeting. They sat down and I said: 'You know that you people are fighting over bush which not only you own. I think the animals of the bush own that too and they are trying to tell us that you have forgotten them. You have forgotten to invite them to this meeting and you are supporting a type of development that is destroying the environment and the animals are saying: "You

are destroying our area too without benefit to us and our future is going to be at stake." ' That solved the whole problem. There was no further dispute. They were really scared by that kind of sign. They understood that and they began putting down their verbal weapons and started trying to sort out their problems.

There was another very interesting incident; it is also recorded in writing. A Japanese multinational company named Jant, which got the right to exploit timber in the fertile Golgol valley in Madang, went around and canvassed the whole area chopping everything down and feeding the timber into their chip mill: not just big logs but anything they could find and put into their mill. When you go there now you see secondary growth but no longer the big tropical rain forest with all the wildflowers, the cassowaries, the pigs, the birds, which the Madang people enjoyed. All the animals have gone further and further away from the village hunting grounds. In the early stages of making an agreement between the state, the company and the traditional village people who own the area, the villagers specified clearly and emphatically that the state and the company must recognize their important areas of land: the places where they get their clay for pottery making and some of the hiding places of their ancestral spirits. They specifically said: 'You must not touch these areas.' But when the company went in it did not respect their wishes; it destroyed those sources of clay as well as the ancestral spirits' hiding places. So the village people took the state and the company to the village court and the village court magistrate found them both guilty, fining them five thousand kina each. They refused to pay, their reason being that the village court went beyond the bounds of its jurisdiction. This is a very sad case, but it is true.

There are national conservation and environmental planning acts, but you find that national government policing of these acts for the protection of the people's environment does not actually happen; and the environmental department is the smallest department in the whole government administration. All this 'concern' for environment by the Government is just lip-service.

Water

The third important element in nature is water. Now, water is life. Doctors tell us that 75 to 80 per cent of your body is made up of water. When you get rid of that water you are dead. If you go hungry for three days you may not die but if you go without

water for three days you are likely to die. Water represents 75 to 80 per cent of the earth's surface. There is a balance in nature between land and water; the vegetation and forest keep the balance of the circulation of water. Now given the population increase in Papua New Guinea, the slash-and-burn technique has limitations, in the sense that it increases the rate of deafforestation. In November 1987 for instance, the Bumbu River in Lae was completely dry. Once upon a time when there were a lot of trees in the Bumbu region and it was a tropical jungle it was believed to be a river that never dried up. But now it is dry. However at flood time, it comes down like a bulldozer and takes half the houses down Cassowary Road. People are beginning to wonder: the Bumbu never acts like this; now it is acting wild. The flooding of the Bumbu River in 1983 caused about ten million kina worth of damage.

If you destroy too much of the environment you are in big trouble. We know the story of what is happening in the Amazon region. We know the story of the deserts in Africa: in many ways human activities have caused these deserts. Now in Papua New Guinea I believe that looking after our water resources must be aimed at benefitting agricultural production and benefitting the population.

The villages have always been located close to some source of water. With a larger population than before deriving their water from the same source you are now having pollution problems. Even in big rivers you have pollution problems. The water problem is part of health and part of environment. Morobe Government (Provinsel Gavman) has spent many thousands of kina on village water supplies; if the water source goes further and further away from the village, or if it is polluted then you have a problem of human life. When I was Premier I pointed out at one stage that we must declare a water decade in Morobe and try to solve our problems of water resources, as part of domestic consumption and, of course, as part of agriculture.

Every year the people of the Markham area burn the *kunai* grass so that they can hunt for bandicoots. Every year they have droughts. They are not planting trees but they are burning the bush every year. But I believe if you plant the whole of the Markham Valley with trees you are going to bring back water and improve the productive capacity of the soil. An irrigation system would cost ten or twenty million kina to build. So the best way is

to plant as many trees as possible to improve water conservation in the soil, a situation so important for agriculture.

The Subsistence Agriculture Improvement Programme, which is a training programme of the Morobe Provincial Government, is teaching people how to use their land properly using conservation farming techniques—organic farming techniques and agro-forestry—to conserve water, to look after their land and to improve productivity.¹ When the population increases you cannot get much production from the slash-and-burn technique because the time for which the soil is left to rest and regain its fertility is now much less than it used to be. In the past it was ten years or fifteen years; now you are talking about two years or even one year in some areas. There is not as much fertility in the soil, and that affects production. The old technique of subsistence agriculture was good for a small population: it worked. But given the pressure on the land it is not appropriate to the needs of the growing population. One therefore must come up with a new programme of conservation farming: looking after your land, your environment, rather than polluting it; and using all the organic waste that you gather which can be put into composting. You are producing what we call 'black gold' for your soil which allows you to cultivate all year round on a small plot of land. If you continuously put organic manure into your soil through composting you need not go further away; you can bring your garden closer to where you live. The women do not have to walk long distances to fetch firewood and water, or to go to their gardens: their gardens are much closer to the village and therefore they have more time for looking after their families. I think we have to promote this kind of village development. We must uplift village communal existence, improving it with appropriate technology rather than bringing in big industries and big mines, which are short-lived projects for the millionaires and which result in total destruction of the environment and total bankruptcy in the long term. Wau-Bulolo is a very good example. People living on top of rocks cannot grow crops where the whole valley has been turned upside down looking for gold.

1. Morobe Provincial Government. *Subsistence Agriculture Improvement Programme*, 1987, pp. 1-8.

In Morobe Province we have water supply programmes in the villages where the villages contribute a sum and the government contributes 70 per cent of the cost of village water programmes. In the towns we have different levels of water programmes; one is called the urban water, the other is the village water. In the smaller towns, the provincial government is responsible for installing the water supply system. The city of Lae has been declared a water district for the state, because the state borrowed K10 million from the Asian Development Bank to build a water supply system there. We are paying back this loan and we are paying those who administer the system. The money from the citizens of Lae, who contribute to the payment for water, goes to Port Moresby to improve the National Capital District, but not Lae. I think that is unfair to the citizens of Lae city: the money people pay in Lae should remain in the city for its total development.

In the rural villages the water programme is very important: in the mountain areas some of the villages have been built long ago right on the top of the mountains for security reasons. Now water is down the valley, so you walk almost two hours down and two hours back up. That is a lot of work. If we build a dam at the head of the water source, we can put a storage tank on the top and then siphon it right down the line of villages. A number of projects using this gravitational method have already been established and we have spent thousands of kina developing this water supply system: water is part of the improvement of livelihood and water is indispensable for agriculture.

At Yalu village, about twenty kilometres from Lae, we opened a water supply system about three years ago. The villagers, together with Rural Improvement Programme engineers, took the water through polythene pipe from up in the mountains to the village six kilometres away. When they came to the Yalu River they did not know how to put the pipe across, so they tied a wire to a tree on one bank stretching it right across the river to another tree on the other side. They then tied the polythene pipe to the wire.

In some areas where they have a lot of bamboo, they copy the polythene technique by taking the water for miles and miles right into the villages using bamboo pipes. When you are driving along and you see bamboo pipes above the road, you will know that water is being channelled to the people down the valley. This is a new initiative, developed by villagers, using traditional resources from within the environment.

Suppose you have a piece of land. In that land you are going to cultivate your crops, you are going to live off it; you may not have water coming through your village, but you have a piping system. Because of population pressure the people have built houses everywhere. There is not enough water nearby so you build your piping system and water comes in and therefore you have water for your village; you do not have to walk long distances. You bring your water and maybe just install a communal tap for everybody, but it is within reach. So you have water for your agriculture.

In the Subsistence Agriculture Improvement Programme we are also teaching people to grow leguminous trees that will renew the nitrogen in the soil. You line up your trees in such a way that you can plant your crops inbetween. This is a conservation farming technique where you are conserving water in the soil by inter-cropping trees with your crops. It is also part of agro-forestry.

People in Wau are growing giant lucina trees, either as part of inter-cropping or as wind-breaks. Lucinas are fast growing and in two years they become big trees, providing a firewood source much closer to the village.

The Sun: Conserving Energy

The sun can be used as an alternative source of energy. By using natural solar power one becomes less dependent upon the use of fossil fuels which are either becoming expensive or limited in supply. The whole purpose of our Subsistence Agriculture Improvement Programme is to find ways in which the Melanesian community can continue to live self-reliantly, by improving the productive potential of the environment. Basically it is keeping the Melanesian social unit on the land using new techniques and new ways, through the use of environmentally sound technology.

Firewood is the basic energy that 90 per cent of the villages in the rural areas depend on. The sources of firewood are very important. When the population increases the sources of firewood are going to become very scarce. You are going to walk long distances again, or if you have no firewood you will have to buy it. In the PNG Highlands ten years ago three pieces of firewood cost 30 toea. I think it has gone up. A small bundle is one kina. Most of the land has been put into coffee; the womenfolk have to walk long distances to do their gardening. They have to go miles and miles to look for their firewood. What sort of economy

is that? That kind of economy is destabilizing our society. So early in the country's development you have to make sure that development is for *people*, not for those who are there to manipulate the system for their own ends.

Development to me is stabilizing the population, improving their quality of life. The design of your units must be such that people are masters of their land. The source of their energy must be closer to them. When the agricultural *didiman* (adviser) goes in and tells the people to plant coffee or cocoa he is just telling them to plant cocoa. But he is not talking about total life. We must impart the knowledge of total life and I think the Melanesian person's whole livelihood is part of nature and a balance between the human being and nature is very important. The concept of human ecology—the interface between human beings and their environment—must be emphasized rather than economics, and I think our school system must also emphasize the interdependence of the human being and the environment rather than the modern-day economic development being followed by the Western world. I believe that kind of 'development' has reached a saturation point. Why has it come to saturation point? Because it is destroying the environment to an extent where the survival of the human being is at stake. They have depleted all the non-renewable resources and they are depleting the renewable resources at a very fast rate. This depletion is affecting the global environment; the local environment of each country is being destroyed. Some of these industrialized countries have come to a saturation point because their industries depend on resources and some of these resources are finite; others are renewable, but they cannot renew themselves at the rate that they are being destroyed. They are causing a very marked imbalance in the ecosystem which they cannot rebuild or improve at the same rate as they are destroying it. The model of Western development, based upon large-scale extraction of material resources through the use of high-level technology, has done much to upset the ecological balance of nature to an extent where life itself is being threatened.

People of Melanesia need to develop their own model of development appropriate to their own requirements, but with some regard to maintaining the quality of the environment. I think the sections of the citizens in the West who are fighting for the quality of the environment—the Greenies—and those of us who are defining and practising a Melanesian model of development, can come to terms in finding a path that can help humankind's

survival. Melanesian societies in Papua New Guinea ought not to totally borrow models of development from elsewhere, but develop their own and contribute to world development.

The sun radiates free energy coming directly from the heavens. In some polluted cities that free energy cannot penetrate directly to the plants (or to the human beings!). But here in Melanesia the penetration of the sun's radiation is free from adverse interference, having a direct positive impact upon the environment and the people. Within the environment, the plants and the leaves use that free energy in the process of photosynthesis, to grow and bear fruit. If you look at the tropical rainforest you can tell that it is blessed with abundance of life. There is singing of the birds; there is harmony. When you look at the forest you can see the trees are not going hungry. They are growing happily. They are not short of nutrients, because there is an automatic process of self-fertilization through the decaying of leaves and twigs. So, nature is full of life. Along come the loggers who destroy that system—all for quick money, without thinking about the future. I think we have to minimize that kind of *rush* economy.

You must start worrying about your trees, about your whole environment. Conservationists have offered alternative solutions to destructive forms of land utilization. Conservation farming techniques of inter-cropping, and agro-forestry, and the use of organic farming techniques (through composting), are some of the most important ways of cultivation that increase and maintain the productive potential of the soil, also increasing its capacity to hold water, which is essential for life (and agriculture).

Today the US agriculture system is coming to a halt because big machines are being used to exploit large tracts of land and directly destroying the environment. In a country like Australia one time you hear about bushfires, the next time you hear about floods. Why does this happen? Because of an imbalance in the ecosystem. In the United States they pump in chemicals to boost the growth of the plants. Why? Because they want to make quick money. And when they pump in excessive chemicals they choke up the soil, since the soil can only absorb so much. If you go beyond its capacity you destroy the soil itself. Therefore they are creating deserts in the United States. For instance, to build up one inch of top-soil in the whole State of California would take about 2,000 years. In this way you are going away from nature; you are not working with it. You cannot afford to work *against* nature and natural processes. The funny thing is that they pump

in so much fuel to come up with a hectare of production in accordance with their expectations. Yet in the long term the output per hectare from the natural energy input into the plant through its leaves, is equivalent to that from a chemicalized area of land. Over the years the productivity from a heavily chemicalized soil declines, whilst the cost of energy and artificial inputs increases.

Another destructive practice is the use of artificial chemicals to control harmful insects. However, excessive use of these chemicals has resulted in many negative effects on the environment. Apart from food poisoning, massive destruction of the so-called harmful insects has caused an imbalance in the natural biological control of the insect population; so much so, that it has resulted in the increase of more and more harmful insects.

The issues are clear: the integration of your attitudes about clean air and a clean environment with your use of the land; the conservation of water in agriculture and consumption; use of free energy in an environmentally sound manner; and maintenance of the natural balance in your choice of technology, and techniques in agriculture, are very important.

In following a path which respects the balance of the ecosystem, you find the Laws of Nature, which, I believe, can provide you with clues about how you can design your economy and your community in the next few decades. Your *Land*, your *Air*, your *Water* and your free energy, the *Sun* — these four give you the *L A W S* of nature. When you approach development this way you are looking at small-scale development in the hands of the 3.5 million people of Papua New Guinea, rather than bringing in the giants who will reap your environment overnight and destroy you in a few decades. We need to emphasize the science of human ecology (an interface between human beings and the environment) in the curricula of our educational institutions, rather than the science of economics.

MELANESIAN CO-OPERATIVE FORMS AND HUMAN DEVELOPMENT

The concept of total human development is based upon principles that go back into ancient times within the communities of Papua New Guinea. The kind of development that I am talking about

and the sort of society that can evolve is one that is not socialism, not capitalism, not communism. It is based upon Melanesian forms of co-operation.

It is very easy for people like myself or Bernard Narokobi to idealize the past. We must not over-idealize it. But I think we can derive certain principles from the past which we value as important. Every society does that because it is a way of identifying oneself.

I think that the way in which Melanesian ethnic groupings survived and migrated from place to place and came to populate the island of New Guinea was dependent upon these units maintaining their identity. In order to build up your clan you make sure that your young are socialized into your clan system. Thus the initiation ceremonies are aimed at maintaining clan identity. Initiation ceremonies bring your forces together in the interest of collective defence and collective survival. The clan system is also tied in with the land tenure system. The whole concept of land tenure is integrally associated with maintaining the social organization, the identity of the clan, the identity of the tribe, the recognition of a certain geographic area. When you talk about how the identities of Melanesian societies evolved, you are talking about how they survived over the years.

If we talk of production, reaping, processing and eating as matters of technique only, then there is no identity for the Melanesian society. Production techniques, how they are applied, even the selection of crops that people cultivate have a relation to some mythical figure in the past who brought those crops to the area. Myth has something to say about the whole organization of the clan system based upon those kinds of crops whether they are yams, sago or taro.

For instance, in our Zia tribe in the village of Bau on the coast south of Lae where I come from, we have four clans. One of the clans is a specialist in taro and the head of that clan is in possession of the magical charm that has to do with the fertility of the taro. Then you have another clan, for instance, the Yewa clan, which is the bird of paradise clan. The head of this clan holds the magic of the dancing, the singing, the feasting, the welcoming ceremonies. And then you have the Bego clan which is in charge of magic relating to the rearing of pigs; the pig is a very important item for ceremonial exchanges in the tribal system. The other clan is in charge of the magic of fish and fishing — a very important

source of food and livelihood. If you do anything against any of the other clans you must be very careful of the fact that they are in possession of those very vital powers of the society. The tribe must work in harmony.

There is a way of solving disputes within the tribal system by the four clans coming together and settling their differences. When you talk of identity you are talking of the survival of the ethnic groupings which compose Melanesian societies. If you hurt or undermine someone, say the head or member of the Yewa or bird of paradise clan for instance, he could cast a spell and the whole society could go into a state of gloom: there is no joy, there is no activity, there is no life. You need the Yewa clan also to mobilize people through their dancing and singing; there are certain kinds of dances that arouse the energies of the people so that they are geared up psychologically for defence. You might lose your war too if you upset the clan that holds the spell over the pigs. You might not produce enough pigs for your ceremonies which maintain common identity and solidarity.

There is a certain respect for individuality within the system. This is a very important principle of the reciprocal form of exchange, which is different to the Western style of commodity exchange. In the commodity exchange system, you buy and sell full stop; there is no longer any further relationship apart from this. It is impersonal. But in our exchange system you keep the identity of each unit, each performing its tasks in the maintenance and defence of the tribal system. The contradictory nature of the whole relationship is that each clan, from fear of self-destruction, must perform its roles and maintain some degree of harmony.

Furthermore, in the exchange system of reciprocity, different communities and different tribes, or members of different clans develop new friends across enemy lines. Those friendships can go on for generations. Even new generations will continue to forge the same links: I have that experience with my own father who has relationships with people from many parts of Morobe. When we were children we were always introduced to these friends and we still have them as friends and my children are continuing these relationships. You have the input of change and that means that the society is not static. Over generations society changes; even the crops too change over the centuries. Before you may be yam eaters, but over the years you may become banana eaters. You never know. It depends on geography and many other things: new crops come in, new ideas, new information, new marriage

partners. Societies desire to maintain their identities; but over the generations certain aspects of culture change too.

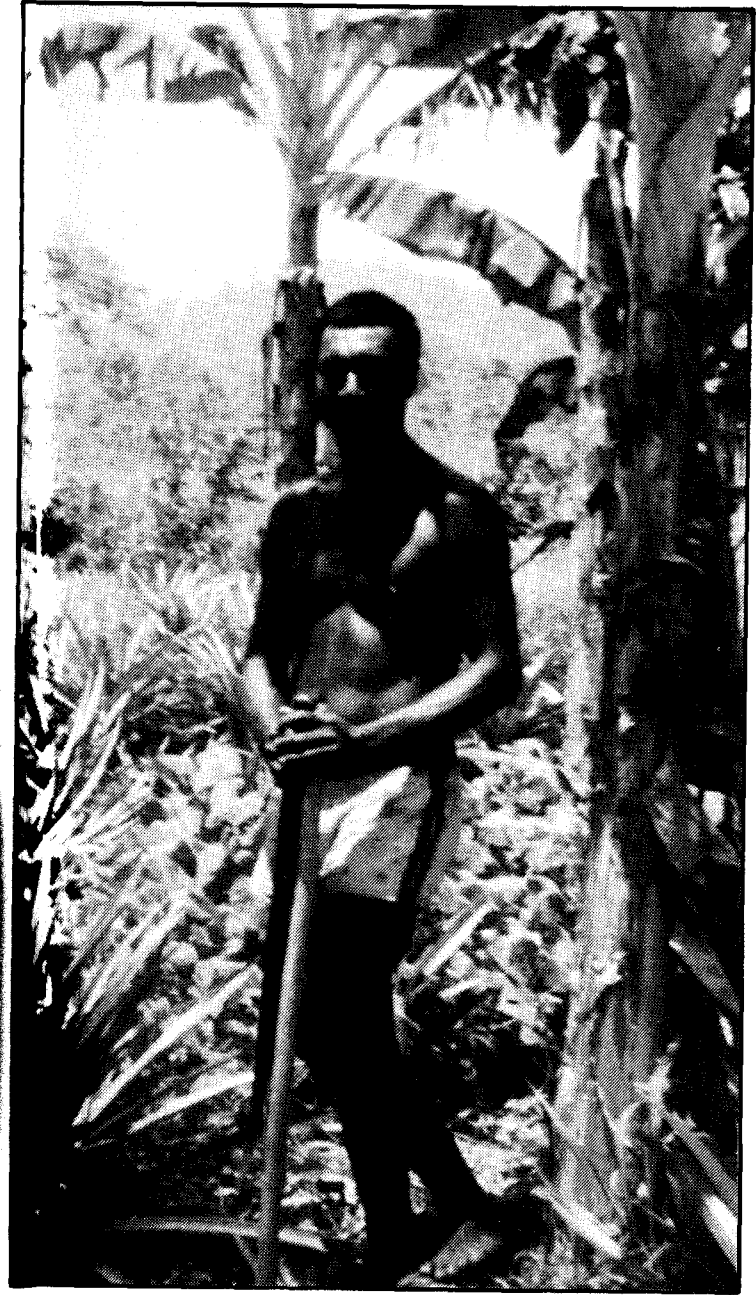
The total human development that I am talking about begins with the recognition of the fundamental values of society. The family unit has a right to cultivate and benefit directly from that work. In terms of labour input, if it is a big operation like preparing for a feast, everybody is expected to contribute collectively. Clearing of large gardening areas is carried out collectively. However, when it comes to planting, the cleared area is subdivided on the basis of family units. In this traditional system the family unit is recognized as a production unit. If you have a new cash crop situation, like coffee planting, then you plant it on an allotment; the only difference is that the allotment now becomes permanent because the coffee is going to be there for many years. So you tend to identify yourself more with that coffee on an individual basis than you would with subsistence crops. If you want to have your own processing plant then the tendency is to evolve bigger plantations, but with small-holder coffee production the processing plant is owned by a collective entity made up of local groups.

When one or two big-men come to own all the plantations and control the processing plant—even holding a direct share in marketing—you begin to find dissension within your own tribe and among your own people. There have been a number of big-men who have become big politicians in Papua New Guinea who try to control business and then control politics. Have they survived in politics, or are they beginning to go out of politics? In certain instances they have been voted out directly by the people because even if you are a big-man your role is to look after the welfare of the ordinary citizens. As a big-man you take the lead in ceremonial exchanges; but the ordinary person benefits in these exchanges: he or she gets a tummy full. Once you share the food the ordinary person who has no special title or ceremonial role is also given a share in the exchange. Then you are recognized as a true big-man. People are not overshadowed. Your recognition as a big-man has to do with how you share with your people. That is how a leader keeps his title 'big-man'.

In our system individuals and families are free to retain their own autonomy. For example, in the taro culture the people are taro growers, but my father, for instance, may want to grow some coconuts or some betel nuts. Now those betel nuts and coconuts do not belong to the whole clan; they belong to the family. That's

PAPUA NEW GUINEA: WHICH WAY?

the way it is. In certain areas sago may belong to the whole clan, but there may be other patches of sago somewhere else that belong to a particular family. They grew it themselves, so it is theirs. But the land—the vital resource—is communal; it is held in trust by the custodians of the community.



Putting into practice new organic farming techniques