



The Courier

AFRICA-CARIBBEAN-PACIFIC - EUROPEAN COMMUNITY

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THE EUROPEAN COMMUNITY

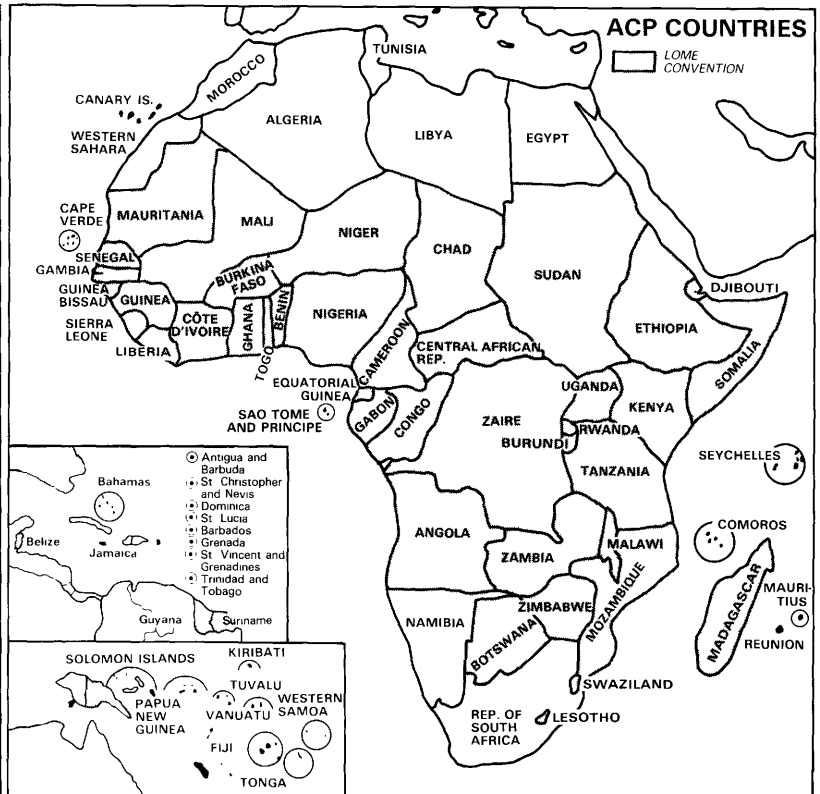
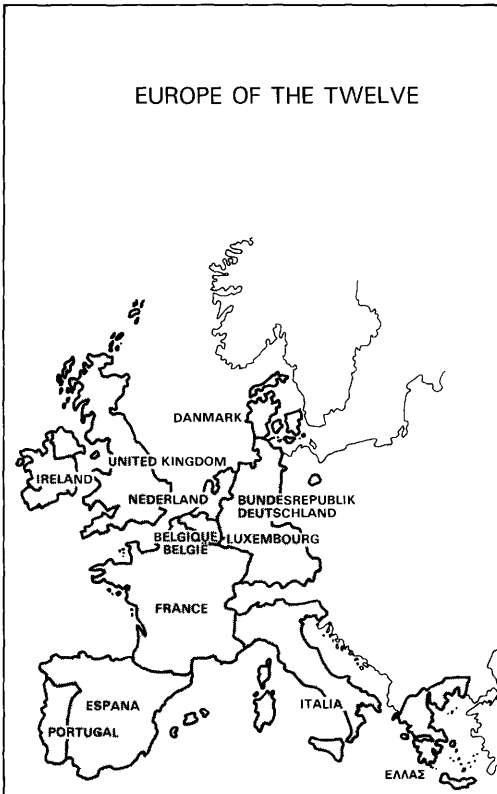
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The *Courier* uses maps from a variety of sources. Their use does not imply recognition of any particular boundaries nor prejudice the status of any state or territory.

Best wishes for 1987

MEETING POINT: Joseph Wheeler

DAC, the Development Assistance Committee of the Organisation for Economic Cooperation and Development, which nowadays groups 18 Member countries and the European Commission, was created in 1960 as a forum for development aid donors. Joseph Wheeler, its Chairman, met The Courier to review over a quarter-century of development aid, and to outline future priorities. **Pages 2 to 6**



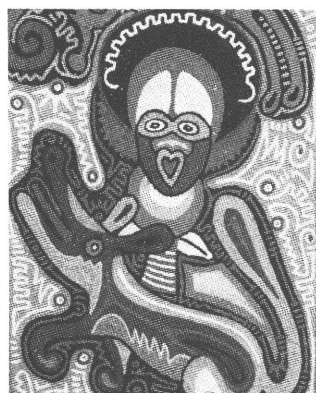
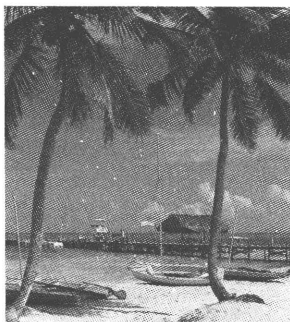
THE SUDAN



Internal developments in The Sudan and changes in its international relations have, for over a year now, provoked interest among observers of the African political scene. The Courier met the Prime Minister, Sadiq El Mahdi, in Khartoum recently and discussed these new developments with him. **Pages 9 to 15**

COUNTRY REPORTS

BELIZE: Unique in the ACP context, both in its location on the Central American sub-continent and in its particular blend of peoples and languages, Belize is peaceful, democratic, fertile and uncrowded. Agriculture has concentrated traditionally on a handful of export products, some prospering, others in trouble. Belize's Prime Minister, Manuel Esquivel, explained to The Courier how his Government is addressing the issues of the day. **Pages 16 to 32**



PAPUA NEW GUINEA: Papua New Guinea represents a wealth of contrasts—half a world away from her European partners, she is at one and the same time a stable, democratic, middle-income developing country and a land in which age-old tribal customs still hold sway over much of the population. The country's major problems—infrastructure and human resources—are matched by an equally impressive potential in minerals, in energy, and in agriculture. **Pages 33 to 52**

DOSSIER: Roots and tubers

Over 500 million people in the tropics depend mainly on roots and tubers for their daily nourishment. At a time when famine and food security are in the forefront of international preoccupations, it is surprising to note that they do not command the attention they deserve. In this dossier, The Courier investigates the potential of these food crops, particularly in the ACP States. **Pages 62 to 94**



The Courier

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No 101 — JANUARY-FEBRUARY 1987

CONTENTS

2. **MEETING POINT:** Joseph Wheeler, DAC Chairman

ACP-EEC

7. Implementation of the "Dublin plan"

ACP

9. **Sudan:** Interview with Prime Minister Sadiq El Mahdi
12. The democratic... and economic imperative

COUNTRY REPORTS

16. **BELIZE:** At peace, and at peace with itself
23. Interview with Prime Minister Manuel Esquivel
27. EEC-Belize cooperation
30. The Maya ruins
33. **PAPUA NEW GUINEA:** A tale of two cultures
42. Interview with Prime Minister Paias Wingti
46. "One step ahead" — with some help from the EDF
49. Cooperation between Papua New Guinea and the EEC

ACP-Regional cooperation

53. The Beira Corridor — avoiding South African ports
55. Focus on WINBAN

EUROPE

59. European STD programme gears research to the economy
61. **Eurostat:** The ACP countries in figures

DOSSIER: Roots and tubers

62. Roots and Tubers: their role in food security
66. Essential elements in nutrition
69. Cassava: its developing importance
72. Cassava: staple food crop of prime importance in the tropics
74. Industrial uses of cassava
78. Yam, sweet potato and cocoyam
82. Potatoes in the Third World
85. Combating pests and diseases of tropical roots and tubers
89. The pre-eminence of roots and tubers in the diets of the Caribbean peoples
92. Taro varieties and their uses in the Pacific Island States
94. What the CTA is doing in the area of roots and tubers

THE ARTS

95. Tabwa art
97. The Carthage Film Festival

CTA-BULLETIN

98. Agroforestry: a concept for strengthening rural security

NEWS ROUND-UP (yellow pages)

CDI — Industrial opportunities

OPERATIONAL SUMMARY (bleue pages)

JOSEPH WHEELER DAC Chairman

“The aid process has made a very substantial impact”



Léo Jouan — OECD

DAC stands for Development Assistance Committee; within the framework of the Paris-based Organisation for Economic Cooperation and Development (OECD) it is a forum for aid donors from 18 different countries plus the European Commission⁽¹⁾. Created in 1960, its 25th anniversary was marked by the publication, late in 1985, of an in-depth report which reviewed a quarter-century of development aid⁽²⁾. The report was also a kind of legacy of the outgoing DAC Chairman Rutherford Poats, who was succeeded by Joseph Wheeler early in 1986.

Born in Concord, Massachusetts (the DAC Chairman is traditionally an American), Joseph C. Wheeler, now 60, spent most of his career in high-ranking posts within the US Agency for International Develop-

ment (USAID) before becoming Deputy Executive Director of the United Nations Environment Programme in Nairobi (1983-85). His wide experience in the field allows him to look at “the human being behind the aid process” and to perceive the realities hidden behind the impressive stock of figures which DAC puts together on international aid each year. DAC Members’ official development aid now runs at around US\$ 30 billion a year, yet their average ODA as a percentage of their GNP is still only 0.36%, just over half the long-standing ODA target of 0.7%. In this Courier interview Mr Wheeler expresses a rather optimistic view of the evolution and impact of aid, and highlights some of the priorities for donors over the next few years.

“We have been supporting a basically successful proposition”

► *Mr Wheeler, what would you call the major successes and failures of about 25 years of development aid?*

— Well, I think, first, the question is what happened on the total development front. There has been extraordinary progress in agricultural development. In particular, Asia and Latin

America more than kept up with population growth. There has been a dramatic increase in life expectancy—the typical life expectancy in newly-independent countries after World War II was in the thirties. Today in Asia, it is in the neighbourhood of 60 years, and in Africa, in the neighbourhood of 50 years, compared with 35 or 40 in the earlier period. So I think that the dynamism of the economic development process is definitely there. Of course, we have no right to claim that the overall development success is all due to the aid that’s been provided—what we can say is that we have been supporting a basically successful proposition, and we can say that the aid process, and the aid funds, the projects and programmes that we have supported, have made a very substantial impact. The agricultural success has

utilised technology the donors provided to the international research system—places like the International Rice Research Institute in the Philippines—and then this technology has been applied, using fertiliser provided by the donors and using extension services supported by the donors. The technology has been adapted in research institutions, often supported by the donors. So I feel that together, working with the developing countries, we’ve made a big difference. Similarly in the field of health, the donors have been very much involved in the technology of health, and for example, if today we are talking about oral re-hydration as one of the important factors bringing down infant mortality rates in many countries—well this technique was developed in a donor-supported institution in Ban-

(1) Members of DAC are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, the Federal Republic of Germany, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the United Kingdom, the United States and the Commission of the European Communities.

(2) “Twenty-five years of development cooperation—a review”—OECD—2, rue André-Pascal, 75775 Paris CEDEX 16, France—170 FF.

gladesh, and it's now being spread with the help of donors throughout the world.

► *But to what extent have, for instance, people like the so-called evaluators come up with actual proof, on the one hand of the effectiveness and on the other hand of the impact of aid? Can they substantiate that?*

— We have a recent book by Mr Robert Cassen, "Does Aid Work?". He has used material from the World Bank and bilateral donor sources, and I think he comes to the conclusion that the majority of aid can be counted as having been quite successful. I think we recognise that we're not universally successful — we make mistakes. And, of course we operate in difficult circumstances. Overall the individual projects have a pretty good record of success.

► *Do we learn from our mistakes?*

— Yes. I would argue that we don't learn fast enough, and well enough, but it is now typical of aid agencies to have a rather professional evaluation process, and indeed in DAC, we are sponsoring the improvement of this process through our working group on evaluation. I find a rather high morale among the evaluators, because they are in a situation where they are exchanging information, and that information is increasingly getting communicated to the operators, and to the governments for future work.

► *But isn't one major criticism of the evaluation work that the evaluators belong to the donor agencies themselves, and therefore basically evaluate themselves?*

— The fact that they belong to the agencies themselves is a weakness, I suppose, from the point of view of being able to convince the public of their objectivity, but it's a great stride forward in operational terms, because you get immediate feedback. I think one criticism of some of the earlier evaluation was that it was done too academically — people coming in and spending two or three years studying how the project had been implemented, and then finally coming up with a report, but years after it would have been useful to have that feedback. So I think that having the evaluation units in the aid agencies is ac-

tually a very positive thing, and it is permitting a rapid feedback of the results.

► *So overall, you would conclude that aid has actually aided, that is has worked?*

— Yes, and I also feel that the developing countries appreciate it.

The need for a positive policy framework

► *Besides offering a platform for donors, and being the main assessor of the quantity and quality of aid flows, to what extent has the DAC been able to introduce among donors new approaches to both aid policies and practices?*

— I think that it's important to recognise that we are operating in a dynamic situation where we don't know all the answers. Together we're exploring better ways of doing things, and trying to learn from experience. The DAC offers a forum for our exchange of experiences. Now over the years, we came to realise that many of our projects were not working out as well as we had hoped, because they lacked a positive policy framework. The recognition of this need for a positive policy framework was spread partly as a result of the forum that we provided for an exchange of views. In the early years we underestimated the importance of the population dimension, and I think that, step by step, partly by making use of this forum, there is greater recognition of the importance of this factor. We have been discussing, for example, the need for cost recovery, people paying for their own development by being willing to pay for their water, or for the inputs to agriculture, rather than expecting subsidies from government. Over time, we've come to a new consensus on many of these issues.

► *To what extent are you operational?*

— We're not operational. We are a place for policy and information exchange and coordination. We spend no money on development — it's all done by the members.

► *To what extent then do you have an actual influence on the possible changes in aid policies and practices of*

the different donors? Do people actually adjust after seeing what the others have done, once they have talked it over?

— Oh yes. I think there has been remarkable change over time. I'm rather new as the Chairman of the Development Assistance Committee, and people have been advising me about how I should react to the challenge. They told me: "Look, you shouldn't expect to see the results of your work immediately, but what you will notice is that, over time, ideas get picked up, and they spread around through the development community, through the developing world, and you will see the results of it". I think it's quite true, you have to look at this, not in terms of an idea today, being implemented tomorrow morning, but rather in terms of a longer term impact.

A lack of coordination in the field

► *What sort of ideas would you yourself like to get through by the end of your term as DAC Chairman?*

— Well, on aid administration, I think we are doing quite well in coordination among ourselves at the level of our capitals, but we are not doing nearly well enough in coordination in the developing countries. I think that we are learning that the centre of this coordination must be with the recipient governments themselves, and that they have, oftentimes, a weak capacity to do this. Therefore we must focus on building up the developing countries' capacity to do good sector planning, sub-sector planning and macro-planning, and to negotiate vigorously with an ever-larger number of donors. I hope over the next several years we will concentrate on this issue, and achieve some real progress.

► *Any other personal desiderata drawn from your own experience that you would like to see as an improvement in carrying out aid?*

— I think we tend to dwell on process and procedure more than we should. We need to keep a focus on the human being whose condition we're trying to improve. I think we can learn to put more emphasis on actually accelerating the demographic

transition — getting birth rates down, which is not unrelated to getting increases in literacy and improvements in health. Having recognised the worldwide success in agricultural production, we need to focus on getting the 700 million people who don't get enough to eat, into the economy, earning enough income so that they will be able to purchase food. In the DAC Chairman's Report you'll find that I'm addressing that kind of issue.

“I don't see aid efficiency as an alternative to volume”

► *Some well-known international objectives like the famous 0.7% of GNP as official development aid by a number of industrialised countries remain far from being achieved by most of them. Today widespread austerity policies even threaten to reduce the share of ODA as a % of GNP in many donor countries. How do you view the future evolution of public aid flows and what would you expect in that context of other transfers of financial resources, like private investment?*

— This has short- and long-term aspects. Surprisingly, about two-thirds of the DAC members are going to be increasing their assistance in the coming few years, and some of them very substantially in volume terms. Japan, France and Italy are expected to be the leaders in volume increase. Finland and Switzerland are examples of fast growing smaller aid programmes. There will be a few countries that will pause in increases in aid, or even go down temporarily. But overall, we anticipate about a 2-3% increase in aid levels in real terms over the next four or five years. Now for DAC itself, this is a more modest rate of growth than we've achieved in the past. Over the last ten years DAC had a 3.7% growth rate. Looked at in terms of worldwide aid resources, with the increase in the price of oil, the OPEC countries began to supply very large amounts of aid — they came up to nearly US\$ 10 billion in the 70s. Now they've come down over the last five or six years to about US\$ 3.5 billion. What has happened really is that a fairly good increase in DAC assistance has been offset by a decrease in OPEC assistance — giving a total growth rate for all aid of about 2% over the last 10 years. And because we think that OPEC is bottom-

ing out in terms of decreases in aid, it looks as if the overall aid from all sources will continue to increase at about the same rate that it has over the past decade.

► *But isn't there a widespread tendency to say: “Let's try to be more effective in the field, let's make more of the same dollar, let's get more out of it in terms of aid and development”?*

— It don't see efficiency as an alternative to volume — actually I see it as complementary to volume. In other words, we make a much better case to the taxpayers of the members if our assistance is more efficient, rather than less. Now efficiency is many things — one country's allocations will be different for political or geographical reasons from another's allocations, so that there's not likely to be agree-



The Courier

“... we ought to see very substantial progress on the agricultural front in the years ahead”

ment by any one member as to what would be the most efficient allocation of our funds to the developing world. I think that that kind of diversity in allocations is likely to continue. But I think we can constantly learn from experience in how to run projects more effectively, or how to support structural adjustment programmes more effectively, and achieve greater efficiency on those fronts. We certainly should continue our search for ever-better ways of doing the business.

Structural adjustment

► *What about flows other than official development aid?*

— Well, first we have the governmental transfers. For example, there are Export/Import Bank credits of assistance, often at non-concessional interest rates, where flows reflect the ability of countries to absorb relatively hard terms. There is a very wide differentiation among countries' abilities to receive flows of that type. With heavy debt burdens, many countries just aren't viable borrowers. Second, right now, as might be expected, private sector transfers are at a low point. I think both government and private flows of this type will recover only gradually. As a prior step developing countries' own money will start coming home. I'm talking about private sector money, which has found its way into DAC member country banking and investment systems, and which, in a more positive atmosphere, will come back to the developing countries. Only then will you get the DAC member country private sector making investments. It seems to me that we shouldn't expect a rapid increase in conventional lending and investments over the next two or three years, but if you take a slightly longer time-frame, I would expect flows would return to earlier levels.

► *According to the DAC, aid is only a catalyst and supplement to development; what sort of environment is then needed for it to best perform that role? Would a number of developing countries require adjustments of their administrative procedures and organisation?*

— Here we have to look at the specifics of structural adjustment: what is it? It's getting prices right and exchange rates realistic. It's eliminating large deficits in internal budgets. It's opening up the conditions for the private sector to operate, and I think there's a general consensus now that the private sector plays — must play — a vigorous role in the development process. It therefore means getting the government out of giving permission for every step of the process. I think with these kinds of reforms we will have more effective aid.

► *What would you call good examples of countries which have adopted*

such policies, and which have developed well over the last few years?

— I think we mustn't forget that in dealing with structural adjustment we're not dealing with most of Asia, because their policies overall have been pretty good over the last decade—so we should give them credit for not getting into trouble. Now, among the countries that got into trouble, one example that comes to mind is Ghana. Where Ghana and South Korea 20 years ago were almost comparable in terms of their level of economic development, South Korea's been shooting ahead, doing a marvellous job on that, whereas Ghana dropped down. A few years ago Ghana decided to undertake a major policy reform, and the donors have agreed to support that reform. What we're seeing there now are very important production results. So Ghana was a great disappointment up to a few years ago—because, especially at independence, it was considered to be one of the best hopes in Africa—but

is now on a path of very rapid progress.

The General Assembly Session on Africa represented a very important turning point. After five years of debate, the African governments, through the OAU, came up with their own programme of reform, and put before the General Assembly a set of propositions which were well received, and which gained a very positive response. Of course, the concrete response to individual structural adjustment programmes is going to be country by country, but the General Assembly on Africa is a real turn-around. Africa at independence started out with a more difficult situation than Asia: smaller countries with frailer administrative capacities, and often with a very small resource base. Now, within that framework, they've made a lot of progress since independence. You can see tremendous increases in the number of children in school, and in health. But they've had their one large failure in agriculture, where they fell

behind about 1% a year in per capita agricultural production—and this went on for more than two decades. Now we can have hope for a turn-around. Africa, over the next 20 or 30 years, needs to go from something in the order of 50-55 million tonnes of grain production to something like 150-160 million tonnes. Well, three years ago, in the situation as it seemed at the time, it was hard to predict that this could be done. I would say that if the promise of country-by-country improvements in policy frameworks and in attitudes towards the rural areas is fulfilled, we ought to see very substantial progress on the agricultural front in the years ahead.

► *Would you agree that Africa, for almost two decades, has in fact neglected its major asset, i.e. the small farmer?*

— Yes, I definitely would agree with that.

Towards a demographic transition in Africa

► *What else could be done to tackle the challenge of development in sub-Saharan Africa, where the DAC has played a major role in focussing attention?*

— Africa today has a birth rate of 50 per 1000, and a death rate of about 20 per 1000, which means that there is an overall growth rate of 3% a year. Now, that is not a viable proposition over a long period of time. In the demographic transition in every country, be it in our own countries or in developing countries, the first thing that happens is that health improves, and the death rate comes down. That's happened in Africa, and one can say that's a success. Now the other part of the equation has to take place: a reduction in the birth rate. By and large the Africans have been hesitant to talk about this, for internal political and sociological reasons, but in 1984 in Arusha, they met and adopted the Kilimanjaro Programme of Action on Population—which represents a turning point in attitudes in Africa on this issue. I would guess that we would see African countries, one by one, coming up with serious programmes to tackle this issue. And what are those programmes? Well sometimes they are

DAC's agenda of development cooperation

In the 1985 Report "Twenty-five years of development cooperation", DAC has identified the following main themes of future action

1. to help sub-Saharan Africa break out of its economic decline, with dual priority for food security and productive employment;
2. in South Asian and other developing countries committed to this goal, to devise and support more effective long-term strategies to bring the millions of people who remain very poor more fully into the processes of development;
3. to reinforce (with trade, private finance and official assistance) coherent efforts of heavily-indebted Latin American countries to resolve their debt problems through growth;
4. to free and stimulate the creative energies of small farmers, private entrepreneurs, savers and investors;
5. to bring the equivalent of a technological "green revolution" to the staple food crops of all regions through research, extension, and related institutional and policy mea-

asures;

6. to improve public administration in those developing countries where it is a constraint to developmental efficiency and welfare;

7. to extend, while making more effective and affordable, basic public and private services of human resource development—education, training and health services—adapted to the most pressing needs of the people of individual developing nations;

8. to make universally available the opportunity to regulate human fertility by humane and effective means, thereby lightening the burden of excessive population growth on development;

9. to protect the natural resource bases of development from ecological degradation and where feasible to rehabilitate crucial productive resources; and

10. to bring women more fully into the planning and execution of development programmes and the enjoyment of their benefits.

programmes which directly have an impact on the population question. But, equally important, continued emphasis on primary education, and, other programmes to bring all of the people of those societies into the economy. The role of women is important in this. There are a number of factors which affect motivation, and I would expect to see fairly important and continuing changes in attitudes, and changes in implementation of programmes over the next 10-year period.

“The Lomé process... an excellent dialogue”

► *Every two years, DAC members' aid performance is reviewed by two other donors. What is the reputation so far of the EEC Institutions as a donor organisation?*

— The EEC is doing a good job, emphasising the right things in its allocations. Its interest is primarily in development itself, rather than in other motivations which are often associated with aid, and therefore it's become a very serious development institution. Through the Lomé process the Community has picked up an excellent dialogue with the countries that they are providing assistance to, especially at the sectoral level. The Community and the recipients commit themselves for a fairly long period of time, and therefore the Community plays a very positive role.

► *It's also an instrument which tries to develop the so-called policy dialogue. How does the DAC view this dialogue?*

— As I said earlier, there is a general recognition of the importance of the policy framework. We use the term “policy dialogue” to emphasise that it is a two-way process. Some DAC members have worried about a process of ganging up and sort of dictating policies to recipient countries. The process of policy dialogue must be handled in a very careful way, with the full recognition of the central sovereign role of the recipient government to decide its policies. A policy which is imposed is not likely to be carried out very well — and so a discussion of policy must be a dialogue in a true sense. I think we've all become more sensi-

tive to this, and are carrying out policy dialogue in a better way.

► *How do you solve the conflict between the obvious development objectives and the underlying commercial objectives which a lot of donors have?*

— I feel that DAC must keep such issues on the table. DAC should try to get development money used to the maximum extent possible for good development purposes. Those purposes don't have to be inconsistent with increases in trade between us and the developing countries, but we've had a major discussion centred on what's called associated financing, or mixed credits. It seems to me that we are moving towards a consensus on this issue which will mean that these kinds of credits, to the extent that they are used, will be used increasingly for real development purposes, and not for subsidies to expensive exports of the DAC member countries.

► *Most donors still concentrate on the short-term, yet there are a number of problems like desertification, or the overall preservation of the environment and natural resources of developing countries that require a longer term approach. What is your feeling about that?*

— In the member countries of the DAC, politically we are being asked to pay more and more attention to the environment. This is reflected in the recent OECD resolution on this subject, and in our deciding, in the DAC, to work with each other to improve our procedures for dealing with the environment. I think that you're right, that we oftentimes have too short-term a focus. But that's not universally the case. Among areas needing a longer term focus are desertification and deforestation. Unfortunately we have not found any simple formulas dealing with these issues. We have tended to look at these problems technically, and have not paid enough attention to such issues as land tenure, price policy, and the overall market situation within which programmes have to be carried out. Through the Club du Sahel, which is another instrument of the OECD, through dialogue with the countries that have these problems, and through experimentation, gradually we are learning more about how to go about those programmes.

► *Another sort of long-term/short-term dilemma which a number of donors have is the role and duration of technical assistance in the field. What's your point of view on that?*

— I think we have too many projects chasing small objectives, and that we need to organise our technical assistance with a much greater focus on building indigenous capacity to carry on independently: institution-building should be the goal. The training of a few people, or the provision of a few consultants will seldom have much impact. I find myself talking more and more about this in the DAC, and with the members. Over the coming years we'll focus on this question of how we can improve the accomplishments of the very large amount of money we're putting into technical assistance in the developing countries.

“We need to be sure we don't stop aid too soon”

► *How optimistic are you about the transition from the present phase of dependence on aid by most developing countries to a future of possible self-reliance?*

— There are a number of countries which really are self-reliant, and which are now developing without much aid. In Latin America, Brazil — which represents almost half of that continent — is an excellent example of what I'm talking about; in Asia, South Korea and Taiwan are good examples. A number of other Asian countries may soon reach that same stage. The outlook for self-sustaining growth without a heavy dependence on aid is fairly good in the medium term. At the same time, we need to be sure we don't stop aid too soon. I'm reminded that there are some 700 million people in this world who don't get enough to eat, and before we leave the countries where most of those people live, it seems to me we need to deal with this question. These people need to be brought into the economy. Over the next 30 years we should see quite a few countries graduate from aid. But we need to watch that we don't stop working with those countries too soon.

○

Interview by
Roger DE BACKER

Implementing the "Dublin Plan"

by Sean DOYLE (*)

The drought which began in 1983 became a major catastrophe in 1984 and 1985 which was further aggravated by civil wars and unrest in several countries. Although the international response was slow in starting, it helped to reduce the scale of the tragedy which, with the generally good rains and harvest of 1985/86, was by and large ended by the end of 1985.

In total, the international aid was worth about ECU 1.3 billion or, at that time, about one billion US dollars. One-third of that total was provided by the European Community and its Member States through the "Dublin Plan (Rehabilitation and Revival plan for the African Countries most affected by the drought)" of emergency and food aid to the countries most in need across the south of the Sahara (Mali, Mauritania, Niger, Chad, Sudan and Ethiopia), and to war-torn Angola and Mozambique.

The plan

By late 1985 it was already clear that the principal needs in 1986 would be to help people ruined by the drought (and often forced to flee their farms) to resume farming; and to strengthen national capacities to deal with any further such catastrophes in the future. Therefore, the Council of Ministers of the European Community set up in November 1985, a "Rehabilitation and Revival plan" to help do precisely that in the worst-hit countries. A total of ECU 100 million was made available by the Commission for Mali, Mauritania, Niger, Chad, Ethiopia and the Sudan, plus a further ECU 8 m in emergency aid earmarked for Angola and Mozambique. The plan was to be implemented during 1986, and in terms of the Community's aid programme, it was to form the link between the "Dublin Plan" of 1985 and the start-up in early 1987 of longer-term actions under the recently agreed Lomé III Convention.

The approach

The Council instructed the Commission to implement the "Plan" quickly and flexibly. Accordingly the Commission adopted a new approach, quite different from the traditional one of identifying major individual projects and then carrying them out: it opted for a "programme" approach, working towards the dual objectives of agricultural revival and logistical/administrative rehabilitation in a more flexible way, taking immediate action

whenever possible and deciding on new actions or projects to complete and correct the first ones according as needs became clearer and the beneficiary governments defined their priorities more accurately and suggested ways of achieving them. To do this the Commission relied heavily on its Delegation in each of the eight countries concerned to devise individual actions on the spot, in consultation with each government.

Progress

By end January, the main areas and sectors where help was most needed had been defined and a number of actions had been started. The operation then took on a momentum of its own, as one action led to another and it became easier to identify weak points and new problems (such as the invasion of crickets and grasshoppers in several countries). By mid-year, over 70% of the funds had been committed for specific, identified actions most of which were already under way; and by early November, 95% of the funds were committed for almost 100 individual actions. Three further countries which were also experiencing particular difficulties due to the drought—Somalia, Botswana and Cape Verde—were added to the original eight in accordance with the flexible mandate given to the Commission by the Council to assist the worst hit countries.

These actions varied widely in nature, but in general fell into the following categories:

— supply of inputs (tools and equipment, seeds, fertilisers) to help revive

agricultural production (in Ethiopia, Sudan, Chad, Mali, Mauritania, Angola, Mozambique and Niger)

— improvement of water supplies for human and animal consumption and strengthening irrigation for farming (in Ethiopia, Niger, Somalia, Chad, Mali and Mauritania; similar actions are now beginning in Botswana)

— assistance in storage and distribution of local cereals (Niger, Ethiopia, Mauritania)

— medical and nutritional activities to assist those persons most in need (Sudan, Ethiopia, Chad, Mali, ...)

— resolving some of the "bottle-necks" and "blackspots" of road and rail transport, and reinforcement of vehicle fleets (in Ethiopia, Sudan, Mali, Mauritania, Niger, Chad, Cape Verde; and accessorially in Senegal and Djibouti through the Dakar-Bamako and Addis-Djibouti rail links)

— contributions to strengthening famine early warning systems (in Mali and Chad)

— contributions to the campaign to deal with locusts and crickets (in Mali, Mauritania, Chad, Sudan and Ethiopia).

Of 89 actions for the six countries immediately south of the Sahara, 24 actions were implemented wholly or partly by non-governmental organisations for a total amount of over ECU 16 m; and the actions in Angola and Mozambique were entirely entrusted to NGOs.

By November, just over 40% of the funds had been spent, with further major disbursements due up to the end of the first quarter of 1987 when most actions will have been completed. In Somalia, Botswana and Cape Verde which were included in the Plan in the latter half of 1986, implementation will take longer, in some cases up to late 1987.

Aid coordination

Given the multiplicity of donors, non-governmental organisations and international aid agencies active in the 11 countries and in accordance with the wish of the Council that the Plan be a concerted effort by the Commission and the Member States, close coordination had to be ensured between them all to avoid duplication, ensure complementarity, and in general to maximise the effectiveness of aid. This was largely done in practice at

(*) Administrator at the Directorate-General for Development.

field level by the Delegations of the Commission while the Commission itself took care of coordinating with the development ministries and agencies of the Member States and participated, with several of the Member States in the various fora which brought the western donors together (the FAO and the UN Office for Emergency Operations in Africa, in particular).

The overall Community response to post-famine rehabilitation

The Community's aid to the 11 countries directly concerned totalled ECU 250 m in all, including the ECU 108 m of the Plan plus ECU 30 m of emergency aid and over ECU 120 m of food aid. The Member States, through their bilateral aid programmes, provided even more substantial amounts totalling over ECU 750 m in food and emergency aid as well as more classic longer-term development projects addressed to post-famine recovery. Therefore, in all, the response of the Community and the Member States to the needs of the 11 countries worst hit by drought came to about ECU 1 billion in aid committed in 1986, a high proportion of which was delivered in the same period.

Conclusions and lessons learned

While nothing is easier than to be self-congratulatory in a field such as development aid it nevertheless is clear that the European response has been very substantial indeed, and constitutes a major political and humanitarian achievement.

For its part, the Commission is satisfied that its own contribution in the form of the Rehabilitation and Revival Plan was well-designed in response to the principal needs of the beneficiary countries and was implemented quickly and flexibly enough to have maximum effect.

Certain lessons can already be drawn from implementing the Plan, even though a detailed evaluation of the actions taken will only be possible in early 1987 when most of them will have been completed. The main lessons are:

— The "programme" approach, as distinct from the traditional "project" approach, has great advantages in dealing with such large-scale situations where the overall objectives are relatively clear but how to achieve them is not as evident at the start.

— Speed of action is essential in order to translate the programme into concrete actions without loss of effectiveness. Aid delivered too late in such

circumstances (for example, fertiliser and seeds for the planting season) is even worse than useless.

— Flexibility of action is also essential. Events develop which require immediate attention by reallocating resources. A good example is the locusts/crickets problem which affected several countries during the summer, to which the Plan was able to respond by providing over ECU 3 m for pesticides and spraying costs. Some actions also prove slow or impossible to complete for all sorts of reasons including, in particular, security (e.g. southern Sudan) and logistical blockages (e.g. delays in the East African ports) but funds must nevertheless be reallocated to other users without delay.

— Good coordination between all parties directly concerned (government services, donors and executing agencies) is indispensable, not just to avoid duplication, contradictions and waste, but particularly to ensure that aid is directed to the real needs and covers them adequately, without leaving gaps (e.g. failure to allow for essential transport costs, spare parts for vehicles, etc.). Efficient coordination is especially necessary in all such cases where speed of delivery is paramount.

— Following-up on the actions which were concerned with strengthening local capacities to deal with similar disasters in the future (e.g. drought early-warning systems and food storage facilities) is now necessary to ensure that the value of these actions is maintained and will be available if needed again. Likewise, several of the agricultural improvements need to be further developed to realise their full long-term potential. Efforts are in course to ensure such follow-up in the context of the Community's aid programmes for the countries concerned under Lomé III.

To conclude, the Commission is pleased that the Rehabilitation and Revival Plan is an operation which has been of real help to the countries concerned and which they have warmly welcomed and appreciated. It also values the experience gained by its ACP partners and its own services and Delegations in implementing the "programme" approach which is a major feature of the new Lomé Convention and is the current major challenge for the Community in the field of development aid. ○ S.D.

Current EEC actions in favour of the African countries most affected by the drought (in ECU)

Country	Rehabilitation and revival	Emergency aid	Food aid	Total per country
Ethiopia	37 316 960	5 000 000	60 561 248	102 878 208
Botswana	3 000 000	450 000	1 712 960	5 162 960
Cape Verde	1 000 000	0	3 590 000	4 590 000
Mali	12 000 000	415 000	5 529 700	17 944 700
Mauritania	7 950 000	115 000	5 726 200	13 791 200
Niger	10 541 500	75 000	2 847 200	13 463 700
Somalia	1 200 000	2 100 000	8 570 000	11 870 000
Sudan	13 000 000	13 500 000	10 467 500	36 967 500
Chad	8 614 250	375 000	2 285 000	11 274 250
Sub-total 8 countries	94 622 710	22 030 000	102 289 808	217 942 518
Angola	0	3 455 000	3 913 700	7 368 700
Mozambique	0	4 635 000	17 568 500	22 203 900
Sub-total 2 countries	0	8 090 000	21 482 200	29 572 200
All countries	125 000	0	0	125 000
Overall total	94 747 710	30 120 000	122 772 008	247 639 718

An interview with Sadiq El Mahdi, Prime Minister of The Sudan

DEBT: “We cannot pay anything that subverts our ability to develop the economy”

Sudan occupies a key position in the political and economic life of East Africa and Africa as a whole. Internal developments as well as changes in the pattern of its international relations have been of real interest to Africa-watchers over the past year or more.

With this in mind, the European Community's Directorate-General for Information made arrangements for a number of journalists to visit the country last November. The Courier participated in this visit. While there it had the opportunity of asking Sudan's Prime Minister, Sadiq El Mahdi, about the economic, political and social problems with which the new government is confronted.



The Courier

Sadiq El Mahdi

“Any lack of welfare for our people will simply bring political instability”

► *Prime Minister, you intend to visit several European states, and the Commission, in January. What kind of support will you be seeking?*

— My main purpose in the present external drive is to indicate that there is change in The Sudan. That there is a new Sudan, a democratic Sudan, one that is credible, that respects human rights, and basic freedoms, all of which are not only important in their own right, but are also important economically. I believe that dictatorship, because of lack of accountability, tends to squander resources, and tends to give priority to intelligence, to security, to its own survival in a way that makes priority number one, two, three, four, five, up to ten, matters relating to their tenure. This is now over in The Sudan.

We believe that, ultimately, economic cooperation between The Sudan and the outside world will be served best when there is stability, democracy, accountability and rational employment of economic resources. As far as we are concerned, therefore, we would like to broadcast this reality about The Sudan. As to what kind of response we meet with, in fact this is left to the different parties.

We also would like to show clearly how and why The Sudan is now engaged in external economic relations which we believe are necessary for the time being, but our intention is to get The Sudan to be viable, and not to need aid. So in fact whatever aid The Sudan now gets is not in the vein of making this a habit. We are, as I said before, seeking those kinds of external economic relations which will shift altogether from aid to trade and economic relations of mutual benefit. That is going to be one of the main aims of our Development Plan. We would like our friends in the world to see this, appreciate it, and perhaps cooperate in its realisation.

The EEC aid to The Sudan is “enlightened”

► *So you think that because the country is now democratic, you will have a better chance of getting more aid from the European countries, for instance?*

— Well, not just the political aspect, all the other aspects I have referred to. Also the fact that we want to wean the

country away from aid, all those are ideas we believe that can be appreciated, and understood, and hopefully cooperated with.

► *What is your economic and political appreciation of the EEC development aid to The Sudan?*

— I think it is enlightened, it is useful. Of course I have been telling our European friends themselves in the past when those relations were being conducted with a regime like Nimeiri's that that regime can only squander resources. The system of the previous government was bound to be irresponsible, to give wrong priorities to the dissemination of resources, and so I was saying all the way that it is like trying to pump air into a punctured tyre. I think that The Sudan has sealed that puncture, and I think that altogether the European approach to economic relations is more rational than many, and one hopes that we will further rationalise, and further increase the efficiency of economic relations with the EEC.

► *Compared to the other donors do you consider the EEC aid to Sudan could be better?*

— As I said, it's not really just a question of more or less. You see, when one is dealing with a regime like the one we had here for 16 years I think it should be less, because there it is a squandering of valuable resources. When one is dealing with regimes, or systems of government that are rational, that do not use the resources to coerce their people, that employ the resources efficiently, that do give the proper priority to the needing classes, or the needy classes, that have a programme that is economically viable, socially progressive, I think in such conditions the sky should be the limit. So it is really a question of what you are dealing with. I think that The Sudan is going to make every effort, not only talking to governments, to the media, to parliaments in Europe, all of which are very important in the final and ultimate decision-making process, to make them see that it makes sense to deal with a rationally-oriented system of government that has the right priorities, economically and in every way.

It is also a matter of enlightened self-interest for Europe to be seen to be partial to this kind of system. Because this kind of system, if it works, will rationalise economic relations, maximise benefit to greater numbers of the population, all of which are values that I believe are highly cherished by European public opinion. So that the governments that do so will be seen to be doing something right by their own public opinion, which is really something that is conducive to democracy and something that we hope will happen. We think the people who do not rationally employ resources, who do not give right priority to the needs of the wider population and so on, should at least feel the pinch of adverse opinion, because this is the only way we can make democracy, rationality, the progressive employment of resources, social stability—make them greater aims cherished in the Third World than coercive government, monolithic decisions. Really it is a question of what values predominate. We hope the values I have spoken about predominate.

► *Prime Minister, what were the main results of your trip to the United States last October?*

— Well, as you know, under the former regime there was a pattern of relations between The Sudan and the United States. That pattern of relations was, we believe, not conducive to our continued good relations, and was really a kind of relationship which the people of The Sudan did not appreciate. That is why, after the fall of

The Courier



“I think that altogether the European approach to economic relations is more rational than many”

Nimeiri, we changed all that. Our external relations are now based on non-alignment and our regional relations no longer perpetuate the type of policies that predominated under the former regime. There is a change of attitude by The Sudan clearly needing the other party to appreciate this change, and if possible to cooperate in new terms.

We think that our latest trip to the United States helped explain this change, and helped get appreciation also from the American side. We spoke not only officially, to officials and to Congress, but also to the media and to public international opinion-forming American bodies like the Council for Foreign Affairs, the American-African Institute, and so on. The idea is that this new image of The Sudan is understood first, and then appreciated.

I think this was achieved in a large measure, and I hope that this will be further understood because, as I said,

any relations with the United States that are not acceptable to the Sudanese national constituency will have to be perpetuated by a measure of coercion which is something that is undemocratic and is temporary; it will be another kind of Nimeirism. So what we asked for, what we thought should be appreciated is that this change is there and is one which links foreign policy to the ideals and aspirations of our national constituency. It so happens we think that the American national constituency itself should further develop its relations with people like ourselves in the Third World in terms that are not one-sided, but in terms that are two-sided—their own interests, and their friends' interests. Any form of relationship that does not really work on this basis of two-way traffic, I believe, will ultimately be shortlived, short-sighted and counter-productive. My visit to America, I think, helped emphasise this change, and emphasise the need for this two-way traffic in the development of international relations.

► *The debt problem is a critical one. How do you see its solution in the national as well as international cooperation field, especially with financial institutions such as the IMF?*

— As far as the debt is concerned we have the following ideas: first, as you know, we think it was an irresponsible and illegitimate government of The Sudan that accumulated this debt. We want this to be appreciated. There is a change not of government but a change of system. We want this to be appreciated very well. We think a lot of those debts have got very unclear sources. We would first like to revise all the debts, in order to separate the proper economic ones from the unclear ones. The proper economic ones are ones that the country is bound to honour.

Secondly, we want the international community to appreciate that there is a partnership in responsibility over the accumulation of this debt. As far as public debts—State debts—are concerned, there is no doubt that there is a political element. Institutions have wished to help a regime in The Sudan whose policies they appreciated. There

is a clear political intention and aim in this.

As far as banks are concerned, there is no doubt whatsoever that the banks have been eager to lend, even more than was warranted by economic considerations, because of their need to recycle their petro-dollars. Now those are reasons why the irresponsibility of our government has met with political and financial motives in the international community which together worked to form this debt. The different sources that have played a role in this must appreciate, therefore, that this total sum has got to be dealt with on a partnership basis—not as if it is an exclusive burden on my country.

This means that we need a forum, perhaps the UN or any similar forum, in which all this will be discussed in a very rational way. Having said that, and having decided what remains of the burden on The Sudan, there are two imperatives that have got to be appreciated. We cannot pay anything that subverts our ability to develop the economy. So here is a limiting factor. The second limiting factor is the welfare of our people, because any lack of welfare for our people, will simply bring political instability, which cannot be accepted. Therefore we hope that those two limitations will be considered, and within those limitations we will earmark a portion of our export earnings for the settlement of the debt which we have to honour.

I think any solution that does not appreciate those factors will be unrealistic, and ultimately fail like the follies that the former regime used to call “rescheduling agreements”. We don’t want to continue this kind of non-serious fiddling, and we want something serious, something that can be intellectually and morally supported, and that will be seriously appreciated.

► *What incentive measures does your government intend to implement in order to encourage national and international capital investment in The Sudan?*

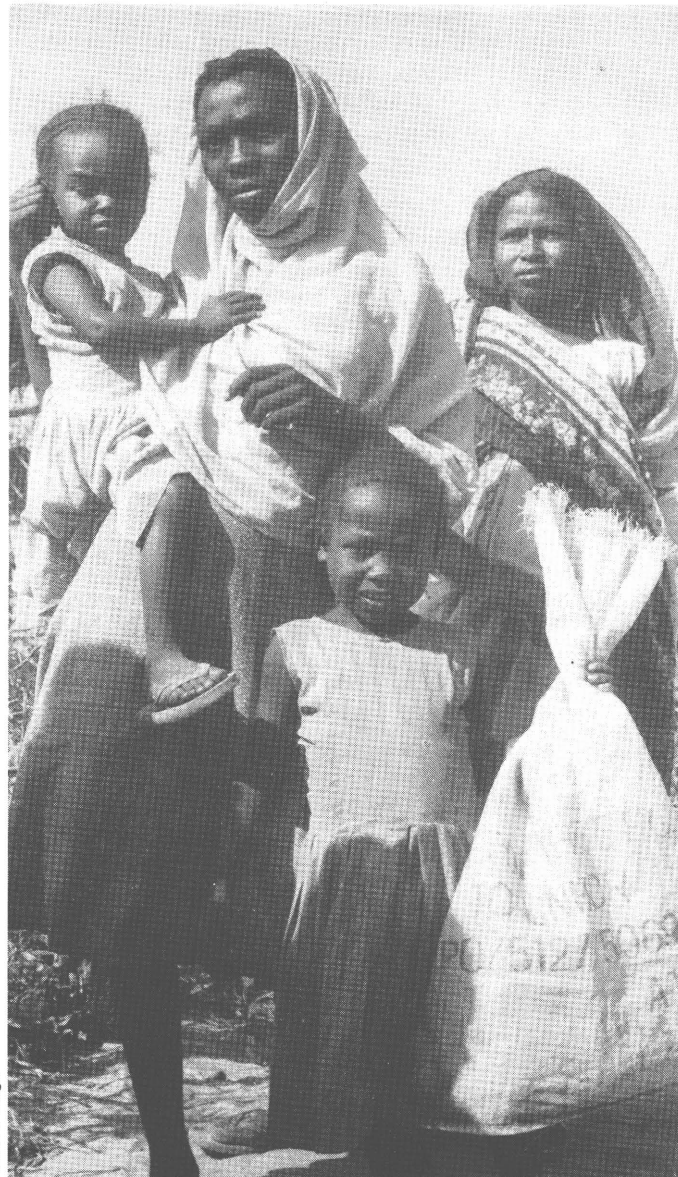
— On paper, even during the previous regime, the incentives are very good. But in fact the way they have been working is what is wrong. Our intention is that if we can, as we are

hoping to provide political stability; if we can provide credibility to our economy—which has been lacking; if we can provide the rule of law, so that people could know what are the regulations, and that they be honoured, if they can be certain that whatever is agreed will be remitted, we think this, together with the immense opportunities for investment in The Sudan, will work. It is really a question of making those reforms, and proving that they work. We hope that as soon as this is accepted by others, they will respond positively.

“It is hardly ever possible to find democracies fighting each other”

► *Sudan is committed to the principle of non-interference in the internal affairs of its neighbours. Bearing in mind this premise, what measures are you considering to tackle the insecurity problem in the South as well as the political refugee problem in the East and West?*

— As far as non-interference is concerned, this is something we believe in—not only we believe in, democracy makes it imperative. It’s dictators who make those phoney moves outside because they want to deflect people from internal problems. In democracy you are accountable, you cannot interfere with others without your own people saying “no”; because democracy is, I think, a recipe for peace—that’s why it is hardly ever possible to find democracies fighting each other. It is non-democratic governments or when one is dictatorial that you get those phoney situations where some dictator has dreamt about some ideals, which he wishes to implement, which bring conflicts. We think we are bound by our own system to seek good neighbour relations.



Aurea I. Singh

A Community’s food aid operation in South Sudan

A lack of a reliable transport and communication network makes the exercise a very difficult one

As to the question of the South, of course we have now ascertained quite clearly that as far as we are concerned, there is absolutely no Sudanese problem, because there are four main points of possible disagreement: the question of religion and politics; the question of identity; the question of wealth, and the question of power. Four of which we say, without conditions, we can discuss what is acceptable by all. That is something therefore which we feel there is no constraint about in arriving at an agreement. To this effect, we will press for a change in the attitude of the rebel movement. Undoubtedly, our approach and efforts will address the bilateral and re-

gional dimensions of this problem with a view to resolving the conflict by peaceful means and hence fostering peace, stability and economic prosperity in the sub-region which suffered so much for so long.

As to our attitude to refugees, The Sudan really intends to welcome them on a humanitarian basis, to commit itself quite clearly to non-interference in their political affairs with our neighbours, and to possibly repatriating them voluntarily, and also possibly mediating in achieving a kind of peaceful settlement if the neighbours so wish. But basically we will not in any way want The Sudan to be engaged in a policy of using refugees as political leverage on any of its neighbours.

Democracy and Islam in The Sudan

► *Prime Minister, you consider that democracy is a new approach to a new Islam in The Sudan. Could you elaborate? Also, do the Sharia laws in your country inhibit a settlement in the South and what solutions do you envisage?*

— We say that democracy in our context needs to involve not only the issue of one man one vote but also the issue of balance. That's why we are talking about democracy with balance, and this is what we are hoping the National Constitutional Conference will arrive at. That is to say the balance needed to make democracy work in the context of lack of national cohesion, in the context of economic under development and so forth. So this is the attitude towards democracy.

As for Islam, I'm not talking about the New Islam, but I'm talking about Islam's ability to satisfy Muslims about their own identity, and at the same time to satisfy the need for change in terms of modernisation, of the right of non-Muslims as equal citizens to Muslims, and in terms of international relations based on peace. What we say is that it is within Islam's own principles to adapt for those changes in a way that is authentic, and that is acceptable. I say those who do not accept this interpretation of Islam, who only talk about Islam in terms of stagnation, of conflict between religions, of international conflict, muti-

late Islam, and in fact do it a great disservice. And that is why we say Nimeiri did this in The Sudan.

"As to the question of the South,... there are four main points of possible disagreement (religion and politics; identity; wealth, and power) of which we say, without conditions, we can discuss what is acceptable by all".

What you refer to as Sharia laws are not at all Sharia laws, they are coercive laws that Nimeiri packed on Islam in order to use the aura of Islam for the perpetuation of this regime. That's why we are talking now about an alternative legal code, a legal code that will treat all citizens as equal under universally-applicable laws, but which are not universally applicable; that is to say they have got particular sources like Islamic sources, they will be conditioned, and limited in a regional sense, so that they will not apply to people who do not accept their authenticity. So the point is there is a new legislation that we are about to adopt, that will satisfy the needs and the aspirations of the Muslim majority without in any way belittling, or deterring from the following rights: one, the right of a Muslim to be an equal citizen; two, the right of a non-Muslim to have his full human rights, including religious rights. Those conditions we are working towards fulfilling within the alternative legislation, and this is what is being worked on now, and it is something quite different from what the previous regime did. It was a mutilation of Islam, as much as it was a means of injustice.

► *Lastly, Prime Minister, what in your view are the major preoccupations of Africa today?*

— The main preoccupations I think, for Africa, are the following: first, the question of political systems that respect human rights; second, economic systems that are viable; third, a clear and hopefully successful African position that is internationally supported and that is effective against South Africa, in order to see to it that this affront to human and African rights is eliminated. ○

Interview by
LUCIEN PAGNI

The demo and economic

Massive Sudan, all but a million square kilometres in area, Africa's biggest country. A huge land, bigger than the whole of the former Europe of the 10, but also a fragmented one, cut from east to west by a line which seems to form a boundary between the various political, economic, social and ecological problems with which the authorities are confronted. And the nation's problems are indeed, in proportion to its own size. With desert or arid lands in the north and the centre, the country as whole is characterised by low rainfall. But more even, perhaps, than the low rainfall, the contrast in the cultures of the almost 20 million-strong population has had a decisive effect on the course of the country's unhappy history, which, for long years, unlike the two Niles (the White and the Blue) which converge north of Khartoum, has been one of conflict — conflict between the north, the cradle of a powerful arab culture and the south, where civilisations and more pragmatic ways of life are telescoped and where the leadership of an "aggressive" Arabism that existed until a few months ago was not suffered lightly.

This was the situation, with the nation torn by a masked war of identity in the south and tormented by 17 years of economic hardship, the result of policies formerly favoured as well as of the naturally inhospitable nature of this part of the African continent, when the "dictatorship" of General Nimeiri was overturned and democracy established just a year ago.

"Political freedom at the service of economic development"

The Prime Minister, Sadiq El Mahdi, the grandson of the Mahdi who defeated Gordon's colonial army at Khartoum, heads the coalition government returned in April 1986. Imprisoned under the Nimeiri régime for defending pluralist, democratic options for the country, many observers, and the Sudanese first and foremost, see him as a charismatic democrat who alone can lead Sudan to genuine

cratic... imperative



democracy today. "Political freedom serves economic and social development", El Mahdi says, because "in a non-democratic régime, the nation's human, natural and financial resources are largely channelled into propaganda and vested interests." So Sudan's 16 years of dictatorship has left it in a parlous state and has plunged north and south into a fratricidal war. Sudan produced enough food for itself 17 years ago, but "the previous economic policy" says the government—and also drought—have made this more unpredictable now.

"The most appropriate answer" the country's present leaders say, "in the quest for fair and lasting solutions to the problems of our economy, our society and our international cooperation is a democratic one".

Insecurity in the south

The guerrilla warfare—or the "situation of insecurity", as they put it—in the south is one of the Government's prime concerns. This rebellion, the Prime Minister asserted, was "justified to begin with, in that the claims made by John Garang, the leader of the anti-dictatorship movement, were the only possible response to a system of Government that virtually held the

population of the south as hostages for 16 years". And it helped bring down dictatorship in Sudan, he went on, adding that the contribution made by John Garang's movement to bringing back democracy was "progressive, national and patriotic".

Since August 1986, however, when the SPLA (Southern People's Liberation Army) shot down a Sudanese civilian aircraft, the El Mahdi Government has taken a harder line with John Garang. This is because, since the "civil and democratic Government was returned to Khartoum" and immediately offered to negotiate with the head of the SPLA, "the south's problem has been one of development" rather than politics in that the Government recognised the four main subjects of discontent of the southerners and agreed to try and find the sort of political solutions that would "preserve the identity of the people of the south" within the identity of the nation as a whole—something which neither the Government nor the SPLA chief wish to endanger. "We shall make a political examination of all the complaints", Sadiq El Mahdi said, "looking at the place of religion in the State structures right through to the distribution of national wealth, and we shall do so at a National Constitutional Conference". "In a democratic system with a free press (there is no government paper and a mixed system is



Mr Mohamed Ibrahim Soulemane, a young Sudanese involved in the Kadugli project, feels more young Sudanese should get involved with farming. Here he shows a variety of sorghum adapted to the region

being investigated for radio and television) and freedom of opinion", the PM went on, "anyone who used non-peaceful means of finding answers to the nation's problems would make more radical the attitude of the people of the north and exhaust the vital resources of the south, whose population, stricken by famine, poverty, war and disease, could turn against the SPLA and the movement could change into a tribal conflict between the different communities of the south". "Everything can be negotiated" he affirmed, "and there is no question of a take-it-or-leave-it solution". He stressed, however, that the SPLA should give up "its outside support", both inside the region and out. He said, for example, that the Government was anxious to settle the place Islam should have in the political and social life of the nation in such a way as to take account of all the national identities, joined in a kind of "Concordat". The asset of the peoples of the south—is that "we are living in a democratic system, the only system that will enable us to find the right sort of solutions to difficult problems".

Picking up an ailing economy

Democracy is now imperative to Sudan. Both Prime Minister and Government see it as the basic condition of sound economic development. In addition to the personal convictions of the Prime Minister, who comes from a well-established Khartoum family and is known to champion freedom, there is the fact that the present leaders have taken a hard look at 16 years of dictatorship. The results are "disastrous", they say: a "ravaged" economy, a State "riddled" with debt, a society divided whose natural differences have been "exacerbated" in order to "accommodate an authoritarian policy". What, then, can be done to get the economy working and the country back on its feet? The Government has a complex and arduous task here, for although the small, traditional class of businessmen has recovered some of its optimism, it is hard to take stock of all the

objective and psychological data of the nation's development. The vastness of the territory, its extreme aridity and the drought of up to two years ago were all snares on the path to economic development, El Mahdi maintained.

Politically speaking, Sadiq El Mahdi is to Sudan what Bismarck was to Germany. He wants to use his assets as a sincere democrat not only to achieve unity in his country, but to win the confidence of those involved in its development, both nationally and internationally. He is doing this in two main ways. First he wants to develop transport infrastructure, especially the railway, of which only 5000 km is currently in use. "The Government's policy is to expand the present network by 50% over the next 10 or 15 years", Hashim Mohamed Ahmed, the head of Sudanese railways explained. His feeling is that agricultural and industrial development depend on the quality of the transport system. In a country of the size of Sudan, particularly, since transport and communications difficulties are behind the deteriorating food situation in many places.

The Prime Minister is anxious to rationalise the country's international financial relations with the various sources of financing, so the new cooperation policy can be founded on the confidence and economic efficiency of which democracy is the best guarantee.

On the subject of the country's debt, the Prime Minister said that, in 1984, an estimated 50% of the nation's wealth had been lost. A look at the problem of the national debt could not be considered as a simple exercise in economic relations. It was, he believed, a political matter between Sudan and its creditors. The people who had guaranteed the nation's debt during the 16 years of the previous régime were, he said, aware that most of the funds had been diverted from their intended development aim and that those people had to realise that they were to be held responsible in any repayment. The present government was not, of course, reneging on Sudan's international commitments. But, as Sadiq El Mahdi said, "these will be paid back as far as the economy and the welfare of the population — which can-

not be threatened just to pay back politically and economically unjustified debts — will allow" (see interview with Sadiq El Mahdi). This explains the international approach based on "transparent utilisation of aid".

The EEC to the fore

Sudan is weak from domestic political struggle and long, hard drought. It is besieged by refugees pouring in from neighbouring countries where political instability is long-standing and it is counting on substantial international help in coping with economic pressure and catering for those whom war has made homeless.

The EEC is one of the biggest contributors to Sudan's economic development and humanitarian operations. Ever since Lomé I (1975), the Community has helped in almost every sector of the country's development. Between 1976 and late 1985, it financed a variety of schemes worth ECU 388 million (£S 1005 million), ECU 179 m of it going to projects in the national indicative programme (ECU 22 m for regional projects, ECU 17 m from the EIB, ECU 81 m in emergency aid, ECU 72 m in Stabex transfers for losses in export earnings, and ECU 17 m in food aid, particularly for the south and west where there is a high concentration of refugees from Ethiopia, the Central African Republic and Chad).

Sudan will be getting ECU 145 m under Lomé III and ECU 15 m of it will be EIB-managed risk capital. The national indicative programme, signed in November 1986 by the Government and Dieter Frisch, the EEC Commission's Director-General for Development, was warmly greeted in Khartoum (see Yellow Pages).

The main Community operations in Sudan have been agricultural ones. In Kadugli, for example, in southern Kordofan and in Zalingei in Darfur, the EEC is running some of the biggest agricultural projects it has ever had in the ACP countries.

Nuba Mountains Rural Development

This is a major rural development project involving getting the peasants to use animal traction for their crops,



Traditional irrigation in Zalingei. The EEC is also financing a modern irrigation system for farmers in the Jebel Mara Project

particularly of sorghum, sesame, groundnuts, vegetables and other foods that are common in this part of the country. There is a feeling here, that, if the region is to survive, it has to meet all its needs itself, as it is so far from Khartoum and has different outlooks and eating habits. If animals are used in farming, then manual methods with such things as rudimentary short-handled hoes can be replaced by animal traction, which gets better results. Over the past two years, more than a thousand peasants have been trained in this new method, with encouraging results.

There is still one major problem, certainly, that of finding locally the equipment they need (decompressors, seeders, drill ploughs etc.), currently imported from France. The exception to this is the draught animals themselves. However, the project leaders say that the harnesses will soon be able to be made in Khartoum, if not in Kadugli itself.

As well as showing the peasants how to use draught animals, the project, which is geared to small village communities called nuclear development communities (NDCs), also distributes selected seed so that the peasants can improve their yields if the technical side of things is done properly. So, in 1986, five NDCs were supplied with seed, 6300 kg of Daman sorghum, 6300 kg of Gatamel Haman sorghum,



Training of farmers in the Nuba Mountains Project (Kadugli)

6954 kg and 5544 kg of Zirra and Baladi sesame seed and 67 410 kg of groundnut seed. These are all tested strains which give good yields in what are often less favourable climatic conditions in comparison with the rainfall that is usually needed to get decent results in agriculture. Early sorghum, in particular, has proved to be particularly suitable.

The problem of getting animals does not, however, stop the Nuba peasants from taking a great interest in the new growing methods. They are also encouraged to do this by financial arrangements whereby they can pay off the materials they buy over three to five years. It is thought that the Nuba Mountains Rural Development Project saved southern Kordofan quite the suffering the other regions experienced from the famine that was rife in Sudan until 1984.

For two years now, regular rainfall has meant good agricultural output, with a nationwide surplus and almost 200 000 tonnes of sorghum exported to Saudi Arabia. The unexpected result of the harvests of the past two years, linked to the transport problem, has been a slump in prices. Since the peasants of Kordofan and Darfur can neither store their produce nor send any surplus to the big consumer centres, their prices have tumbled.

The Jebel Marra project

The Darfur region, as big as the whole of the Netherlands (33 000 km²), is the site of one of the Community's biggest development cooperation projects, a crop irrigation scheme involving almost 350 000 people. Jebel Marra was already considered to be ripe for a major agricultural development-irrigation operation in

1957. After a series of investigations and feasibility studies in which other funders and organisations (the FAO, for example) were involved, the project has now been working for several years. The European Community maintains a large technical team there. In Zalingei, southern Darfur and in Kadugli, there is a drive to bring in and spread the use of draught animals—and camels rather than oxen—which are more expensive in the Darfur region.

The project aims to create the sort of conditions whereby food aid can be reduced, as to continue it could seriously compromise the food and ecological balance of the region, especially in northern Darfur where the Community is distributing chemical fertiliser to the peasants to encourage farming and to avoid men and cattle moving further south and aggravating the overgrazing there.

Harvests in Jebel Marra have increased a great deal over the past two years, in particular because there has been decent rainfall over most of Sudan.

Onions, corn, gumbo, pimentoes, potatoes, and groundnuts are among the main crops in these areas and they are exported mainly to Chad and to CAR.

But in Darfur and Kordofan and elsewhere in Sudan, marketing is crucial. Transport problems push up the prices of agricultural inputs and bring down the prices of local produce that cannot be taken to the towns or to places where there is no rain.

In the field of transport and communications the European Community has always tried to avoid a total

breakdown of the lines, which would create bottlenecks both upstream and downstream of agricultural projects. Since 1978, under Lomé I, the Community has financed various deliveries of railway equipment (rails, engines) and has rebuilt bridges buried under several feet of desert sand, on the Babanusa-Abu Zabad line, for example. By the end of 1985 some 140 km of line had been rehabilitated on the Kosti-Nyala stretch. Technical assistance, together with 16 engines, supplied to the SRC (The Sudan Railway Corporation) enabled the lines in the Western provinces to function. Under Lomé III the Community will continue to prevent these bottlenecks and to secure access to the west.

European (Community and bilateral) cooperation is not, however, confined to the agricultural and transport sectors. In public health, for example, national and regional authorities get help with their campaigns against malnutrition and children's diseases. Teams of doctors from humanitarian organisations such as the Belgian section of MSF (Médecins sans Frontières) hand out drugs from public dispensaries and help give basic training to Sudanese medical staff.

The Government considers that the democratic nations of the world are morally obliged to help Sudan's economic recovery, a basic condition of the maintenance of democracy in this country. "We are the only really democratic country of Africa", said the Prime Minister... and in January he will be visiting several European countries and the EEC Commission to put his country's economic and political case. ○ L.P.

All animal traction farming operations are taught (here, sowing)



BELIZE

At peace, and at peace
with itself



Belize is nothing if not a country of contrasts. There is contrast in its landscapes, from the swampy plains on its Caribbean seaboard to the mountain passes and rain forests of its interior. There is diversity in its peoples and their cultures—part Mestizo, part Maya, part Afro-Caribbean—and in their mother tongues, part Spanish, part English, and, behind this racial mix, differences in the country's history, both as compared with its Central American neighbours and with those of the Caribbean. And finally—and sad to have to say—its democratic tradition has stood, and still stands, in contradiction to the turbu-

lence of other parts of the sub-Continent, so that to speak of Belize as a peaceful country in the Central American context means to speak of it as peaceful in the most fundamental sense of the word: as a country in which there is the absence of war.

These contrasts, which elsewhere might have led to deep divisions in its society, have not done so here: not only is Belize on good terms with its Central American neighbours (the single exception of Guatemala will, hopefully, not remain one for long) as with the larger nations of the hemisphere, but also, and above all, it is at peace with itself.

Belize, which was known as British Honduras until 1973, lies on the eastern coast of the Central American sub-Continent, with the Yucatan Peninsula to the north and Guatemala to the west and south. Demarcating its northern border is the Hondo River, the Rio Hondo, from which the country derived its colonial name. Its southern border, some 175 miles away, follows the meanderings of the Sarstoon river as it flows downstream to the Gulf of Honduras. To the west, in another contrast, the border is drawn straight as a die, one of those typical colonial frontiers which must have looked eminently sensible on a map, but not always so logical on the ground itself. The eastern border lies in the sea, embracing the dozens of islands, and cays that lie on either side of Belize's barrier reef, and which constitute one of the country's biggest tourist attractions.

Belize City: built on broken bottles and mahogany logs

Belize City, though no longer the country's capital, remains by far its largest commercial centre, as well as its biggest seaport. Its population, at some 40 000, is predominantly creole and makes up a quarter of the population of the entire country. The city is colourful and lively—particularly so on Friday, market day, when amid the general hurly-burly members of the Mennonite community, a remote and enclosed Christian sect, descend from the highlands in their outmoded dress to sell furniture in their own image—solid, sober and free of all extravagance.

Lying on the swampland at the edge of the coastal plain, prevented from sinking, legend has it, only by the rum bottles and the mahogany logs on which it was built, the city contains both fine examples of timbered colonial architecture and pitiful examples of the ramshackle housing of its dispossessed.

Belmopan, the new capital, is some 50 miles inland, in the foothills of the Maya Mountains, away from the watery coast. It was built there to be away from another of Belize City's menaces—its hurricanes, and more particularly from the tidal waves that follow them and which have taken a heavy

toll on the country's coastal cities over the years. Belize City was nearly destroyed by a hurricane in 1931 in which an estimated 1000 lives were lost. Hurricane Janet, in 1955, destroyed Corozal Town, and Hurricane

diante shoreline are pleasantly insect-free—the bugs being blown away by the strong sea breezes that blow all year round. But away from the seafont, and particularly in the swampy lagoons that surround the city, there is



The Courier

A fine example of colonial architecture in Belize City... but the poorer quarters are damp and overcrowded

Hattie, striking the mainland six years later, claimed another 275 lives and helped to push ahead the move of the capital to Belmopan ten years later. Fifteen years after the official move, the new capital remains very much a civil servants' town only. Its population is still less than a tenth of that of Belize City, and many ministers continue to work in the latter, commuting to Belmopan when their presence there is necessary. On the prime site reserved for embassies and foreign representations, only one plot is occupied as yet—by the British Embassy, standing in splendid, if somewhat incongruous, isolation.

Many who have made the move to Belmopan, though, have no regrets. Among them is Yvonne Hyde, a senior civil servant, heading Belize's Economic Development Unit, who greatly values the generally healthier, and more spacious living conditions of the new capital compared with the old, and above all its comparative lack of mosquitos.

This long-standing association of Belize with mosquitos is both justified and unfair. The areas on the imme-

no denying their presence. (A film crew recently took over the city's hotels for some months while making a feature about the country. The dollars flowed like water and the tourist operators had a hey-day, dreaming meanwhile of the publicity to follow. The film, unfortunately, was called "Mosquito Coast", which must have been something of a sting in itself). Mrs Hyde remembers the days of wearing protective clothing to school in the City, and the insects do nothing to ease the lot of those in its poorest quarters.

The City's poorer quarters: damp and overcrowded

Hubert Elrington, the present Minister of Housing, is deeply concerned by the conditions in which Belizeans in Belize City, in particular, are having to live. The city is in itself wet: on two sides there is the sea, and through it flows a river, the Haulover Creek, as well as numerous canals. Around it is swampland. After heavy rains the floors of the wooden houses on which poor families have to sleep are often



Building work under way on the Western Highway: internal communications are a high Government priority

wet, and the health and welfare of what Minister Elrington believes to be the country's most important resource—its people—is, he fears, badly affected. Compounding the public health problem is one of overcrowding. Belize City suffers from a grave housing deficit, of some 5000 units in the Minister's estimation, which there is little prospect of alleviating in the short-term. There are physical constraints, of course, given the nature of the land around the city, but there are also, and above all, financial constraints. The Government itself has placed the highest possible priority, given its limited resources, on the housing sector, the Minister believed, but donors were sometimes lacking in sensitive attitudes, he thought. "Donor nations", he regretted, "are not very interested in providing the type of long-term loan that is required to make the housing policy viable".

Donor help with the four main highways

If they have been found wanting in sensitivity to Belize's housing needs, the donors have at least helped greatly to improve the country's roads—a vital prerequisite to the growth of its predominantly agricultural economy. Four main highways form the backbone of the road network: the Northern Highway, linking Belize City to

the Mexican road system; the Western Highway, running from Belize City, via Belmopan, to the Guatemala border; the Southern Highway, linking Dangriga to Punta Gorda and, finally, the Hummingbird Highway, which joins Dangriga and Belmopan. Of these, the Hummingbird and Southern Highways need further reconstruction, for which UK and EEC financing has

already been pledged. USAID and CDB have been instrumental in building up the network of rural feeder roads to enable the country's principal agricultural exports—sugar, citrus fruits (see box) and bananas, in the main—to be got away from the small-holdings and out of the country.

Inadequate shipping hampering trade

Belize's transport problems do not end there, however. The shallowness of the waters inside the cays is such that ocean-going freighters have to be anchored offshore, and agricultural produce barged out to them. For bananas, which have to be shipped in this way as far as Honduras, the need for additional handling is a serious drawback. The absence of calls by any of the WISCO boats (the CARICOM regional line) is a further handicap. (It is also an example of Belize's general lack of benefit from the practical aspects of CARICOM membership, though its political aspects are valued greatly). Belize's livestock export industry, for example, could find ready markets in the region if adequate shipping was available. For citrus and sugar the problem of added handling is less acute, though every extra stage in the delivery process eats away at the profit margins, of course.



Inadequate shipping hampers the growth of banana exports, for example

And sugar, in particular, has more than enough problems as it is, the biggest of which is falling prices.

Belize's sugar production fell in 1985 to 96 000 tons, a drop of 5% over 1984. More importantly, this 5% fall represented a 30% fall in export value—and sugar has traditionally accounted for anything up to half Belize's total foreign exchange earnings. Part of this drop in value is to be attributed to falling world prices, now well below production costs; part of it to the cut in the US preferential quota from 24 500 tons to 16 500 tons—a fine example, critics say, of the US giving with the right hand (in the form of the Caribbean Basin Initiative*) and taking back with the left.

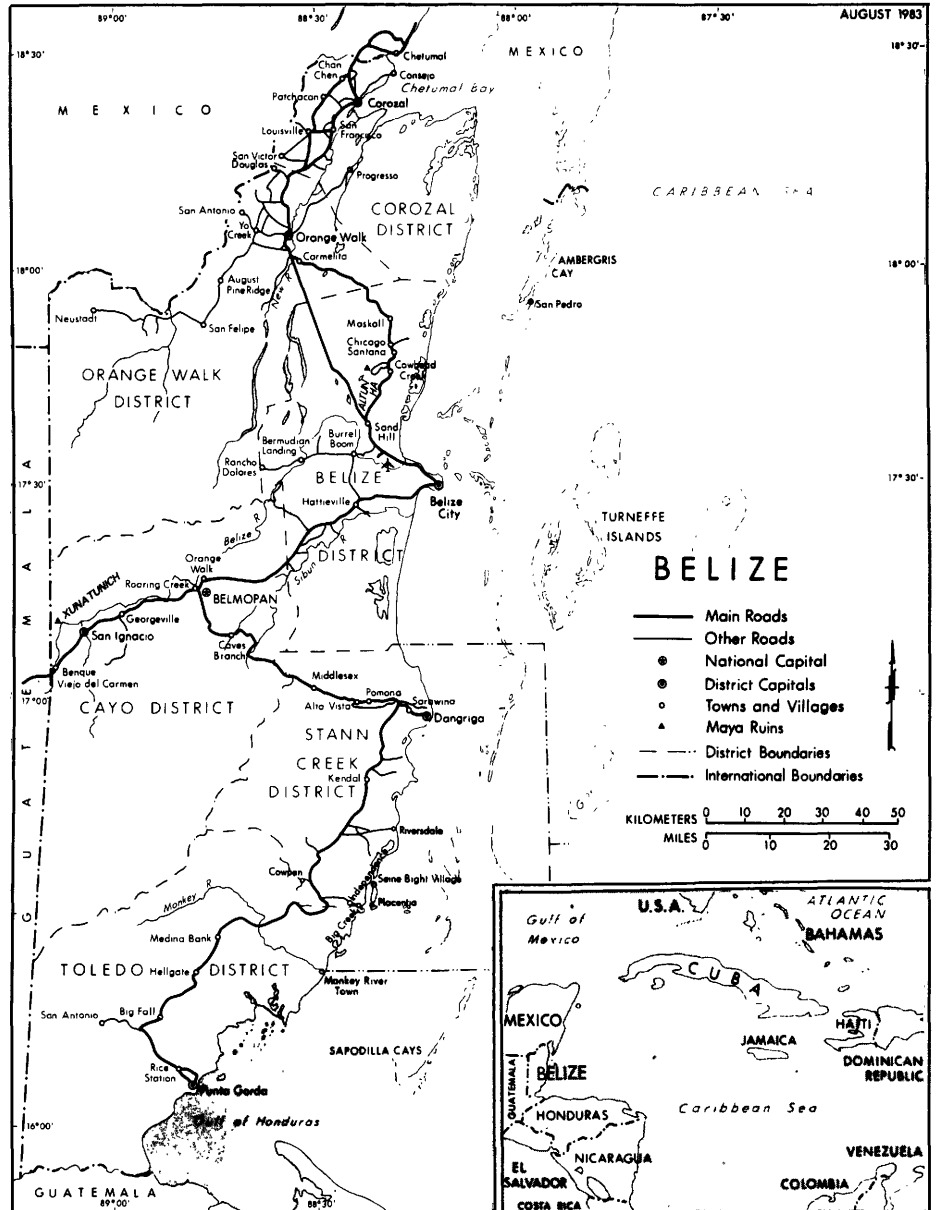
“Libertad will be saved, and saved by this Government”.

The whole sugar question has, in fact, assumed great political significance since 1985. Shortly after the present Government came to office a proposed deal between Tate and Lyle, the UK sugar giant, and the Belize Sugar Industries fell through, Tate and Lyle being widely seen as having taken full advantage of the new government's relative lack of negotiating experience. The sugar factory at Libertad, one of only two in the country, was closed—a disappointing start indeed for a government going all out to attract foreign investment and to encourage private enterprise. Reopening the factory has therefore become something of a point of honour for the Government and the plant is expected, actually, to reopen shortly, not for the production of sugar but for that of ethanol. When it does, Prime Minister Esquivel will have fulfilled the first promise he made in his 1986/87 budget speech, namely that: “Libertad will be saved and saved by this Government”.

The Coca Cola deal

Another deal with a major multinational—successfully concluded in September last year—is fast becoming a political hot potato, too. This is the massive Coca Cola land deal, affecting some 700 000 acres in all and worth at

(*) A United States initiative whereby some 25 countries in the Caribbean region can ship a wide range of products duty free to the US.



Belize profile

Head of State: Queen Elizabeth II, represented by Governor-General, Dame Minita Gordon

Head of Government: Manuel Esquivel

Ruling party: United Democratic Party

Date of independence: 21 September 1981

Area: 22 693 km² (including 689 on 450 offshore cays)

Capital: Belmopan

Population: 170 000 (Belize City 40 000)

Rate of population growth: 2% (1970-83)

Density: 7.4 km²

Official language: English
Other languages: Spanish, Creole

Adult literacy: 92%

Currency: Belize \$ (B \$ 2 = US \$ 1)

GDP/capita: US \$ 1099 (1984)

Rate of growth: 1.5%

Inflation rate: 3%

Balance of trade: - B \$ 77.4 m

External debt: US \$ 87.9 m

Principal exports: sugar, citrus fruit, bananas, marine products (lobster, conch, shrimps), cattle, garments

least US \$ 80 m over the life of the investment's development programme. It will *inter alia*, put some 25 000 acres in the Orange Walk District into citrus production in the coming decade.

The deal is seen by some as a huge feather in the Government's cap, a marvellous success in their drive to attract foreign investment. Other reactions are altogether more guarded: some are even bitterly critical. In part criticism has been a question of principle, the fear of an American "foothold" in Belize upsetting the delicate political neutrality which is much of the nation's strength. But it is also questioned in terms of profit, and

there are doubts in the minds of some that much of the benefits of the vast investment will actually accrue to Belize. Whatever proves to be the case ("bottom line" as the Americans themselves would say), the investment will inevitably create some employment for Belizeans and will, above all, make productive vast tracts of land which at present are largely unproductive.

It must also be seen as a firm vote of confidence in Belize's investment climate, and as encouragement for other businesses to follow the example Coca Cola has set. Certainly this is the Government's hope, and the recently established Belize Export and Invest-

ment Promotion Unit (BEIPU), a joint public/private sector initiative, will undoubtedly help in capitalising on the publicity that the deal has given the country.

A healthier investment climate

The improvement in the investment climate is not the only achievement with which the Government is to be credited. The country's statutory boards (the Electricity Board and the Port Authority, for example), which for long had been a drain on its limited resources, are now all showing net operating surpluses. The threat of de-

Belize's citrus industry

Citrus is something of a star pupil in Belize's class of agricultural products, and the signs are that the 1986 end-of-year report will give it even higher marks than did that of 1985. As it is, citrus is already the country's second most important agricultural activity, and the potential for expansion, both in terms of available land and of ready markets, is great. Some 12 500 acres are now under cultivation, about 60% of which are oranges, the rest grapefruit, and expansion in the near future by a further 6000 acres is foreseen. Dwarfing these figures is the massive—and highly controversial—land deal recently signed with the Coca Cola Foods subsidiary, Minute Maid, which, when fully on stream, could open up a further 25 000 acres of the country to citrus production.

Orange and grapefruit trees are grown throughout Belize, though the main area of concentration is in the Stan Creek Valley, in the country's heartland. Most growers are smallholders, with groves of less than 10 acres, though there is some slight move towards consolidation of acreages. Most of the fruit grown are Valencia (oranges) and Marsh Seedless (grapefruit), trees which bear fruit at two years, break even at about eight years, and produce profitably for about 20 more.

All export is in the form of con-

centrate, with the end-product leaving the country in 52-gallon drums by small coastal freighters after being processed at one of the Valley's two processing plants. At a rate of 14 000-18 000 boxes processed a day, both plants are operating at well below capacity and could handle as much as double these amounts, or more.



The Courier

Budding a young orange tree. The recent Coca Cola deal will vastly increase Belize's citrus acreages

Part of the problem of increasing yields certainly lies in poor agricultural practices—inadequate fertilising, weeding or liming—but a major part of it is a function of a wider developmental problem and one that affects performances throughout the sector: underpopulation.

Belize's citrus industry suffers, as do others, from a lack of manpower—or at least of willing manpower—to plant, nurture and harvest its crop, thereby holding back improvement in its present yields and hampering expansion of production. Unemployment is high in Belize City, and yet the casual labour taken on at harvesting, representing many thousands of man/hours, is not usually Belizean, but "alien"—Guatemalans or Salvadoreans, for example, who move from grove to grove between October and June, paid on a piecework basis for the fruit they pick.

Expansion is eminently possible, though. Belize's crop is relatively free of disease, and relatively resistant to hurricane damage. The country's soils are, in the main, fertile, and even where the acid level is high, there is lime readily available to help counter the acidity.

Nor is there any constraint in the marketing of concentrate, at least not for oranges. Citrus is one area in which the CBI has proved of real benefit, with the removal of the 30% US import duty on citrus concentrate. The US has helped Belize's trade in another way, too, though not, this time, intentionally: the recent frosts in Florida have created shortfalls in American domestic production, and have concentrated the minds of the food and drink magnates wonderfully on the virtues of diversifying their sources. It has been cloud which, for Belize, has had a silver lining. ○

valuation of the Belize dollar, (linked in value to the US \$) which had hung over the country since the early 1980s, has receded. An austerity budget—the new Government's first—in March 1984 enabled the rate of inflation to drop from 6% in 1984 to 3% in 1985. Imports for domestic consumption were also reduced, though the huge drop in sugar earnings has meant that the overall balance of trade has worsened nevertheless.

With the efforts being made at expanding the economic base away from sugar and into citrus, mariculture, and the livestock and garment industries, for example, Belize's economy should now be less sensitive than in the past to the trials and tribulations of a single commodity.

“Hugs not drugs”

One source of revenue which the Government does *not* welcome, however, is that from the trafficking and producing of drugs, referred to by the country's Foreign Affairs Minister, Dean Barrow, as “a blot on our society”. Marijuana, in particular, is a major unquantified export to the United States. In 1983, prior to a large-scale paraquat spraying programme carried out under US pressure, Belize was the third largest producer in Latin and Central America, its “Belize Breeze” strain being one of the most potent and therefore most prized on the market. Great efforts are being made to stamp out the trade. Tens of thousands of plants have been destroyed (manually, principally, since the 1983 Drug Enforcement Agency aerial spraying programme also devastated legitimate crops in growing areas) and hundred of traffickers have been arrested. In addition, a widespread anti-drug publicity campaign has been launched, with slogans such as “Hugs not Drugs”, and a branch of PRIDE (Parents' Resource Institute for Drug Eradication) has recently been established in Belize to help counter drug abuse among young people, in particular.

The drug question goes beyond moral and health considerations, though. In a part of the world where narcotics barons can come to dominate both the economic and the political life of a nation, drugs are increasingly perceived as a major threat to Belize's



The Courier

Sugar, a troubled industry, but still Belize's biggest employer and foreign exchange earner

stability. The violent crime associated with the trade is on the increase, and the apparent links between Belize's illegal immigrants—Guatemalans amongst others—and the trade is creating added tensions in her relations with her neighbours.

The “alien” question

As a haven of peace in a war-torn region, the past decade has seen a major influx of political and economic refugees into Belize. Many of the refugees—or “aliens” as they are known—are unregistered, and their precise numbers can only be roughly esti-

mated. Figures range between 15 000 and 30 000 and fluctuate a certain amount according to season. In part the “visitors” are not unwelcome: in an underpopulated country they provide much of the casual labour for the sugar and citrus industries, and do so under conditions which many native Belizeans would not find acceptable. Their wages are low, and they are prepared to move around from grove to grove, on Rosinante-like steeds or in worn out American trucks, as and where demand arises. In such numbers, however—and apart from their drug and crime associations—they are beginning to be seen as a threat to Belize's ethnic harmony and as a further strain on the nation's already stretched resources.

The long-running border dispute

The alien question is made all the more delicate, moreover, by the present state of negotiations between the new civilian government in Guatemala and the Belize Government to settle their seemingly endless border dispute.

The dispute dates back to the Anglo-Guatemalan border treaty of 1859 whereby a road was to have been built by the British linking Guatemala to the Caribbean coast. The road was never built and the Guatemalans have contested what they see as their right to a part of Belizean territory ever



The Courier

Foreign Affairs Minister Dean Barrow
“Drugs are a blot on our society”



since. The dispute has been a decisive factor in shaping the country's politics in the past and it was the prime motive behind the long delay in its emergence from self-government to independence, a *sine qua non* of which was that Guatemala should recognise Belize within its existing borders. Despite having done so, in an agreement signed in 1980, the border question continued to be used by Guatemala's former military government as a political football, and the British garrison left there at independence remains there, and will do so, the UK government assures, "for as long as they are needed".

The return of Guatemala to a civilian government with impeccably democratic credentials has opened a "window of opportunity", as the Foreign Minister put it, for a lasting diplomatic solution to be found, though he expressed some disappointment that such a hope had not yet found much substantiation. As it is, the presence of the troops is very low-key, and there is no evidence that the distant rumblings of the Guatemala claim are having an injurious effect on trade, investment or tourism.

Potential in specialist tourism

Indeed, in the case of the latter, the country's peace is, to many, one of its

Above, jaguars at rest, and below, an acorn woodpecker. Belize's rich animal and plant life, both on land and underwater, has much to offer the specialist tourist



Partridge Films

main attractions. It is a specialist destination, unable to offer the sophistication and glamour associated with many of the Caribbean islands, but able to offer some of what they cannot.

The Maya remains (see separate article) are a major attraction, as is the plant and animal life of the interior. The Barrier Reef off its coast is the biggest in the western hemisphere and its atolls and cays make for excellent diving, fishing, sunbathing and swimming. Some 40 000 tourists visit the country each year at present, mostly

from the United States, and the potential for expansion is considerable.

Yet tourism developed in the past, according to the Deputy Minister of Tourism, Henry Young, "despite the previous government rather than because of it". Their aversion to creating "a nation of waiters"—a nightmare vision of the former Prime Minister—has certainly held back tourism's development, a situation which the Esquivel government is keen to reverse. Marketing has, to date, been one of the weakest links in the chain, and a major promotion drive is now underway. The product aimed at is "clean tourism"—the type which will attract the naturalist, the environmentalist, the diver or the hiker. The kind, also, which will benefit the interior as well

as the coast and the cays, putting the family-run hotel before the luxury giants.

There is little doubt that tourism will succeed, but equally little reason to suppose that its success will fundamentally alter Belizeans' way of life. They are a contented people, at peace with themselves, and there is every chance that, like the tropics the visitors come to admire, greater prosperity will find them still in their natural, undisturbed state. ◊

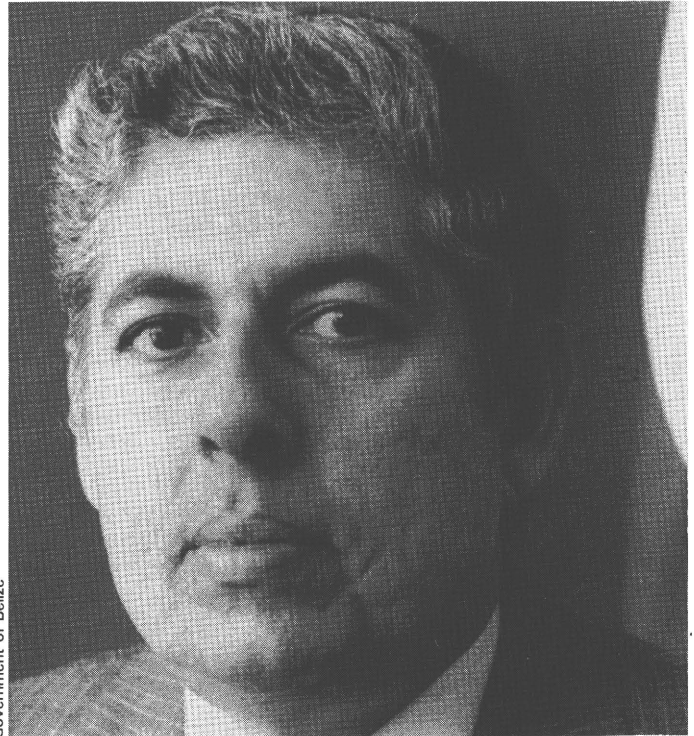
Myfanwy VAN DE VELDE

“A crusade of prosperity for all”

An interview with Prime Minister Esquivel

In 1983, Belize's Prime Minister, Manuel Esquivel, assumed the leadership of the United Democratic Party (UDP), a party then widely seen as pro-middle class and pro-Afro Belize and which since its creation in 1964 had remained in opposition to the People's United Party (PUP). On becoming the UDP's leader, Mr Esquivel, who had until then been a physics teacher in professional life, proceeded swiftly to expand the party's electoral appeal to include more of the Mestizo population and to change its somewhat conservative image to a more centrist one. These changes, combined with various other factors mitigating against the PUP, proved to be the recipe for success, for the December 1984 general elections, the first since independence, brought the UDP to government with a decisive majority.

Since coming to office, Prime Minister Esquivel has embarked on what he terms “a crusade of prosperity for all”, striving to put his country's finances in order and resolutely pursuing new investments. Security remains a major preoccupation and the change of government in Guatemala has paved the way for renewed initiatives to settle its long-running border dispute with Belize. Progress in these initiatives, together with that in stamping out Belize's burgeoning drug trade, were amongst the topics discussed with the Prime Minister in this interview. The Courier's first question to him, and the one he later confessed to having found the



Manuel Esquivel

most difficult to answer, was that of how Belizeans identify themselves, as Caribbean, Central American, or both at the same time...?

— The best answer would be to say that they saw themselves as Belizeans. Really it is a valid question, because there are people here whose immediate ancestors are from Central America, and Mexico, as well as people who have ties with the West Indies, certainly culturally. So that as you walk around Belize you will find that, certainly in Belize City, you would feel very much like you were in the Caribbean and the people there would tend to identify themselves as Caribbean, whereas if you go to the North, or the West, people might identify themselves more as Central Americans. But nevertheless, when you put them all together, and ask them “Where do you fit in?”, I don't think they would say any of those things, they would just say: “We fit in here”. So even though there are different ethnic backgrounds, and cultural backgrounds, in the end we have man-

aged to develop pretty much a Belizean culture and feeling.

► *Is there much, in fact, in the way of racial tension?*

— Obviously you are never free of that, but it is getting less so. For many years, until, I would say, up to 20 years ago, the different ethnic groups were somewhat distinct in so far as geography was concerned. In Corozal, and Orange Walk, it was almost exclusively Mestizos, originating from Mexico; in the South it was almost exclusively the black Caribs, or Maya Indians. In Belize City the overwhelming majority was Creole. Whereas now, because of better transportation, and more mobility, you will find that, while as a casual observer you will still see obvious changes in the racial complexion from the North to the South, nevertheless the mixture is everywhere. It's a very healthy thing. You

have a lot more mixed marriages now than you used to have. Certainly in education—in any school you go to, anywhere in the country, you will see quite a mixture of ethnic groups.

Guatemala: moving towards border settlement?

► *The border dispute with Guatemala has been going on for a long time now. Can you confirm that things are moving towards a settlement?*

— We hope they are moving. But you will appreciate that it's an extremely delicate matter, and on both sides of the border there are political considerations that tend to overshadow what might actually be taking place. For our part, we have set up a committee of the House of Representatives, consisting of the two major

political parties to try to find a common negotiating position on our side. On their side they have a difficulty in so far as they have in the government new people, represented mostly by the President, as well as old people—old in the history of this dispute—who, for example, might be represented by the Foreign Minister, so there is a very definite conflict there as well. But for us, and I think for them, the least we say about those things the better, if we want to really move forward. So we are trying, in the context of those kind of political considerations, to find a way.

► *Has the dispute been of a magnitude such as has reinforced the sense of national identity here?*

— I think it has, you know. In recent times it has not been a particular issue because things have been very quiet. The attitude in Guatemala has been very different. It doesn't have the same belligerency it may have had, say, in the '70s. But certainly during the period from the early '50s until late '70s, I think the existence of this dispute certainly had the effect of helping people to identify themselves as a distinct political, cultural, and ethnic grouping—very much so.

► *And is there evidence that it has also acted as a disincentive to investment?*

— That's very difficult to say. I am not aware that it has, really. Certainly since we've been in office, which is over a year and a half now, we have seen an awful lot of people, both here and abroad, while trying to attract investment. In no case has anybody ever asked me about that. So I can only assume that really it is not a significant problem.

Agriculture and tourism — the economy's driving forces

► *What do you feel to be the areas of greatest potential in the country's economic development?*

— We have identified four very broad headings: agriculture has always been important, and it will continue to be an important part of our econ-

omy. Except we want to go one step further in agriculture—agriculture not only as a means of becoming self-sufficient in the food that we can produce but also in the sense of an agro-business with a view to developing export markets. At the moment our exports in agriculture are sugar and citrus, principally, and if we include fishing in agriculture then, lobster, shrimp and some fish. Agriculture remains one of the important resources that we think would help.

We have also put considerable emphasis on tourism, although in some ways you might say it is still subdued in the sense that we recognise that we are lacking in hotel rooms, we are lacking in airline seats, and of course the airport would be inadequate for any major expansion. We are trying to develop these things with a gradual campaign of introducing these to people, because if we were to spend a lot of money on promotion at this time, I think we would run into some serious difficulties as far as accommodating whoever we might attract. So we want to try and make sure that our adventure into attracting more people in tourism is phased, and is modest at the start, until we can catch up as far as the necessary infrastructure is concerned.

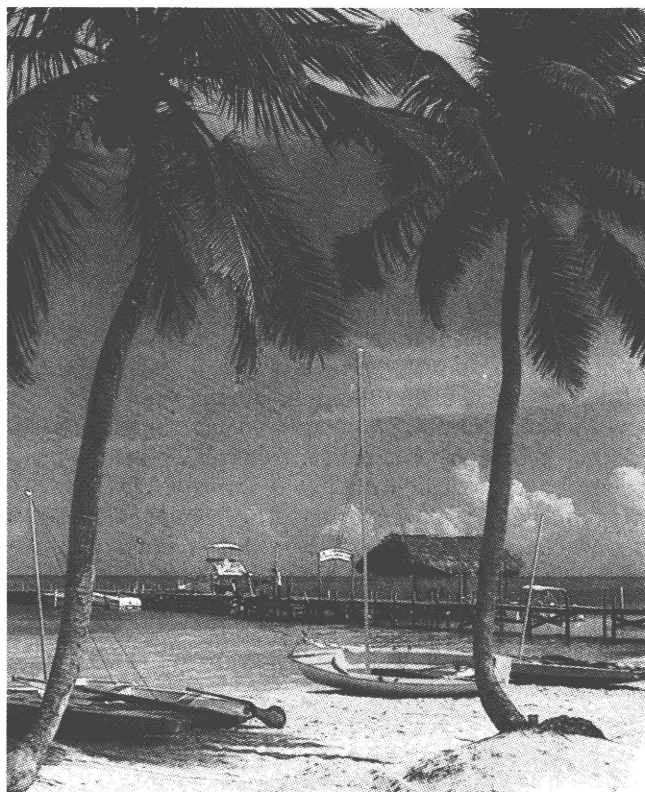
Then we feel that we should develop some kind of manufacturing base; however primary it might be. This for several reasons, but the principal one being that, as we develop agriculture and tourism, the benefits would mostly accrue to the rural areas of the country. We have one major city, Belize City, in which the unemployment rate is high, and where things like agriculture and tourism-related employment could only have secondary effects. We feel for an urban centre like that we will need to develop some kind of manufacturing base, again with a view to exports.

And then, finally, fishing. Fishing and forestry, we think, are two areas which offer a lot of potential. At the moment, the fishing which we do is done exclusively within the Barrier Reef, which gives us a narrow corridor of sea. We have not tried to exploit the sea beyond the Reef, for a number of reasons—partly historical reasons, but also economic reasons, the lack of capital investment that that would require. We have been encouraging joint ventures, with our fishing cooperatives, and with other people to see whether the potential that we think is there would be applicable in this trade.

In the case of forestry, again Belize has principally engaged in forestry as an export commodity in its primary state. We feel that there is a lot of potential here for us to develop into other areas of export such as furniture, doors, semi-processed products that is. So those are the areas that we are looking at. All of them, you will recognise, except perhaps for the manufacturing sector, will be based on what is available locally. The manufacturing sector poses a particular difficulty in so far as when we talk about that, we will be talking about rudimentary manufacturing, perhaps simply the assembling of things, but in any case this requires energy. Electrical energy at this time is scarce and it is expensive, and so we have been trying to find ways and means of addressing both these problems.

► *Such as?*

— Hydropower remains a



Caye Chapel. Government is looking for a phased development of tourism's considerable potential



"Agriculture has always been important... but we want to go one step further, not only as a means of becoming self-sufficient, but with a view to developing export markets"

distinct possibility. The difficulty with it is that what we have seen today requires large capital investment, and it requires some kind of, at least partly, national grid to make the consumption worthwhile. We've looked at woodburning. Woodburning has gone from a scale of about a US \$ 50 million-type investment, maybe 30 megawatt units which could presumably then be used as separate units avoiding the difficulties of high transmission costs. It also has the attraction that, as opposed to the large units where there is a very real danger of deforestation; in the case of the small units, the 1-megawatt, we feel—although we would have to look at that more carefully—that 1000 acres of timber could maintain a 1-megawatt power plant, if it involved replanting as we went along. So that that is a possibility. Hydro, from the large national system to slightly smaller systems which might only be dealing with some of the towns and the city. Woodburning—again mostly we would not be considering a large system because of the dangers involved, but the possibility of a small system. We're looking at continuation with diesel, which is what we now use, and also we are looking, in cooperation with the Mexicans, at the possible use of electricity in a limited way from Mexico, just, for example, for the northernmost district of the country.

► *Has anybody expressed any interest in prospecting for oil off the coast?*

— They have been prospecting for oil since 1950 or so! And it still goes on. Each year we issue licences. At the moment I don't think there is any drilling going on, but I think some licences have been granted for drilling later on this year. So it continues... some limited success has been had, but nothing to make us competitive as an exporter of oil. But we have seriously considered whether it would be worthwhile to look at ourselves as being suppliers of our own oil, provided we could make that viable considering the volume and the scale we are talking about, if we're just talking about the local market.



"We have not really developed an ability to market in the United States"

The drug problem

► *To move on to the question of drugs. It's obviously government policy to stamp out the growing of marijuana, but because it's such a profitable industry, do you really have any hope that one day you will be able to eliminate it totally?*

— Well, let me just say that the problem is not just the growing of marijuana, although that is a significant problem in so far as it is internal, you might say. But when we speak about drugs as it affects Belize, we really do need to speak about everything. Because we are not only affected by the growing of marijuana in Belize, we are affected by the use of Belize as a trans-shipment area for other drugs, which has introduced into Belizean life not only the smoking of marijuana but also the use of other drugs such as cocaine, which we consider a very alarming development. So that we really are not concerned just with stamping out the growing of marijuana, we are very much concerned with trying to cut down on *all* of this activity.

"If we were to depend on our ability to pay people not to do it... there would be no hope"

You say: "Is there any hope of ever stamping it out completely?" Well, no, you are probably right that it would be unrealistic to think of that, anymore than it would be realistic to

think of stamping out smoking altogether. I think people would always find ways to do this. We are certainly interested in reducing the growing of marijuana to a level where it does not pose the kind of threats which it is now posing to us, which are not only the drug addiction, which is serious of course, but it goes beyond that. There has been an increase in violence in those areas where marijuana is grown. There has been an increase in illegal aliens in those areas, and there is always the threat, even, to the national security—as we have seen in Bolivia, and Colombia, and other places. So it is not simply a matter of stopping the growing of marijuana, it goes much beyond that. We are very determined to fight that as much as we can. We do need a lot of help, because it's very expensive to do that, and certainly we could never compete, as you point out, financially, with those who are involved in the trade.

If we were going to depend solely on our ability to pay people enough not to do it, whether it's people who work for us, or people who are farmers or whatever, then there would be no hope. It has to be also an education programme.

► *What is the government's policy on development of the capital, Belmopan? It's present development seems somewhat subdued...*

— I'll say this, I don't think people will ever abandon Belize City. But it is subdued, it is still largely a civil service town, although there are more and more people moving in here. I will say at the moment there is no housing available in Belmopan. All that was constructed is occupied. So that, you know, we have run out of land so to speak, if we're talking about land which includes streets, drains, water, electricity. Any future expansion would need to be of that sort, we would have to be putting in those things. But the expansion, the need, is there. There is a desire for more people to come to Belmopan, but the growth will be gradual, I think.

► *And the manufacturing industry that you hope to develop... would you encourage people to come to Belmopan rather than to Belize City?*

— Some of it we would like to have here, yes. I think the Development Fi-

nance Corporation have proposed putting up three new factory shells in the vicinity of Belmopan. So, yes, we would like to see some of it here. Of course, because of the very high population in Belize City, we would not neglect that at all. But some of it we feel should come here, yes.

The CBI: "not as significant as it could have been"

► *How would you assess the impact of the Caribbean Basin Initiative to date?*

— It has not really been as significant as it could have been. Partly, I think it is because we were not, and perhaps still are not, really prepared to take advantage of it. We, as I told you, have been exporters of sugar and citrus, and lobster, say to North America, and garments, which, although it's just one garment industry, is a significant part of the economy. But besides that we have not really developed an ability to market in the United States, which is a very sophisticated market.

Since the announcement of the CBI, I think people have been encouraged to try to develop the necessary marketing in the United States. There is a great deal of activity going on with developing vegetable markets, for example, and other agricultural markets there. But because we have been exporters of so little, we really were not prepared to take advantage of that; so that we have some way to go, and we are very much hopeful that the programme will be extended beyond its present life to enable us to benefit more from it. I think we're making progress. Things are on the drawing board, we are gradually getting in there. There's one project which we have been working on very hard for some time now, and it looks like we are about to succeed, and that is with regard to Ethanol... the CBI programme would be crucial to the success of that.

► *But, in general, has it been more a question of stimulating existing export industries than of creating totally new projects?*

— Well, I think it's the latter. The existing industries—sugar it's by means of a quota, so there's nothing that can be done about that. Citrus

perhaps has been stimulated somewhat, there's more planting going on and so on. And lobster remains about the same because there is kind of an average that we can take, in the conditions in which we now fish, and that's it. Even if we had a bigger market we would not want to be supplying more. But on the other hand it *has* stimulated an interest in fishing in deep sea. It *has* stimulated this interest in vegetable production, and in ethnic food production, I might say. There are so many ethnic groups in the United States who are asserting themselves, and who have an interest in Caribbean, and Central American food. For example, in South Florida there are a million Cubans who are looking for places to supply them with a lot of the food they are used to in Cuba. So the possibilities are there. So I think it is stimulating people to try to get into new export fields.

► *What value has it been to Belize to be a partner in the Lomé Convention?*

— That has been one of the best schemes, I think, that we are in, because while it is true that the competition is fierce, nevertheless the kind of terms which Lomé offers I don't think are matched by anyone, except maybe the British. But the volume that the British offer is much less. But certainly the terms, and the grant segment of it, I think is quite generous as far as multilateral donors are concerned. The one area where we feel that we are not getting all we could is in the area of regional funding. We have benefitted from it, in many ways, CARDI being one of them. But one could easily appreciate how much simpler it is, say, for the Eastern Caribbean Islands to get together for a regional project than it would be for Belize, so that much of the money that goes to the so-called LDCs in the Caribbean, I think, goes to them, and we don't really participate in that, except in some instances. So that in talking to Bert (*) for example, we are saying, maybe we could try to develop something, say, with Mexico or, if we solved our problems, maybe with Guatemala, so that we could become more aggressive in this area of the Convention. ○

Interview by M.v.d.V.

(*) Bert Horsthuis, the EEC's Resident Adviser in Belize.

Belize-European Community cooperation

by Albert HORSTHUIS (*)

Belize is a peaceful and safe country in a war-torn region where one can freely walk around without having to be afraid of being attacked, except by an occasional mosquito.

The population, estimated at some 170 000 (refugees from other Central American countries included), is small given the size of the territory, 22 962 km² (including 689 km² on 450 offshore cayes, some inhabited, others not), giving an average population density of only 7.4/km². As yet there is no heavy industry or mining activity, and the land, the rivers, the creeks, the air and the sea are clean and unpolluted.

Belize is further blessed with a beautiful barrier reef in front of its seaboard and a friendly, well-educated population made up of various ethnic groups living and working harmoniously together, mainly in the agricultural sector (sugar, citrus, banana, cocoa, lobster and conch fishing included). The Government's economic priorities are agriculture and its related industries and tourism.

One of the preconditions of further developing both agriculture and tourism is a developed infrastructure. In the case of Belize, an all-weather and reliable main road network is essential and the Lomé III Indicative Programme clearly reflects this need.

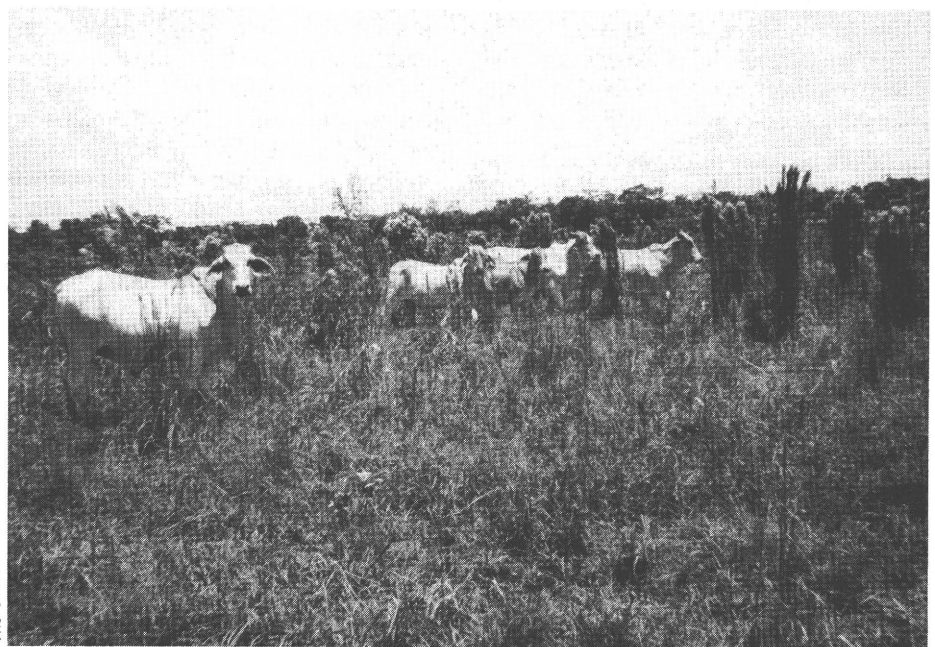
Lomé I

The initial Indicative Programme for Lomé I amounted to ECU 3 815 000. This, however, was increased to ECU 5 580 000 as additional funds were allocated to Belize as an ex-Overseas Territory. Completed projects, to a value of ECU 3 525 000 include the well-equipped veterinary laboratory in Belize City, which is instrumental in keeping up the high standard of animal health; it also controls meat and meat products.

Three junior secondary schools have been built: in Orange Walk, the Orange Walk Technical High School; in San José Soccoths, the Mopan Technical High School and in Punta Gorda, the Toledo Community College (see box). All provide, in a 4-year course, in addition to a good general education, practical courses in subjects such as woodwork, metalwork, agriculture and home economics. The schools are filled to capacity and enjoy the support of the parents and the local communities, as has been demon-

strated by several fund-raising events.

There is little to be said on the extension of the apron of the international airport other than that it is a nice piece of concrete and that it is



The Courier

Red and white Brahman cattle bred at CARICOM Farms, a Community-supported regional project

still there! A study was undertaken for the Belcast (Belize College of Arts, Science and Technology) in view of the construction of a proposed college in Belmopan for which the uncommitted balance of Lomé I and the bulk of Lomé II were earmarked.

Priorities do change according to circumstances, however, and these balances are now earmarked for the construction of a new hospital in Belize City to gradually replace the old one.

Lomé II

The bulk of Lomé II, ECU 5 100 000 has been earmarked for the Belize City hospital and architectural design study is about to begin. (The uncommitted balance of ECU 2 054 500 from Lomé I is also earmarked for this purpose). The existing, century-old, partially timber, partially concrete, 187-bed Belize City hospital, which is also the referral hospital for the whole country, is in rather bad shape, not only because of its respectable age, but also because of its location on the seashore. It has more or less survived several hurricanes, but it might not survive the next one, and more especially not the tidal wave that usually accompanies hurricanes.

The new hospital will have 100 beds initially, but the basic services will be such that a future extension of a further 100 beds will be able to be accom-

(*) EEC Resident Adviser, Belize.



Belize City, in the front line for hurricanes and tidal waves. Part of Lomé aid is going towards building a newer, stronger hospital

modated. The uncommitted balances of Lomé I and II are destined for the construction, the supply and installation of equipment, and the furnishing of the new hospital.

Lomé III

As agreed in the Lomé III Indicative Programme, which was signed on 1 May 1986, 80% of the funds will be concentrated on economic infrastructure, and a sum of ECU 5 600 000 will

be available for the improvement of the Hummingbird Highway in particular.

Various donors have been and are involved in the improvement of roads, among them the UK, IBRD, USAID and CDB. USAID and CDB have concentrated mainly on rural feeder roads, the UK and IBRD mainly on the reconstruction of primary roads.

From Belize City to the Mexican border in the North and linking up

with the Mexican road networks, run the Northern Highway, 137 km of it in all and, generally speaking, in good condition. From Belize City via Belmopan to the Guatemalan border in the West runs the Western Highway, 123 km long and also, when a 24-km UK-financed reconstruction stretch is completed (expected this year), in good shape. From Belmopan to Dangriga in the South-East runs the Hummingbird Highway, 90 km in length and certain sections of which are in a

A highlight—the technical secondary schools

One of the Community's most successful projects in Belize, funded under Lomé I, has been that of the building of technical secondary schools in three of the country's rural towns, Punta Gorda in the South, Benque Viejo del Carmen on the western border and Orange Walk Town in the north.

The aim of the project was to assist the Government in its efforts to provide a wider range of secondary-level education in general, and of technical education in particular, both to expand the opportunities for the country's rapidly-growing school-age population and, in the longer term, to help reduce Belize's shortage of skilled labour.

The kind of education offered by the schools was to be twofold: a good general education was to be given, consisting of language training (Belize is, after all, a bi-lingual country), mathematics, general sciences and social studies, and, in addition, practical courses in woodwork, met-

alwork, technical design or agriculture. The gap in this particular type of schooling had been first identified in the 1960s and two technical secondary schools had been built, one in 1969, the other in 1972. Both were located in Belize City, however, and an important aspect of the EDF project was to respond to the demand for similar schools in the country's bigger rural centres, where secondary schooling of any kind was not always available to all.

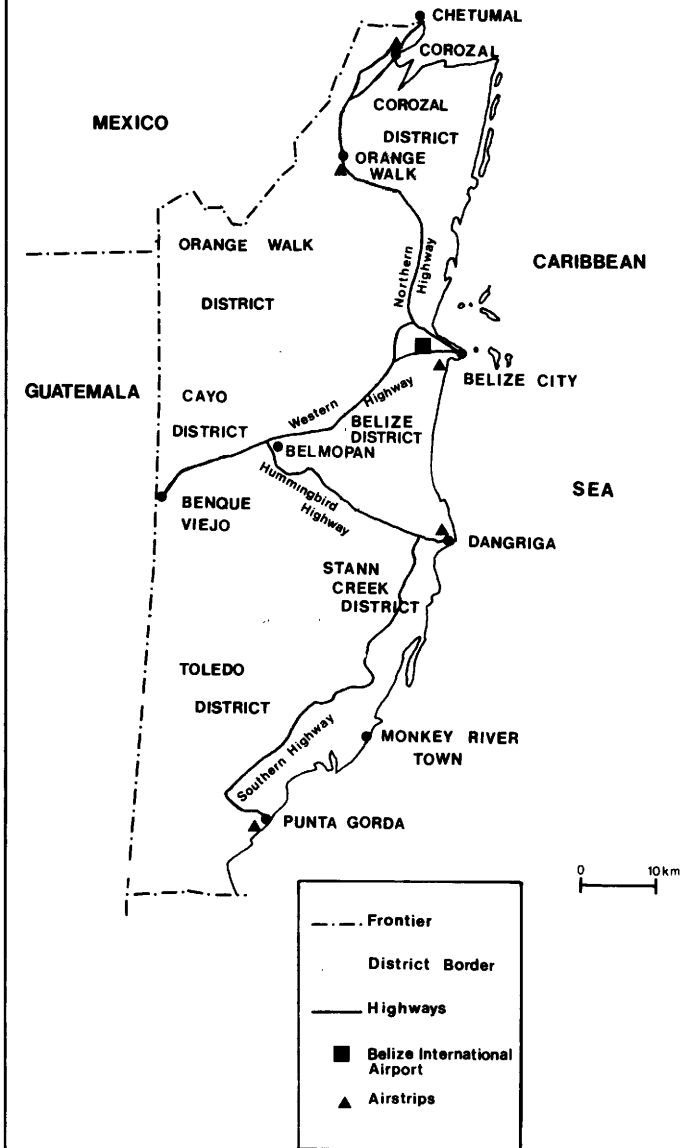
The Financing Proposal for the building of the three schools was submitted in 1979, and put the estimated cost at ECU 1 250 000. The actual cost, when the buildings were completed in 1983, was slightly higher, due mainly to currency fluctuations rather than to problems inherent in the building contract itself.

The three schools were all planned on the basis of an identical design, comprising two two-storey blocks (one classroom/administration block and one workshop block), built with

the threat of hurricanes and earth tremors, to which the region is also susceptible, in mind. The equipment to be supplied consisted of basic furniture for classrooms, offices, a library and workshops as well as teaching aids and special equipment for the science laboratory, home economics, commercial studies and the workshops. The actual construction of the schools was carried out by direct labour, through the Ministry of Works, which was also responsible for the original architectural and structural design work.

The schools have now been operating for more than three years, and the demand for their 300 or so places is beginning to exceed available capacity. Indeed one, the Orange Walk Technical High School, could be accurately described as "bursting at the seams" already. The really gratifying aspect of the project, however, above and beyond the way in which it has clearly responded to an educational need, is the way in which the local communities have taken the schools to their hearts, enthusiastically mobilising funds for additional equipment or facilities, even though their own resources are limited. ○

Main communications network



Community aid to Belize

	ECU (rounded figures)
Lomé I	
Veterinary laboratory	435 000
Extension apron airport	500 000
Belize DFC	455 000
Equipment for rural radio network	645 000
Junior secondary schools	1 473 500
Belcast study	53 000
Uncommitted balance, earmarked for hospital Belize City	2 054 500
	5 580 000
Stabex: sawn wood	342 400
Lomé II	
Multiannual Training Programme	100 000
Architectural design study for hospital Belize City	300 000
Uncommitted balance, earmarked for hospital Belize City	5 100 000
	5 500 000
EIB: Belize DFC	2 600 000
Lomé III	
Improvement Hummingbird Highway	5 600 000
Community development	150 000
Contribution to regional projects in Belize	300 000
Miscellaneous and reserve	950 000
	7 000 000
EIB: Belize DFC	1 000 000
Regional projects in Belize	
Caricom grains, Lomé I	1 825 000
CARDI, Lomé I	69 300
CARDI, Lomé II	264 000
	2 159 300
Belize also derives benefits from other regional projects, of which the centre of gravity is not located in Belize.	

very bad shape. Between 1908 and 1937 a railway operated between Dangriga and Middlesex, a distance of 32 km, which, when abandoned, was replaced by a road using the railway alignment, converting the now 75-year old railway bridges into bridges for road traffic. The result is a narrow road with narrow bridges, some of which are not up to present-day traffic requirements. From Dangriga to Punta Gorda in the South runs the Southern Highway, a 160 km-long dirt road of which some bottlenecks, bridges which became flooded every year, have now been removed with the help of UK aid. There are, however, several narrow timber bridges still to

be replaced. The above four highways form the backbone of Belize's road system. The ECU 5 600 000 allocation will not be sufficient to completely renew the Hummingbird Highway and to replace all its narrow bridges; the project focusses rather on the replacement of five "problem bridges" and the improvement of part of the worst section of the road.

Regional projects in Belize

The Caricom grains project started in 1982 and is now in its fifth year. It is a 205-hectare pilot farm (Caricom Farms Ltd. or "CFL") in the Belize River valley close to Belmopan, the

main objective of which is to find out whether mechanised farming of grains, pulses and livestock is feasible and viable and, if so, how best to go about it. The state of the project is such that final conclusions cannot yet really be drawn from it.

The Caribbean Agricultural Research and Development Institute (CARDI) has a research station close to Belmopan where, since 1981, an active programme of applied research is pursued. CARDI is also managing CFL in line with its role as a development as well as a research institute, and continues to make a sound contribution to agricultural development in Belize. ○ A.H.

The Maya ruins

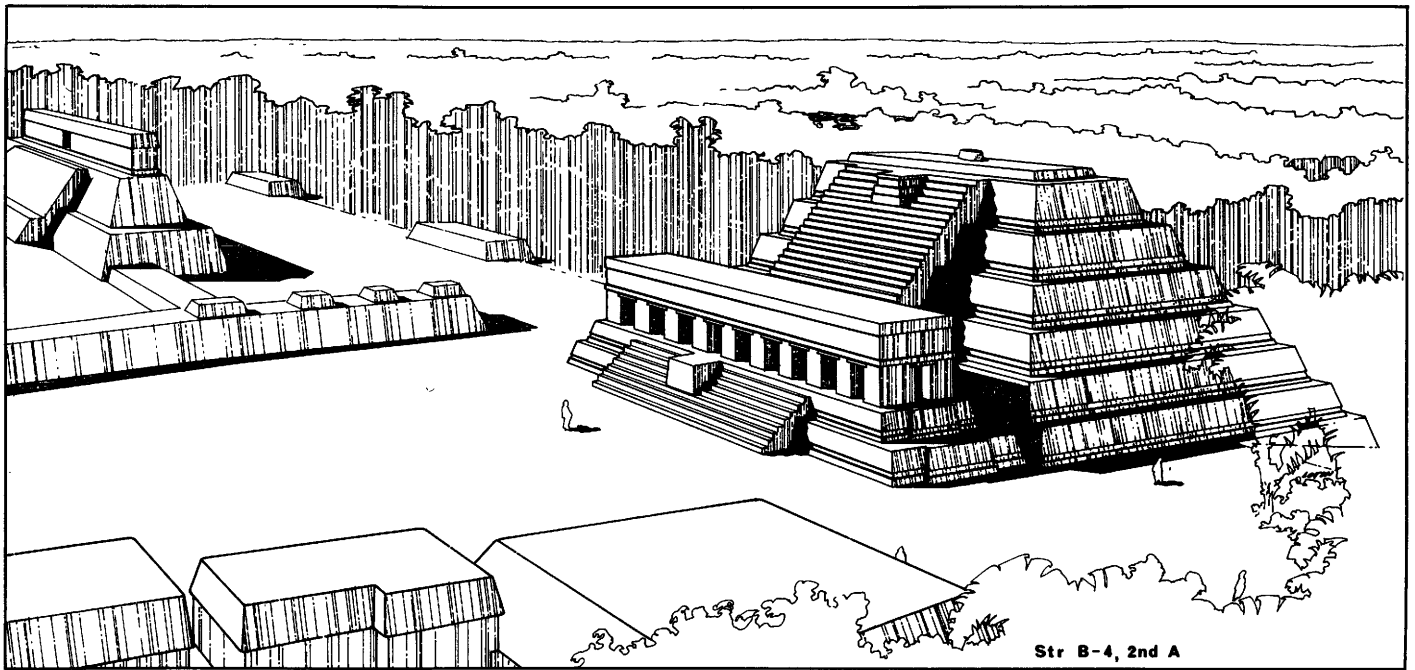
Belize's buried past

Part of Belize's uniqueness in the ACP context lies in its geographical location on the Eastern seaboard of the Central American sub-continent and, more specifically, in that part of Mesoamerica where the Maya civilisation flourished many hundreds of years ago. Though somewhat distanced from the epicentre of that civilisation, Belize is nevertheless able to boast a number of extraordinarily rich Maya remains, some ten major sites and dozens of minor ones, of which the most impressive are perhaps the ruins at Xunatunich, close to the Guatemalan border and those at Altun Ha, a few miles from the shores of the Caribbean Sea. Interest and concern for them in Belize goes beyond archaeological and cultural considerations, though: they constitute one of the major attractions in a sector—the tourism sector—which the authorities are treating with ever-increasing respect.

Modern-day knowledge of the Maya (as opposed to fable) is relatively recent, dating from the mid-19th century when the jungle-shrouded ruins of ancient cities in Guatemala, Honduras and Mexico began to be excavated. As of then an astonishing gap in renaissance and post-renaissance learning (comparable to total ignorance of the entire Greek civilisation!) began to be filled, though much remains to be discovered still. Were it not for the vigour of the jungle, the gap would be truly surprising, given that the Maya civilisation spanned well over two millennia and gives every appearance of having been sophisticated, prosperous and populous. The city ruins, in some cases, indicate populations of many tens of thousands and the sheer size of the pyramid-like temples is such as to have required a massive workforce. Nor were their intellectual



Cylindrical vase depicting an elite figure, Late Classic (A.D. 550-900), Hokeb Ha



Part of the ceremonial precinct at Altun Ha, as it would have looked around A.D. 600

achievements less great: the Maya were avid astronomers and counted among their inventions no less a one than that of the concept of zero.

Piecing its history together

Knowledge of the civilisation has been very much a question of piecing it together from the archaeological vestiges that have been excavated over the years or, often enough, stumbled upon by accident. (It is still not uncommon for flints or fragments of pottery, well over a thousand years old, to be found by farmers when land is cleared). The earliest traces date from as far back as 2500 B.C., though the period of full flowering of the civilisation, the so-called Classic period, began around 250 A.D. and lasted until 925 A.D. or so. The reasons for its collapse at or around that time remain a subject of speculation, though it is believed that they may have included the widening gulf between the society's priest-rulers and those over whom they ruled.

Much is still unknown, in fact, about the Maya people and about their way of life. In the case of the Belize ruins earliest occupation can only be dated to within the nearest two or three centuries, and the latest occupation are equally hazy. A visit to any of Belize's sites will at once make plain, however, the enormity of the archaeologists' task. Though the

sites are comparatively small compared with some elsewhere (Tikal, for instance, the great Maya city in the Peten jungle which, in its heyday, would have counted a population of 50 000 or so), they are big nevertheless. Xunatunich stretches over some 250 000 m² and at Altun Ha the area



A polychrome plate with a hummingbird motif (circa A.D. 600)

of densest occupation alone covers more than a square kilometre, with more than 275 structures (mostly the remains of middle- and upper-class housing) flung wide across the site. The myriad small mounds were originally hidden by undergrowth, the denseness of which, here as elsewhere, was such as to explain only too easily why the cities and ceremonial and trading centres remained

“lost” for so many centuries. Indeed, the Central American jungle probably has a few treasures up its sleeve yet. One of Belize's finest sites, Nim Li Punit, was unearthed only in 1976, and discoveries of the first order are still being made there. Only last year a royal tomb was excavated in which jade beads, jaguar teeth, ceramic vessels and various other fine ornaments were found. Another major site, Uxbenka, was discovered in 1984, and there is every reason to suppose that more will be unearthed as time goes on.

Belize has other problems to face in the excavation of its sites than physical ones, however. It has also suffered (and continues to suffer) from lack of adequate funding, and it has to be said that its splendid Maya ruins, though lovingly tended, are not in quite the same league in terms of upkeep or restoration as the best-known sites in Mexico or Guatemala, for example. Looting has been a problem throughout the centuries... and continues to be. Well into the 1980s important artefacts have been stolen from Belize's sites and, even, from the National Collection itself.

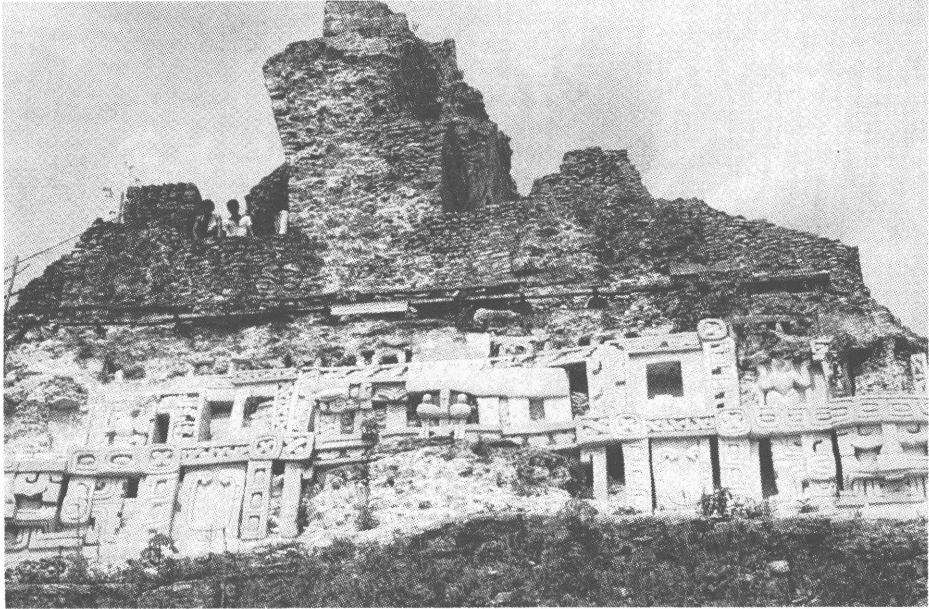
Pyramids rising through the ages

Both Altun Ha and Xunatunich are, in fact, ceremonial centres rather than cities, consisting of a number of

BELIZE

squares (or plazas as they are known) around which were grouped temples, priestly residences and the homes of various of the elite class. The pyramid-like structures (rising to a height of 130 feet at Xunatunich) seem to have been built in stages, beginning as constructions of moderate height and reaching their final form over many centuries only. Typically the base structure would be a terraced platform, on top of which would be built one or more such platforms and, finally, an altar or chambered superstructure. The terracing would usually be on the facade giving onto the plaza only, the surfaces of the other facades frequently being ornamented by beautifully carved friezes. (The largest of the Xunatunich pyramids, "El Castillo", bears a remarkable stucco frieze, representing astronomical symbols, on its eastern facade). Many sites, including those in Belize, also feature carved stone monuments several metres high known as stelae, which had a role to play in ceremonial activity and which probably depicted at one time the best known of the society's rulers. Xunatunich is peculiar in having an added attraction, a ball court in which the Maya, like other ancient peoples of Mesoamerica, played a game in which two teams faced each other in an alley between two parallel platforms and kicked a solid rubber ball with the knees, hips and elbows. The penalty for the losing side, legend has it, was death.

Not all Belize's sites are ancient ceremonial centres, however. Those nearer the coast, as their artefacts reveal, were often trading centres in which, nevertheless, the temple was often the most significant and spectacular building. Belize has one other "Maya city", too, one which is neither a ceremonial centre, nor a trading centre, nor—far from it!—a ruin! It is the country's brand new capital, Belmopan, whose centre is built along

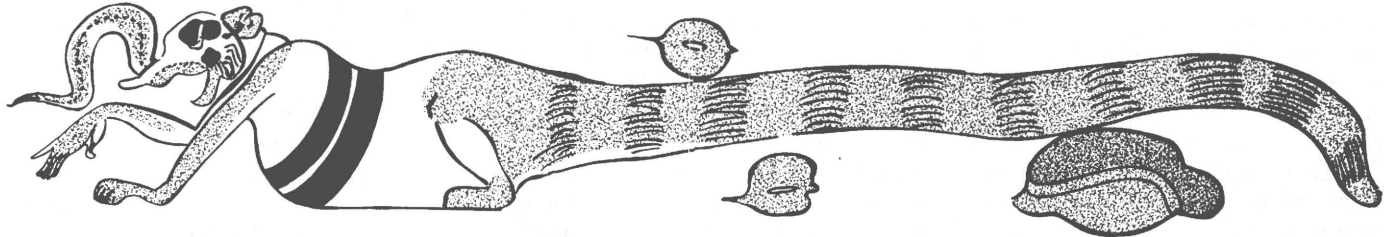


Above, the stucco frieze on "El Castillo", Xunatunich's biggest pyramid, still the tallest building in Belize; below, the Parliament building in Belmopan, built along Maya lines



Maya architectural lines, with a plaza surrounded by terraced buildings and a 20th-century stela commemorating its opening. Where the main temple would have been, the Parliament now is; where the houses of the priests

were, the various ministries are located (including, in a nice touch, the Department of Archaeology). Belizeans have flattered their Maya ancestors in the sincerest form open to them: by imitating them. o M.v.d.V.



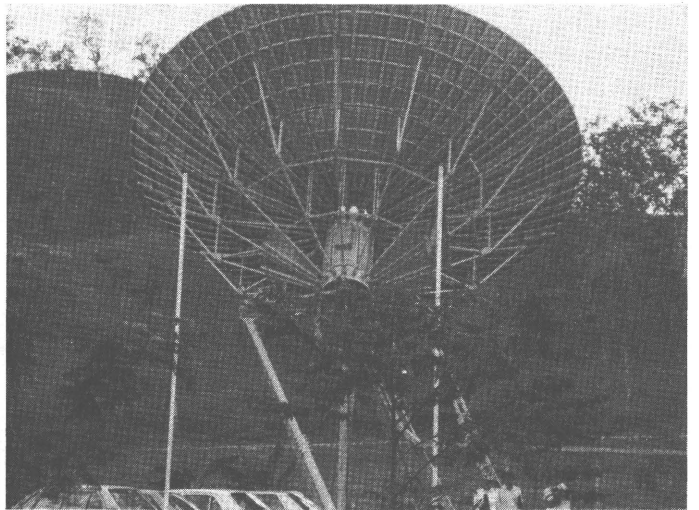
Mythical monster (possibly a sea creature) from a pottery vessel (Circa A.D. 500)

PAPUA NEW GUINEA

A Tale of Two Cultures



Air Ningiri



The Courier

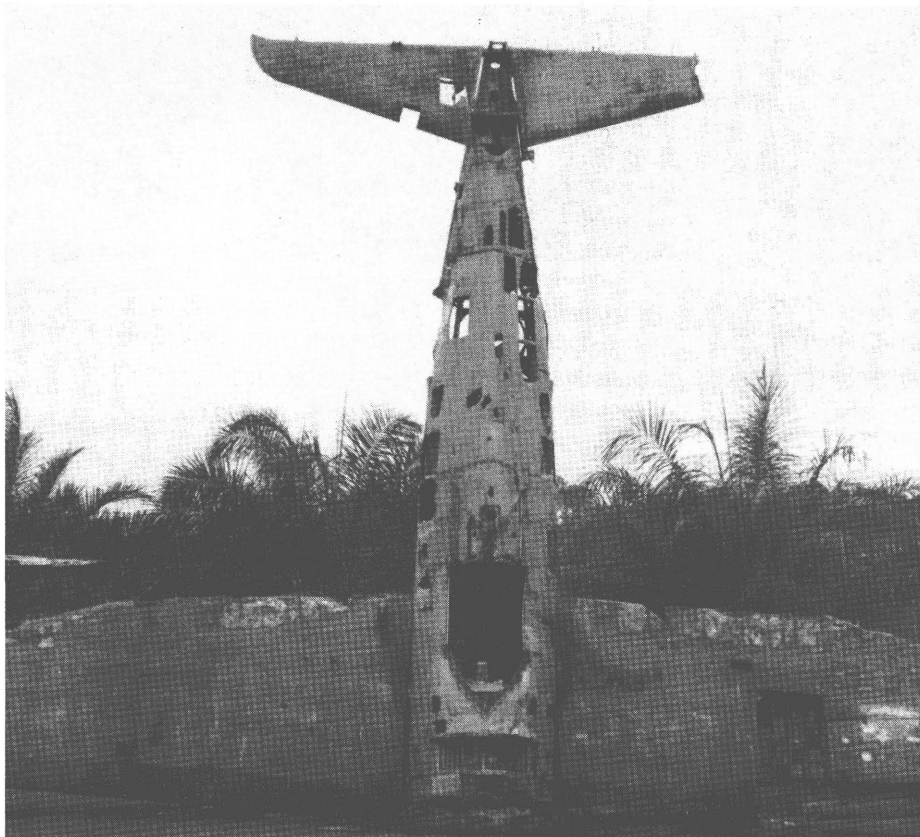
Any survey of Papua New Guinea is fraught with dangers. It is, of course, perilous to make generalisations about any country, but it becomes foolhardy to do so about a country of 3.5 million people who speak a staggering total of 742 languages; where the Prime Minister admits to canvassing through the offices of an interpreter, and where, at the same time as the National Computer Centre was founded in 1976, another tribe was discovered in the Central Highlands which had lived in complete ignorance, not only of the existence of other nations and continents, but of the existence of any group other than themselves. This dichotomy is not disturbing. Prime Minister Pias Wingti is justly proud of his country's cultural and lin-

guistic richness—"we account for 10% of the world's languages"—and is determined to hang on to it. "If we lose our languages and our culture, we will become baseless. That is why I am totally opposed to introducing TV at the moment. Culture won't make money for businessmen, yet it is more precious to us". And yet, despite being the "last frontier" for sociologists and anthropologists, despite its reputation as a land which still lives in the idyll of self-sufficient and self-contained tribal bliss, Papua New Guinea is classed as a middle-income developing country, the major Pacific island State, a stable democracy, an open, well-managed economy and a country on the threshold of stirring developments.



The Courier

“The original people live in their nature and are one with it...”

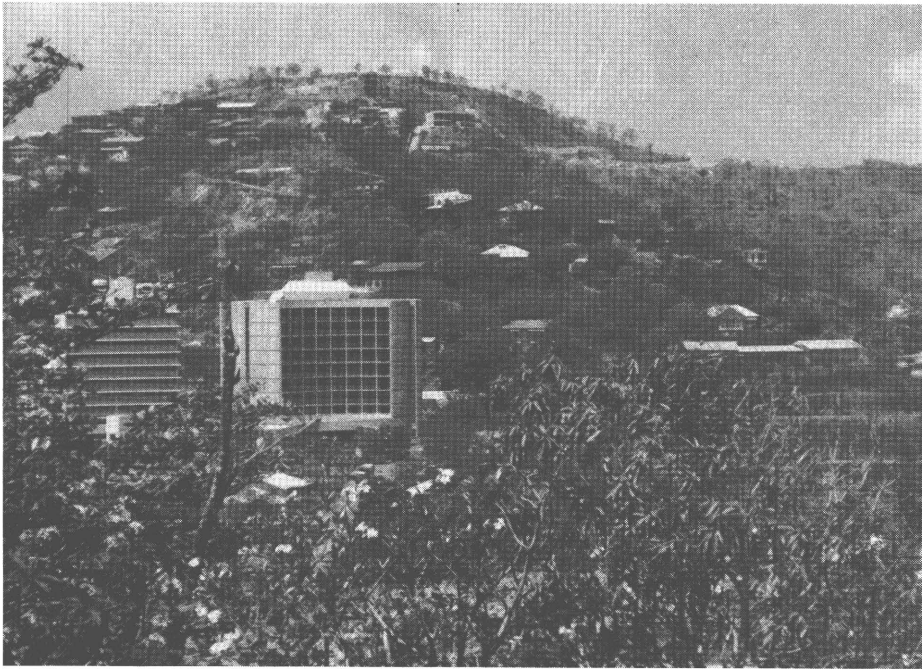


The Courier

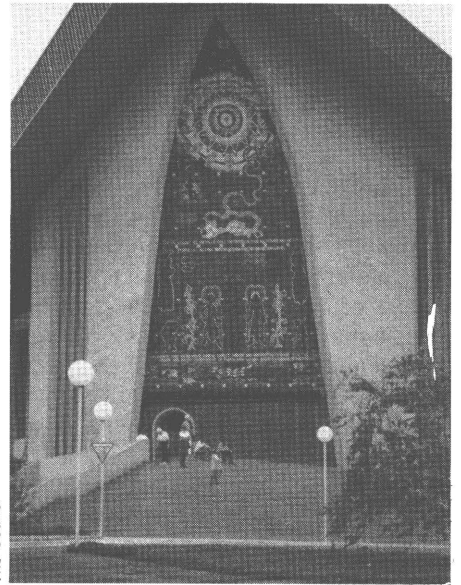
*An American fighter left over from World War II.
The dubious blessing of civilisation*

It was in the 1880s, in Europe’s final frenzy of colonial expansion, that Papua New Guinea was first coveted, then acquired by the Great Powers. Germany took possession of the northern part of the country, Holland of the West (it now forms part of Indonesia, and is called Irian Jaya) while Britain took the South West, urged on by her colony, Australia. The colonies were supposed to be of some profit to the mother countries, and thus it was that plantation agriculture was introduced, directed by Europeans, staffed by imported Chinese or Indian labour and producing coffee, cocoa, wood, rubber and palm oil. Missionaries also arrived, with more beneficial results, and today, Papua New Guineans are almost entirely Christian, with a wide variety of denominations to choose from. And, even in the earliest days of colonial rule, there were those who had their doubts. The German expressionist painter Emil Nolde accompanied a medico-demographic expedition in northern New Guinea in 1913-14, and left behind not only some stunning paintings, but also writings with which Prime Minister Wingti would find it hard to disagree. “Are we”, wrote Nolde, “the so-called civilised people, really so much better than the people here? Here, when there is a disagreement, a few people are killed. In Europe, in a war, thousands. We must bring them culture, these savages, say in unison and self-assuredly the planters, officials and missionaries. And who after all are these culture-bearers? One is being dictated to by his moneybags, the other by the State and commercial interests, the third, by the Bishop of Munster... The original people live in their nature and are one with it... I sometimes have the feeling that only they are truly men and that we are fabricated marionettes, artificial and full of conceit”.

Germany lost her hold on New Papua New Guinea after her defeat in World War I, and ten years later, Britain handed Papua New Guinea to Australia to administer. During the Second World War the island was the scene of bitter fighting between Japanese invaders and Australian defenders who successfully prevented Port Moresby, the capital, from falling, and eventually drove the Japanese back. The final battle at Buna, in Northern Province, was one of the fiercest of the



Partial view of Port Moresby, the capital



The two cultures in harmony. Papua New Guinea's new Parliament building, adorned with local art and shaped like the traditional "haus tambaran"

war, and known to this day as "Bloody Buna". After World War II, the Australians began to prepare the country for independence. It was potentially a rich land (the climatic span is large, covering tropical, subtropical and almost mediterranean zones in the Highlands so that, as Bryan Roper, Head of the PNG Chamber of Commerce says, "there is virtually nothing we shouldn't be able to grow effectively"). Yet, within sight of independence, which came in 1975, it was still stressed that more than half the country's public expenditure was funded from Australia, that there were as many as 100 000 expatriates in government, the public service, business, commerce, finance, industry and agriculture, and more than 85% of the population were in rural areas, many of them inaccessible. Wise colonial heads shook in despair, foretelling all sorts of disasters, and there was a fairly severe flight of capital before, during and after independence. But the wise heads were all wrong. In 1984, the Papua New Guinea Government (then under Michael Somare who led the country into independence) commissioned an independent review of the country's economy from the Australian National University. It is worth quoting from this report to enumerate the positive benefits which the reviewers found. The review found that, since independence:

"— political and economic stability,

which were by no means assured, have been achieved and maintained;

— the direction of the economy, the society and the polity have been placed firmly in national hands;

— the institutions of economic policy-making have been established and have operated effectively;

— a new currency has been successfully introduced and its value has been maintained without the need for exchange controls;

— at a time of world-wide inflation, inflation rates have been kept low;

— effective commodity and mineral stabilisation schemes have been established;

— the benefits of development have been spread quite widely, if unevenly, among villagers as well as townspeople; and

— policy-makers have shown flexibility in responding to changing international and national circumstances."

An impressive list of achievements for any country, and it is worth while adding that the number of expatriates has fallen to about 20 000-30 000 and that the percentage of public expenditure financed by Australia has fallen from 53% in 1972 to 28% in 1984.

Society, land and politics

If the subtitle seems incongruous in what is, after all, a survey of Papua New Guinea's development, it is to be

hoped that what follows will go some way towards explaining it. It has already been said that there are 742 linguistic groups in Papua New Guinea, but these groups are not only linguistic. They are familial and territorial, and intertwined to such an extent that to overlook them is to overlook both the potential for, and the constraints on, development. If there is a vehicular language in Papua New Guinea, it is pidgin, a supposedly simplified form of English (in which it takes twice as long to say anything as in English) and it is the pidgin word for clan, linguistic group, co-ownership group or what-have-you that is used. The word is "wontok"—"one talk"—and no Papua New Guinean can escape membership of his *wontok*. His *wontok* provides him with his linguistic, cultural and social identity, his title to use, settle on, or exploit a part of the land, and a support group when migrating to a town or when times are hard. On the other hand, the *wontok* has claims on him when he prospers, or when he enters political or administrative life. No rights and no obligations are wholly clear-cut. For a given piece of land, one *wontok* may have rights to one sort of use, another to another, and the rights are established by discussion or, if that fails, by fighting (although the government has managed to diminish the latter quite considerably). The *wontok* system is complete and self-sufficient in a static agricultural soci-

ety; even the fight can be taken as a natural and localised measure of socially acceptable population control. But even though the country is 85% agricultural, it is no longer static, and the *wontok* system must now operate in a different environment.

It represents, at the moment, two very different things. On the one hand, it is a guarantor of political democracy. Papua New Guinea has had, since independence, two peaceful changes of government, and has an officially-recognised opposition. It boasts a free and highly-independent press and a very wide measure of civil liberty. The concept of the political detainee is unknown in the country and is viewed with repugnance. Political parties are many and varied, but, as in Western democracies, share a common view of the political and social development of the country. It is most unlikely that any incoming government would undo the legislation of its predecessor. All this is due to the beneficent influence of the *wontok* system, a profound attachment to democracy and to the inviolability of property and civic rights. But when it comes to agricultural development, the *wontok* system acts as a powerful brake. Since there is no individual system of land tenure, land is held by the *wontoks*, for the *wontoks*. Obtaining a decision is as difficult as keeping a parliamentary majority—if one family in a *wontok* objects to the project, the deal is off. Moreover, multiple ownership by various, possibly illiterate, *wontoks*, means that the developer, whether government or not, is always in some doubt as to

whether all the angles have been covered. Many a surveyor peacefully surveying land on which agreement *seemed* to have been reached, has been chased away by the one family not consulted. Extra payments have to be made as another claim comes in; in the Rigo Cattle project, 14 “business groups” of the Balawaiya *wontok* are involved in the running of the ranch, since they all have rights on the land. Taken together, all this means that development is costly, land for development is scarce, and the process is extremely lengthy. It is fortunate for Papua New Guinea that, for the moment, there is neither malnutrition nor hardship, nor really a lack of resources, since social structures and inclinations are a brake on the rapid development of the economy.

The agricultural base

Papua New Guinea is predominantly agricultural, exporting cocoa, coffee, palm oil and kernels, copra and copra oil as well as some of the finest tropical hardwoods in the world. The plantation agriculture brought in a century ago by the colonists serves the country well. As a report on agriculture states, “large-scale agriculture in Papua New Guinea is no longer typified by the old-style plantation, contributing little to its host country. Their purchases of domestic inputs are high, they are increasingly owned by the Papua New Guineans and their employment and balance of payments contribution is considerable”. It has been estimated that around 4% of the economically active population, about 50 000, is



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Higaturu Plantation. Frank McGuire and a fine young oil palm

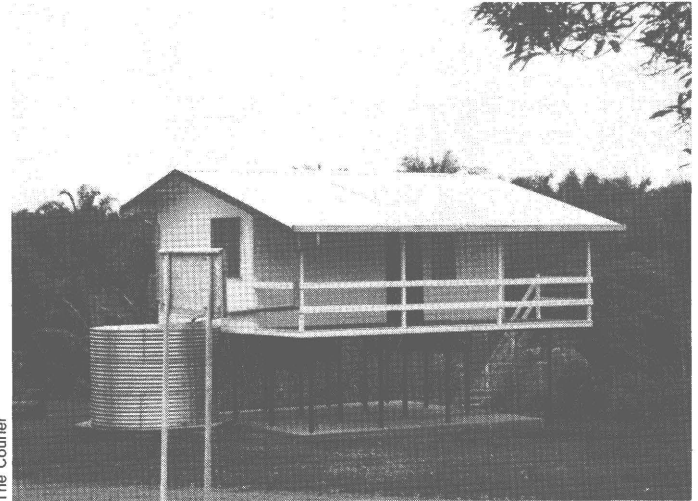
employed in plantation agriculture. But the plantations have a much greater effect than this. Smallholders, it has been estimated, account for between 48% and 75% of the national output in coffee, cocoa, copra products and palm oil, and 70% of all households in Papua New Guinea grow some tree crops. This means that, taken together with cash sales of homegrown fruit and vegetables, over 75% of the rural population are in contact with the cash economy.

A striking example of the broad effects of the new-style plantation agriculture is the Higaturu Oil Palm plan-



The Courier

Fresh fruit bunches. The palm fruit bunch in the foreground is ready for harvesting



The Courier

Standard housing of this type is now built for sale to Higaturu's outworkers

tation in Popondetta, a joint venture between the Commonwealth Development Corporation and the PNG Government. From modest beginnings in 1976, the plantation now covers almost 8 000 ha and produced, in 1986, over 200 000 fresh fruit bunches (FFBs) of which over 85 000 were produced by smallholders. The resulting palm oil exports stood at 45 000 tons and palm kernels at 7 000 tons. The plantation is not only significant as a model of production, though it produced, in 1984, a quarter of the country's palm oil exports; it is more significant as a social model. The core of the estate still produces 50% more than the smallholder schemes, but it is these latter which General Manager Frank McGuire indicates when asked for pointers to the future. The smallholders are of two types—villages near the plantation, and new settlers. Each grower receives six hectares, of which four are devoted to oil palms, and two to family "gardens" which sustain, and more than sustain, subsistence agriculture. Extension services are provided by the Department of Primary Industries (which covers agriculture, fisheries and forestry) and the plantation provides the common services needed to transform the FFBs into money. Every 14 days, each smallholder's crop is put into a net and left by the side of the road for a Higaturu tractor/trailer to collect. Palm oil prices are down this year, though 1983 and 1984 were boom years, and smallholder figures for production were most encouraging. "Some of the settler smallholders were getting higher yields per hectare than the plantations", Mr McGuire explained. There are also spin-offs which do not relate to agriculture. Housing, water, electricity, sports, social and welfare activities are provided for estate workers, which have effectively doubled their annual wage of around 850 Kina a year (one Kina is more or less one ECU). This is not an extraordinary wage in Port Moresby, the capital, but it is good for the countryside and has provided a low-turnover labour force. The effect of guaranteed money income on the smallholders is also considerable.

On Higaturu's nearly 8 000 ha, some 137 are being devoted to a coffee rehabilitation scheme, growing robusta on an estate with its own drying facility,



Droughtmasters at Rigo cattle ranch

while 3 000 ha are devoted to cocoa, both estate and smallholder. There is a small rubber factory, a 400-head livestock operation, with its own abattoir and a thriving construction department which has designed hundreds of estates workers' houses to their own specification and now constructs for re-sale to surrounding smallholders who wish to "keep up with the

Jones'". All this indicates that Papua New Guinea's future lies in agriculture—Mr McGuire is justly proud of the new skills, agricultural, mechanical, construction and social, which the plantation has fostered and rewarded, though he is aware, too, of the countervailing lure of the capital where these skills are even better rewarded.

What was most obvious at Higaturu



Sam Martin, manager of the ranch, (standing, second from left) with his management team. On his left, is Vele Goru, Chairman of the Management Committee. In the front row are the two trainee Assistant Managers, Magela Laki and Kwalimu Renagi. At the right, standing, is Laiwa Lega, Vice-Chairman of the Committee, and at the left, Muruka, daughter of one of the principal landowners

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Sir Julius Chan, KBE, Deputy Prime Minister and Minister of Finance

was the technical and economic success of the “settlers”, those growers who had come to Higaturu from other parts of the country, leaving their *wontok* and ancestral lands behind. Their existence was remarkable in a land noted for the power of its traditional ties. Obviously, they were exceptions: they had made the break; their common language was pidgin, not their ancestral tongue; their productivity was remarkable because they were obviously imbued with the pioneer spirit. But Higaturu is not the only estate in the country and there is scope for more. It may be some time in coming, since, according to Deputy Prime Minister Sir Julius Chan, “We don’t want things to happen overnight. We have to think of the social impact, and proceed at a pace which is gradual and which avoids social dislocation and upheaval”. But there is no doubt that, in one way or another, agricultural production (and agriculture provides 50% of exports, 30% of GDP and 85% of employment) will meet the challenge of the modern world.

One way in which agriculture does this, without destroying the traditional system of land ownership is demonstrated by the Rigo ranching enterprise known as Balawaiya Boromakau Pty Ltd. Its name is a perfect illustration of its activity. Some 60 km east of Port Moresby lie the lands of the Balawaiya *wontok*. On part of this land, which belonged to 14 chiefs and their families, it was agreed to set up a cattle ranch. The ranch would intro-

duce cash into the subsistence economy of the Balawaiya and provide employment and technical training for some of the young men (indeed, two of them, Magela Laki and Kwalima Renagi, are now the project’s trainee Assistant Managers). What, in most developing countries, would have been a simple matter of clearing the land, compensating existing inhabitants and settling them on better land elsewhere became a political marathon. What was finally worked out was the following: the various landowners leased their land to the Government for a sum fixed by mutual agreement for a period of 25 years. The Government then leased the land back to a company which is composed of the original

landowners in the exact proportion of their original holding of the land. In this way, the Company can borrow money (and has done so) from the PNG Agricultural Bank, giving the land (leased to them by the Government after being leased by them to the Government) as security for the loan. Moreover, the 14 business groups formed an Advisory Management Committee which acts as the interface between the shareholders/landowners and the (EDF-funded) management of the ranch. The name is thus a perfect illustration of the project. Balawaiya (the *wontok* of the owners) Boromakau (pidgin for “bull and cow”, cattle being an innovation in Papua New Guinea) Proprietary (who are the proprie-



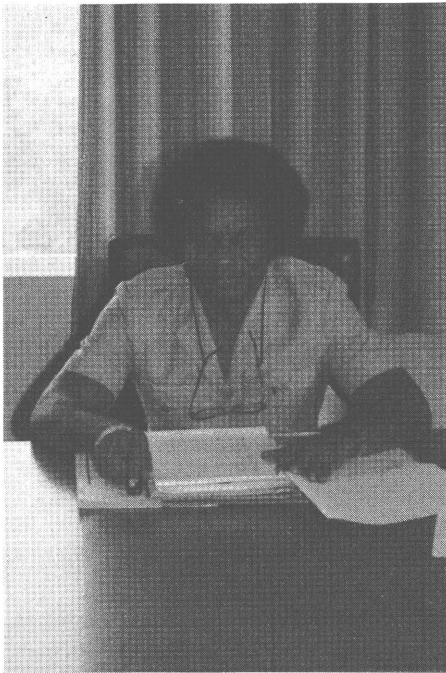
The Courier

Unreconstructed part of the Magi Highway. Infrastructure remains one of the country’s most pressing problems



The Courier

Central Government Offices in Port Moresby. A top-heavy administrative structure is another headache for the Government



The Courier

Galeva Kwarara, Minister for Trade and Industry

tors but the Balawaiya, the landowners, shareholders and members of the Advisory Management Committee?).

Sam Martin, the manager of the Rigo cattle project has cheerfully accepted these constraints on the normal operational liberty of a manager. "I'm an outsider", he admitted, "but I'm a pretty nosy one, and the progress has been fascinating to watch". Sam is responsible for 8 500 ha of ranch, 7 000 of which is actual range land, populated at the moment by just over 2 000 Droughtmaster cattle. (This unappealing name is the official designation of cattle bred to be 5/8 Brahmin and 3/8 Devon or other shorthorn). The range, now in operation for two and a half years is more than 60% fenced, and the herd is slowly building up to its optimum size of 4 000, a size which will enable it to despatch 30 carcasses a month to the capital, Port Moresby. "Papua New Guineans are meat-hungry", explained Mr Martin. "The only constraints have been price and availability. And with the project, there is no problem in disposing of one carcass a week right on the spot". There is potential in the project, not only on the cattle side. Currently the project employs around 20 people on a permanent, and 50 on a casual basis. All candidates for jobs, Mr Martin stressed, come from the Balawaiya involved in the project, and they learn new skills, stock-farming, metal-work-

ing, fencing and maintenance. Despite the lure of the capital, most of the Balawaiya will stay where they are; after all, they are shareholders and have an individual and collective say in the management. There are exceptions—Vele Goru, Chairman of the Advisory Committee, is a civil servant, but his skills in the complex decision-making process are highly valued.

Thus, in its own way, and at its own pace, Papua New Guinean agriculture can and will adapt to the demands of increased export performance and rising domestic expectations. A recent report has summarised the situation in the following terms: "Linkages between subsistence and monetary economic activities are strong, and producers only maintain those cash agricultural activities which give them a reasonable return in relation to other opportunities, including wage, employment and subsistence. Just the promise of some cash is not enough to persuade people to work at agriculture". Shareholding and involvement in management would seem a bright alternative.

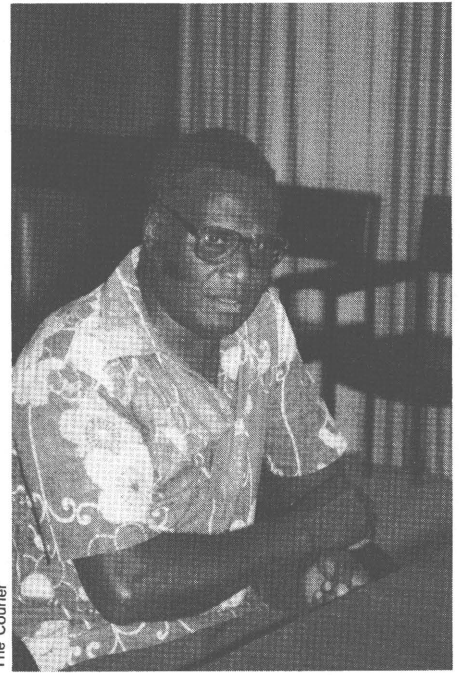
The clash of cultures

Papua New Guinea covers almost half a million square kilometres and



The Courier

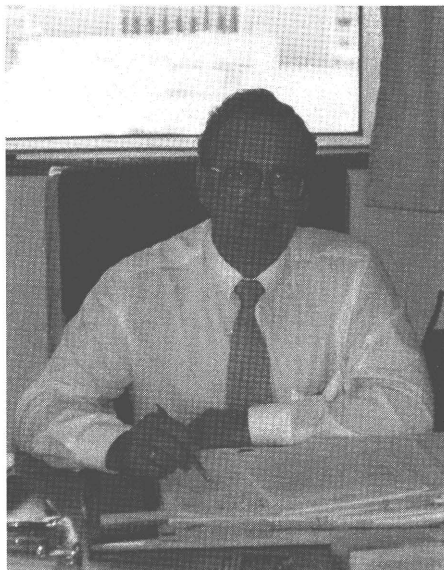
Woodwork class at the Don Bosco School. Private initiatives must supplement Government efforts to create an adequate supply of trained manpower



The Courier

John Kaputin, Minister for Minerals and Energy

consists of half of a vast island (shared with Irian Jaya) and a number of respectably-sized offshore islands, the most notable of which are Bougainville, New Britain and New Ireland. The main territory is composed of high mountain ranges scored by deep gorges in the west, and towards the east a single impressive range, the Owen Stanleys, which serve to divide the relatively lower-lying north and south coasts. The staple diet of the villagers is still yams, sweet potatoes, taro and cassava, along with vegetables and pork. In the towns, of which there are several, though none as large as Port Moresby (pop. 150 000), the staple foods are now tinned fish and imported rice, both of which are cheaper than home-grown food. This phenomenon is due to two factors. The first and more obvious problem is logistical. Papua New Guinea simply does not possess an infrastructure in terms of transport and communications. The small (3.5 million) population is not heavily urbanised and lives in relatively inaccessible areas. Although the "linkages between subsistence and monetary activities are strong", according to the Institute of National Affairs report cited previously, they only exist for high-value export crops grown on the plantation system or round a plantation nucleus. Food crops, in many cases, would have to be airlifted, and if grown by



The Courier

Bryan Roper, Chairman of the PNG Chamber of Commerce

traditional methods, would not be able to compete with cheaper imports. Papua New Guinea is aware of this terrifying handicap: Air Niugini, the national airline, has a large network of internal routes serving the whole country, and goes some way to remedying the deficiencies of the road network. Coastal shipping is also needed. But it is the roads which must in future predominate—in all three Lomé Indicative Programmes, heavy emphasis is placed on transport infrastructure: in Lomé II, well over half the funds have gone to road building and aerodrome construction.

The second factor which militates against food self-sufficiency is the nature of the urban sector. Mrs Kerepiya, of the Port Moresby YWCA summed it up when she said: "In Papua New Guinea, there is no need for poverty, because everyone has access to land." Yet she was forced to admit that rural life was still very hard, with water, health services and education largely lacking, and with the towns providing glamorous attractions mostly in the forms of beer, films and money. Especially the last. A legacy from the days of colonial rule by Australia which threatens to hold back development is the organisation and remuneration of urban workers. The Australian Council of Trade Unions, in fighting at home for better pay and conditions, overtime and double time rates, leave allowances, travel allowances and so on, transferred these "blessings" to Papua New Guinea. Between 1972

and 1976, the urban and rural minimum wages drifted apart, the former rising to three or four times that of the latter. Urban minimum wages in Papua New Guinea are now between two and ten times higher than in neighbouring countries. Part of this urban workforce was the public service: with its 19 regional administrations, each serving a regional Prime Minister and Legislature, Papua New Guinea began its life at Independence with a civil service of over 100 000. Due to its policy of "localisation" (replacing expatriates with trained Papua New Guineans) and by slimming down the bureaucracy, some progress has been made. "We are having to live with austerity", said John Balegatuna, Acting Secretary of Foreign Affairs, "but our civil service was very large by developing-country standards". It was not only the civil service which lived in the towns. The urban labour force, the basis on which many developing countries hope to found their development, their added value to raw materials, was also paid "mainland" (Australia) rates without having achieved the educational and technical level of their Australian counterparts. That is to say, the urban minimum wage is not the same as in Australia (it stands at about 20 Kina a week — ECU 1000 a year) but it is hedged in with bonuses, overtime rates, trade allowances and travel concessions which make it extremely expensive to hire labour. High wage rates and a small internal market have, up to now, spelled stagnation for the country's industrial drive. Galeva Kwarara, Trade and Industry Minister, and acting Foreign Affairs Minister, admitted as much, though he stressed that the vital factor was training. "You can have the most beautiful industrial policies, but without the right people to implement them, you will get no further. The strength of any nation is its manpower: natural resources can be squandered but trained manpower multiplies what resources we have". This concern with education was echoed by Bryan Roper of the PNG Chamber of Commerce. "This country", he said, "is possessed of some very capable people, and if there is a problem, it concerns the scope and nature of the education being offered".

Some of the education offered in Papua New Guinea is very good—but

it does not yet reach enough of the population. Because of financial restrictions, secondary education is limited and many children leave after the first six grades (at age 12 or thereabouts). In many cases they have acquired enough education to wish to taste the life of the towns, but not enough to find any meaningful employment there. The result has been the phenomenon of the "raskols", groups of teenaged robbers and rapists who preyed on the expatriate community, raised the doubts of potential investors and made life very difficult for those trying to attract tourists. By 1984, the problem had reached such dimensions that a curfew was imposed in the capital district and severe police measures taken. The problem has begun to recede, and, with new methods of policing, a measure of calm has returned.

Father Savina, headmaster of the Don Bosco Technical School (an NGO project with EDF funding), has provided an answer for 200 boys in the Port Moresby district. Opened in 1984, the school takes in those boys whose parents can afford 200 Kina a year (there are fees attached to all education in the country) and who see a future for themselves in a technical trade, mechanical or electrical engineering or joinery and carpentry. Boys are selected from those who failed to get into Grade 7 of the normal system, but who are bright enough to feel frustration at being left out. They are, as Father Savina pointed out, the "trainee raskols" who could be a potential danger to themselves and the community if they did not have an outlet for their talents and ambitions. As it is, they are as bright, as studious and as proud of their school as any schoolboy, and the school looks forward to an expansion programme which will take the number of boys up to 600.

A solution under the soil

Papua New Guinea is confronted with a series of problems. There is an inadequate infrastructure, insufficient trained manpower and an uneconomic industrial base, three problems which would be sufficient to daunt any developing country. There is, however, a solution, and it lies in the considerable

mineral wealth of the country, and a potential which is only now being explored. "We are just touching the threshold of our enormous potential", said Deputy P.M Sir Julius Chan. In 1985, gold accounted for 23% of the country's exports, and there was a dramatic rise in the price of gold in 1986 which has stimulated prospecting in Madang and Morobe Provinces, in the Highlands and in New Ireland. Sixteen tons of gold were exported in 1986, and this should rise to over 20 tons in 1990. It should indeed be feasible for PNG to surpass Australia as a gold producer in the near future. Mines and Energy Minister John Kaputin assessed the situation as extremely promising, bearing in mind the other treasures under exploration as well. "We need our mineral wealth to provide the capital for our agricultural development. It would be most unwise of us to ignore the agricultural sector, bearing in mind the experience of other countries which relied on, say, oil alone and neglected their agriculture".

There is copper (20% of exports) coming out of Bougainville and, very shortly, out of the billion-dollar gold and copper operation at Ok Tedi, where a mountain with a gold cap and a copper base is being torn down in the middle of an inaccessible jungle where it rains for 330 days a year! There is onshore petroleum, which, as the Minister remarked, would already have been exploited if "it had been anywhere in the world where the geography is kinder". The currently assessed reserves stand at around 500 million barrels. There is offshore natural gas, at which several Japanese companies are looking. There are several hydro-electric schemes (in one of which the EEC is involved) which hold considerable promise in a land rich in mountains and rivers. There is even a scheme in East Sepik Province where 700 litres a day of coconut oil is being produced as a diesel substitute. If one adds to this list the country's enormous potential in tropical hardwoods (and indeed a furniture industry is considered by many to be the only feasible export investment currently possible) then Papua New Guinea could well find itself with the revenue needed to strengthen infrastructure and intensify its educational drive.



A freighter in Port Moresby Harbour. The country's export potential is enormous and its position is a strategic one

A strategic position

Because of its history, Papua New Guinea regards Australia as the "metropolitan" country. Australian expatriates are by far the most numerous expatriate group and they dominate trade, industry, the liberal professions, and even education. But the eyes of Papua New Guinea are certainly not blind to the many possibilities beginning to open up. Firstly, there is the South Pacific link: "By sentiment, by geography, by race, we belong" said Sir Julius Chan. PNG is the Melanesian "super-power" and a driving force in the South Pacific Forum which has succeeded in rekindling United States interest in the area, as witness the recent fisheries agreement initialled after two years of very hard bargaining. "Being friends to all and enemies to none", smiled Sir Julius Chan, "is not always a sustainable policy. And we are grateful that Lomé gives us a wider international scope than we would otherwise have". Moving from South Pacific to Europe is not as incongruous as it might seem—the bulk of Papua New Guinea's exports go there and it is seen as the most likely source of new investment. The Government, conversely, has invested in Europe where there is a new embassy established in Bonn, a High Commission in London and an Embassy in Brussels (this latter, headed up by Ambassador Peter Ipu Peipul, is

both a listening post and a medium of information, and Papua New Guineans frequently learn of wider European and international questions from Ambassador Peipul's newspaper articles).

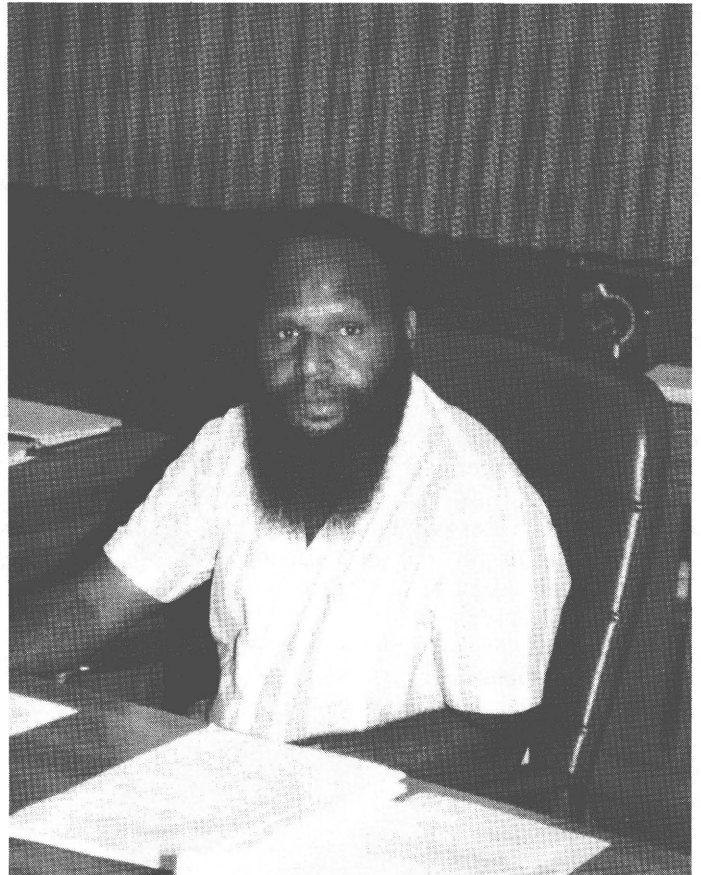
But if there is an acknowledged growth area in today's world, it is the Pacific rim. The next century has already been dubbed the "Pacific Century", and the portents have long been observable: Japan, with its technological might, China with its vast energies about to be unleashed, the beehive entrepôts of Singapore and Hong Kong, the whole ASEAN group growing and moving forward with assurance. In the longer term, it is here that Papua New Guinea will look, although it will do so without abandoning its old ties. "Our foreign policy", explained Sir Julius Chan, "is one of constructive—and selective—engagement". If its enormous mineral potential can be used to unlock its undoubted human and agricultural potential, Papua New Guinea will form part of the Pacific miracle—a part which will be distinguished by having links with many different worlds—the unique strength of the Melanesian *wontok* system; the solidarity of Lomé membership; the English-speaking Commonwealth. And it will still be home to 742 languages and a spread of culture and tradition that is all its own. ○

Tom GLASER

“People must be encouraged to participate”

Interview with Prime Minister Paias Wingti

Paias Wingti has been Prime Minister since November 1985, when a successful vote of no confidence in Prime Minister Somare's government brought his party, in a coalition with others, to power. His tenure of office has been marked by determined efforts to bring down the size of the national debt, and concomitantly, the size of the administration. This would be a formidable task at any time, but is even more so at a time when the world prices for many of Papua New Guinea's primary products, palm oil, copra, coffee, have been uncertain or declining. His policy of austerity is matched by a personal style devoid of the trappings of high office and, as the following interview clearly demonstrates, a willingness to get right to the heart of a problem.



► *When you formed the PDM, you stated that society had created a lot of expectations, but that leaders were unable to live up to their promises. How do you assess the situation now that you are Prime Minister?*

— What I said at that time, and what we are successfully working on now is that the people must be given the self-confidence to take their future into their own hands. They have to stop and think before they ask the Government for something; they must think whether they couldn't do it for themselves; they must reflect on where the Government gets its money from—and it isn't from lazy people who just sit down and ask! Now, I realise the excitement of the post-independence period led to a situation where demands on the Government increased, but we are turning this situation around: we are giving the people the self-confidence to do things for themselves—to realise that more production means more revenue for the Government which alone will enable the Government to get more things done. And for those who don't produce revenue, people like civil servants, for example, we are making it clear that we expect a greater contribu-

tion from them in the form of greater efficiency, increased management skills and so on.

People are now becoming much more aware of the realities of the situation, in that each person needs to work hard to produce more in order for the Government to raise enough revenue to distribute throughout the country in the form of goods and services. I keep on reminding people that the “hand-out”, or dependence mentality, which had unfortunately developed due to false promises by leaders since the country gained independence, must stop. People must be encouraged to participate in the country's development by utilising their land, marine and other resources.

► *Do you feel that there is scope for change in Papua New Guinea's 19-region administrative structure in an era of recession?*

— Not at a stroke, no. Our administrative structure is written into our constitution, because it reflects our varied and rich national heritage. It serves to decentralise and to devolve economic and social responsibility, all the way down to the village level. To change this would involve a change in

the constitution which would require a two-thirds majority in Parliament, and I am not sure that it would be something that we could approve of. I agree that the costs are high, but we are prepared to bear them because the structure does reflect our village-based society. On the other hand, I am certain that changes will continue to be made to improve existing procedures, and/or systems, where appropriate, to ensure that better and more effective services are provided to our people, the majority of whom live in rural areas. The National and Provincial Governments have to work in close co-operation to ensure that the people benefit. Provincial Governments must be willing to appreciate national development priorities in order to ensure their own initiatives are taken in line with national objectives for the country to benefit as a whole.

► *What are your guidelines for localising the administration and can the EEC be of help here?*

— Localisation will take place only where and if necessary to ensure efficiency and effectiveness in operations of Government. There are some particular specialist technical fields in

which we lack expert personnel in the country and so need to recruit from overseas, but efforts must be made for such expertise to be available in the long term through properly co-ordinated manpower development and training programmes in which the EEC may be willing to assist. On the whole, I would say that the real shortages are at the middle management level.

► *PNG's per capita income and cost of living are among the highest in the Pacific region. How does your Government propose to attract investment in the face of low-income competition from other states in the region?*

— It may be true that the cost of living in Papua New Guinea and per capita income are among the highest in the region but that has not stopped the many investment enquiries and actual investments we have been receiving from overseas. The private business as well as commercial finance institutions have been providing good indications including increases in formal sector employment by about 3% in the first part of this year and we are confident of this trend continuing in line with Government policies to generate economic growth. Agriculture Bank lending has increased from about K 12.5 million last year to this year's present level of K28 million which is expected to increase further by the end of 1986. New investment proposals are still being considered in the fields of mineral exploration, mining, large scale agricultural development, manufacturing, office complex and hotel developments as well as other commercial activities.

► *World commodity prices, especially for minerals, are still depressed. What can PNG do to diversify its exports, or conversely, to reduce costly imports?*

— Agriculture will continue to be our major economic base for a long time yet and a lot of emphasis is being given to research in agricultural production to improve and increase our capacity in this regard. At the same time, some commercial as well as subsistence food production by family units is being encouraged to help reduce our large food import bill.

► *Ok Tedi is PNG's major investment project, but there are differences*

of approach between your Government and the other shareholders. What were they about and how have they been/will they be resolved?

— The differences that recently existed between the Government and other shareholders in the Ok Tedi project have been amicably resolved through close consultation and understanding between the parties concerned. The issue mainly centred around the question of a breach of contract on the part of the company, and had been difficult. The State is both a shareholder and the regulating authority. However, the matter has been resolved with another supplementary agreement being drawn up and endorsed by the relevant parties including the Government. Ultimately, I suppose, it boils down to management, and I am satisfied with the new management of Ok Tedi.

► *What can PNG do to overcome the physical distance between herself and her partners in Europe, to increase interest in, and awareness of, PNG's economic potential?*

— Papua New Guinea has diplomatic missions in London, Brussels and Bonn, which have been actively pursuing our political, economic, commercial and trade interests in Europe. We have participated in quite a number of major trade fairs and other such promotional activities held in various capitals in Europe. The Bonn mission was in fact opened last year, indicating the growing relationship we have with the Federal German Republic and in our overall interests to develop closer ties in that part of Europe. We hope to continue aggressive efforts to the further development of close relations, understanding and awareness of what we can offer in the European markets.

When you produce the best—the best coffee, the best cocoa, the best tea, people will start to notice you, consumers abroad will start to demand your products. I think that flag-flying for the sake of it is the wrong approach. Many newly-independent countries buy big aeroplanes and pack them with a lot of people to go round and promote their countries. I don't know that it is always successful and I feel that in any case it is the wrong way to go about it. I think we should



The Courier

Koki village near Port Moresby

"Our administrative structure does reflect our village-based society"

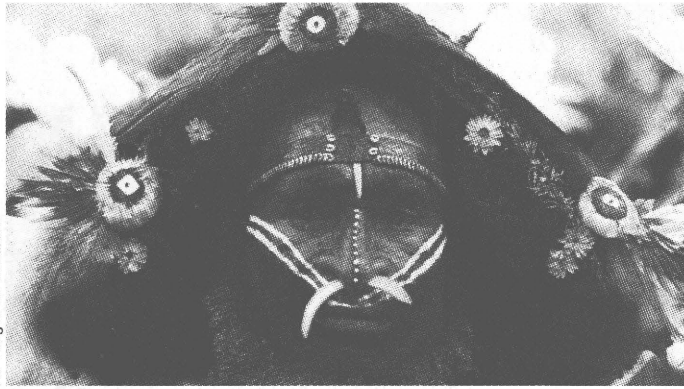
produce the best and get ourselves noticed that way. Of course, a few more gold mines would mean that one day we will sit around a table with major gold producers and dictate the price of gold—that is certainly one way to make ourselves noticed!

► *What future is there for tourism in PNG?*

— The Government has placed tourism as one of its major development areas. It has been categorised as among the priority economic activities in the Government's drive to promote economic growth that creates employment opportunities for Papua New Guineans. We believe our country, with its many and rich cultural heritages, has a lot to offer in this industry. But I want to make it quite clear that what we are looking for is not mass tourism that stays in hotels on beaches. We want adventurous tourists who come here to learn about our people, our flora and fauna, about our folkways, customs and artefacts. We don't want our cultures or our environment swamped by mass tourism. We are ready to accept changes but they must be the changes that can be easily absorbed by small-scale tourism, intensive perhaps, but not so large as to submerge us.

► *Australia, the main source of development assistance, is about to reduce the level and alter the nature of its assistance. What effect will this have?*

— Australia has, since Papua New Guinea's independence, been providing a major portion of budgetary support to Papua New Guinea. The cuts in the aid from Australia have been



Air Niugini-D. Eastburn



Air Niugini-D. Eastburn

expected but we do hope that the reduction takes place at a predictable and manageable level. At the same time, we are taking some very drastic measures to "cushion" the effect on our overall budgetary programme and economy as a whole. At present, Australia provides about a quarter of our budgetary requirements. We have made the right moves to anticipate the cuts, we have slashed spending and borrowing. But we do need to be consulted in good time over the likelihood of cuts so that we can make the necessary dispositions for dealing internally with the situation arising out of them.

► *Regional co-operation is seen in many parts of the world as a basis for*

development — how does PNG view this, and see its role in the S.P.E.C., the Pacific Forum and other regional bodies?

"We don't want our cultures or our environment swamped by mass tourism"

— Papua New Guinea values its relationship with countries with which it has entered into diplomatic relations and, especially, those it shares common interests with in the South Pacific region. We believe that developing countries can learn and share a lot with each other to help in their respective efforts to improve the well-being of their people. This view is being pursued actively in our capacity as a member of the South Pacific Forum and in our ties with other such regional bodies, including as "special observer" to the Association of South East Asian Nations (ASEAN).

► *How does PNG view the Third Lomé Convention, with its new emphasis on investment, agricultural production and cultural co-operation?*

— Papua New Guinea is pleased that the general thrust of the Third Lomé Convention is in line with its own development strategies. That is, the areas of investment and agriculture are already sub-sectors of the economic sector, a sector which is very highly prioritised for national development.

► *Has Lomé had a positive effect in furthering relations with PNG's and other non-Pacific ACP partners?*

— Before I answer that question, I want to make it clear that we in Papua New Guinea can't afford the expenditure that may be necessary to participate in all these international fora. Wherever appropriate, I say to the Ministers concerned: "If there is an international meeting, call for the papers, the resolutions, and so on: we can learn from them. We don't have the money to attend, but we are more than willing to study and draw conclusions". I have, myself, pledged that until I see positive economic growth, I

will not travel abroad because I have nothing to say of such importance that it justifies air travel. But, aside from that, yes, there have been positive effects in furthering Papua New Guinea's relations with other non-Pacific ACP States. This has been limited, due to Papua New Guinea's geographical location. The concepts and principles of intra-ACP cooperation as enshrined in the Georgetown Agreement are sound, but there is still a long way to go before they are achieved. It would require enormous amounts of resources to implement such cooperation. At the moment the objective seems virtually impractical to achieve in view of the vast distances between the regions of the ACP and to some extent due to the differing internal ACP situations.

On the other hand, Papua New Guinea, on the political plane, has been able to come to an understanding with the other non-Pacific ACP partners on issues of international and regional concern. Papua New Guinea plays a leading role in the region. Other ACP States recognise and take account of our views in formulating their own.

Papua New Guinea is optimistic about the prospects of furthering relations with other non-Pacific ACP partners with the utilisation of the foundations laid down in the Georgetown Agreement. It will only require time and commitment, both individually and inter-regionally.

► *What, in the last analysis, is PNG's view of European assistance and involvement in its development process through the Lomé Convention?*

— Papua New Guinea's economic welfare has been greatly assisted by the Lomé Convention arrangements. Papua New Guinea therefore views its association with the EEC as of considerable value and will continue to do so for as long as the need for such significant North/South dialogue exists between the ACPs and the EEC.

This is because Papua New Guinea has complete freedom over the use of these funds and therefore can direct them to support high priority expenditure. Then again, the range of sources from which goods and services can be purchased is wide, thus ensuring a wide selection (i.e. anyone of the

ACP/EEC countries). And there is compatibility between the EEC requirements and Papua New Guinea's policy on competitive bidding, especially for loans. Thus procurement-tied aid can only be accepted if a supplier from an EEC country wins a project contract under open competitive bidding.

On the other hand, while the concern by individual ACP countries about the deficiency in the overall aid package in terms of volume and delivery is not necessarily valid in Papua New Guinea's case, generally speaking, Papua New Guinea, like most other Pacific ACP States, enjoys a favourable overall position in the ACP

group—hence its association with the European Economic Community in a firm way.

As to committing Lomé III funds here in PNG, we are aware that we must get down to some detail in firming up the Indicative Programme. That will be started in the near future.

Interview by T.G.

Papua New Guinea country profile

Area: 463 840 sq km

Population: 3.2 million

GNP: \$ 590 million

GNP per capita: \$ 800

Employment: 80% subsistence farming

Economy: Based on export of primary products (1985)

Gold, 23% of exports

Copper, 20% of exports

Coffee, 14% of exports

Palm oil, 10% of exports

Tropical hardwoods, 9% of exports

Cocoa, 8% of exports

Copra, 6% of exports

Copra oil, 5% of exports

External debt: US \$ 1 bn.

Constitution: Constitutional monarchy (Queen Elizabeth II is Head of State)

Unicameral Parliament (109 members)

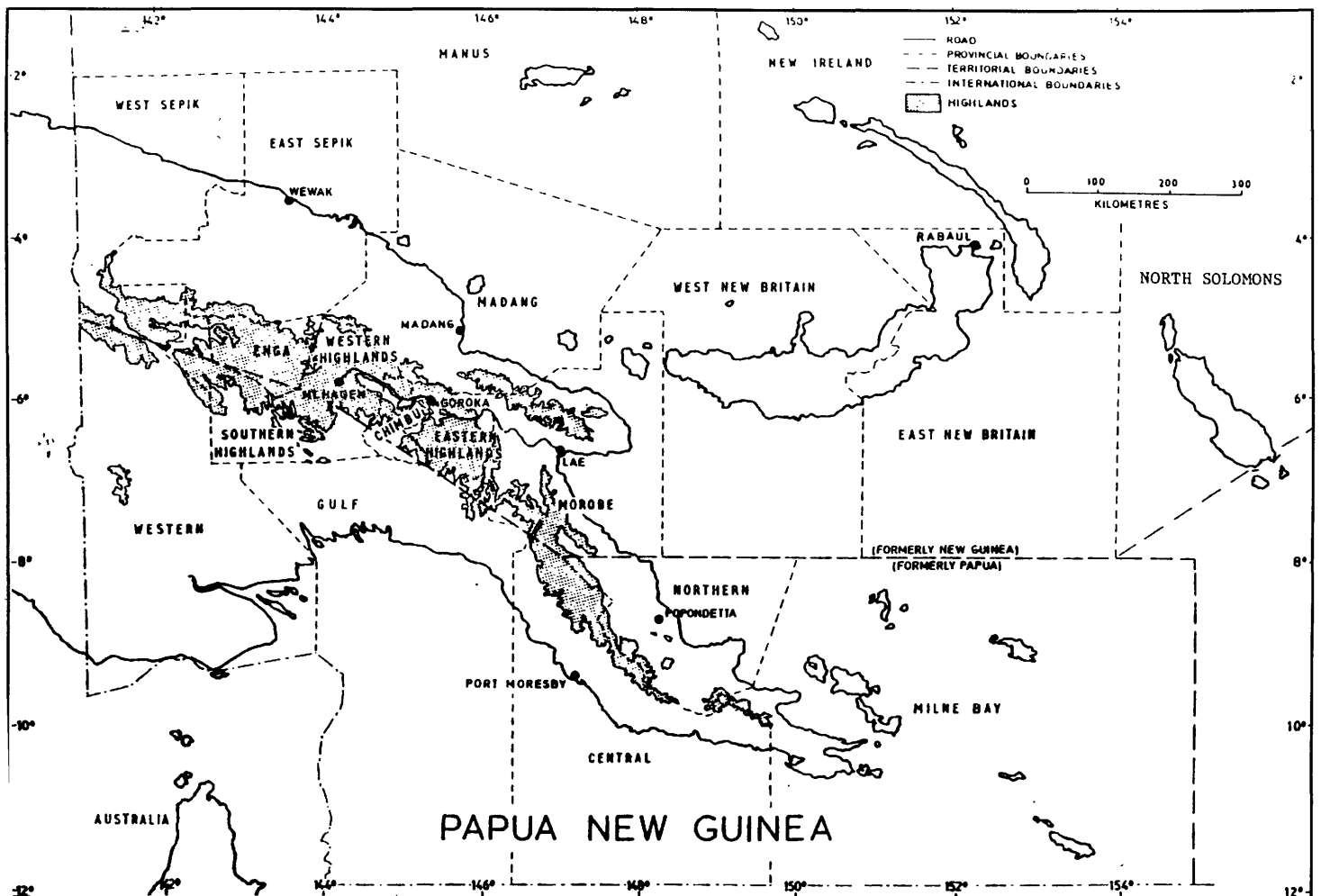
Prime Minister: Paias Wingti, MP.

Languages: 742 (10% of the world's total).

Vehicular languages: English, Pidgin, Motu

Capital: Port Moresby (pop. 120 000)

Major towns: Lae, Madang, Rabaul, Mount Hagen, Goroka.



“One step ahead” – with some help from the EDF



The Courier

The twin-engined Arava, lifeline to the outside world, on Bandi Airstrip

The tiny twin-engined Arava freighter began its descent from the cloud-capped Owen Stanleys, and circled what looked like a bare patch on the grassy plain which stretched from the foothills to the sea. Inside the aircraft, the load-master checked the cargo, which included cases of fresh food, crates of beer, vehicle and machinery spare parts and your dishevelled and discomfited correspondent. The pilot then made a long sweep over a tented camp and finally put the Arava down neatly on the bare patch—whose official name is the Bandi Airstrip, the airhead for the PNG Defence Forces Engineer Battalion who have become, uniquely, recipients for EDF aid.

This is the country through which the road must go



The Courier

Involvement with things military is alien to the European Economic Community. Born, as it was, out of two destructive world wars, it is extremely sensitive about contact with the military world and is scrupulous in avoiding involvement with any issue that hints at defence. In its external relations, too, there is no remotely military character: no ACP State will be able to refurbish its armouries, build new barracks or send its troops for training with EEC funds. Militarily speaking, the Community is blind, deaf and dumb. Yet here, in Milne Bay Province in Papua New Guinea, the EDF is paying ECU 4.5 m for two roads, one of which is being built by the Defence Forces Engineer Battalion. The unit's origins lie in the Assault Pioneer Platoon of the Royal Pacific Islands Regiment which, after many modifications and much expansion, became the Engineer Battalion of the PNG Defence Forces on 1 September 1976. Since its foundation, the PNG has concentrated on using the Defence Forces in nation-building tasks. Each year, the Battalion is given a series of tasks, usually one major one and a number of smaller ones. Roads and bridges, hospitals and schools and water supply are all part of the military civic action plan which achieves two important things—firstly, it increases and improves the nation's infrastructure; and secondly it provides invaluable practical experience for the 350 officers and men of the battalion.

Major Ben Norrie explained how the battalion is organised. He is the Battalion Operations Officer, deputy to the Commanding Officer, and responsible for the planning and execution of military civic action operations. “The battalion contains three main groups: combat engineers whose main role is supporting infantry in a wartime role, with special skills in mine warfare, demolition, watermanship and power tool and equipment operation; the construction company, which is concerned primarily with “vertical”



At Base Camp. Major Norrie is on the left, Franco Buongiorno, the EDF-financed technical assistant, on the right

construction (houses, schools, etc.); and the support company which contains the vehicles and earth-moving equipment needed for "horizontal" construction, bridges, airstrips and roads", he explained.

Bandi Airstrip was built in eleven days and is now the principal means of supplying everything the troops need, from food and drink to equipment and spare parts—not forgetting tapes for the video machine and spare parts for the darts board in the Base Camp "rest house". Base Camp is located at Siri Siri, a mile away, and houses the vehicle maintenance park, radio transmitter and rear supply de-

pot. Apart from the airstrip, there is a dirt road down to a small concrete jetty, and, using powerboats, the engineers can be in Alotau, the provincial capital, in less than an hour. But that is all. It is almost as if the Government had said to the Battalion "We will put you here. If you want to leave, you must build your own road out". But, in fact, the goal is more precise. The distance from the jetty to the mission station at Bonenau is 58.5 km and a road is to be cut through to it, passing through inhospitable mountainous terrain. The aim is to open the area, not only for the 2 000 current inhabitants who will be able to market

the coffee that they grow, but to settlers who would be attracted to the area (and for whom the road would represent an economic and social lifeline). The project will take over two years to complete and, Major Norrie insists, represents the Engineers' biggest nation-building exercise to date.

One can appreciate why the Army has been detailed to tackle the task—only with discipline, skill and *esprit de corps* (which the officers, NCOs and men of the Engineers seem to have in plenty) could men face the job undaunted. The area is notorious for earthquakes and is densely forested. Before one metre of road is laid, trees must be hacked away, rocks blasted, culverts built to channel the many rushing torrents that threaten the completed stretches. Only the toughest machinery can survive the strain—on the day I visited, four out of the six massive Isuzu 6×6 dumpers were out of action, and most of the other transport was immobilised—burn-out clutches, bent axles and the wear and tear that come from non-stop work in the front line.

"In a few weeks", Major Norrie told me, "the rains will be here. At that point, it will be useless to continue to move the road forward. We will bring the Forward Camp back down the road to Base Camp. But the rainy season doesn't mean that we sit back in Base Camp. There is a hell of a lot to do. For a start, we can overhaul the vehicles and heavy equipment. Next, most importantly, we have to go over every metre of road we have built and check and repair. Verges start to crum-



The work is gruelling for the men...



... and for the machines



The Courier

The onset of the rains means that this machine will not be at work...



The Courier

... but the road will go on



The Courier

One step ahead. The sign is there already. And the road is coming along

ble and we build revetments; culverts prove to be too narrow and have to be rebuilt. Banks have to be built up, and cut back to prevent landslips. Oh, we're certainly not idle in the rainy season, even if the heavy equipment isn't working!"

Watching the heavy equipment working is an awesome experience. Bulldozers shift tons of rubble, graders seem to slice into hillsides, heavy tipplers drop tons of backfill onto the road. And the men—working in truly tropical heat and humidity, filling the wire gabions with stones, mixing cement, laying the steel tubes that form the centrepiece of the culverts—are just as impressive as the machines.

What, I asked Major Norrie, was the local reaction to 20th century technology, literally airlifted into this untouched corner of Papua New Guinea? Very positive, he assured me. Once the purpose of the road had been explained, the local chiefs were all in favour. Of course, there were the usual minor misunderstandings: just as Major Norrie's men were set to blast a huge rock, the chief came and forbade it. The rock was a sacred precinct and had to be left intact. Away went the blasting charges, out came the dozers and graders to push the road *round* the rock. But, on the other hand, local men and boys take over some of the more routine work, carrying and filling

in, which saves a little wear and tear on Major Norrie's team of professionals. Relations between the troops and the local population are normally excellent, although the glamour of the uniform has sometimes turned the girls' heads, with correspondingly unpleasant side-effects as far as local boys are concerned! But discipline is tight, and men are confined to camp after 6 p.m. each evening and must make do with beer, darts and the video.

All too soon, the day was over. An excellent lunch which brought back vivid memories of my own inglorious military career as an Officer Cadet; a crisp and efficient briefing; a game of darts in the rest house, and the Arava returned with more supplies, ready to lift me away. As the tiny plane lifted off, I could see the road snaking away, crawling like a thin brown ribbon over ridges and through the forests of the breathtaking landscape. The Engineers' badge and motto remained with me—a crocodile, in army boots, with a pick and shovel, signifying the amphibian nature of the Engineers, and the motto "One Step Ahead". It was no less than the truth. One step at a time through the most difficult and treacherous terrain imaginable. One step ahead which the Community can be proud of supporting. "Arma cedant toga" is a worthwhile sentiment for most of the time, and one to which the European Community is generally faithful. But there are certain conditions under which the toga would make little headway—and Major Norrie and his men know those conditions extremely well. ○ T.G.

Cooperation between Papua New Guinea and the EEC

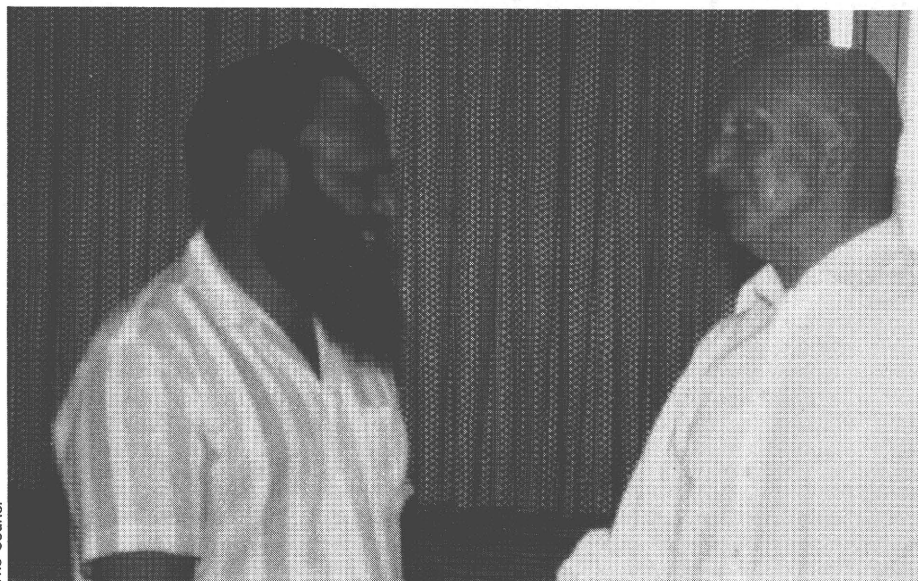
by Robert GOLDSMITH (*)

Papua New Guinea acceded to the First Lomé Convention on 1 November, 1978, a little over two years after becoming independent. She was the 53rd ACP State to do so. By special dispensation, the trade provisions of the Lomé Convention were applied to Papua New Guinea as from May, 1977. Financial co-operation effectively started when the first programming mission from the European Commission visited Papua New Guinea in October, 1977. The first Indicative Programme governing technical and financial co-operation was signed in anticipation of full accession which had to await completion of the ratification procedures.

Although connections between Papua New Guinea and many of the Member States of the European Community go back for 400 years—the many placenames of French, Dutch, Portuguese, German, British and other European origin illustrate it—PNG's accession to the Lomé Convention was the beginning of a new phase in the relationship. The Convention provides a contractual basis for the various advantages which the Member States, through the agency of the European Commission, have agreed collectively to negotiate in favour of PNG and the other ACP States. For example, once the value of project aid under the lifetime of successive Lomé Conventions has been established and communicated to the ACP partner, it represents a firm commitment. It cannot be withdrawn.

Even though this article is intended to describe the progress of PNG-EEC co-operation since PNG's accession to the Lomé Convention, it is essential to see this co-operation in the right con-

(*) EEC Delegate in Papua New Guinea, Solomon Islands and the Republic of Kiribati.



Prime Minister Paias Wingti and the EEC Delegate, Robert Goldsmith

text. There are many other Governments and organisations which have shown willingness to contribute to PNG's development since independence. Among these Australia is by far the most important. The EEC contribution in comparison has been modest, but nevertheless significant. It extends over the period of the First Lomé Convention (1975-80), Second Lomé Convention (1980-85) and the Third Lomé Convention now in force (1985-90).

Main forms of co-operation

These can be classified under several headings. They cover the provisions of the Conventions from which Papua New Guinea has benefited in practical terms excluding those under which she is a potential beneficiary (e.g. the special financing facility for mineral products and food aid) but has not as yet qualified for assistance. The headings are these:

- (i) Trade.
- (ii) Stabex system (stabilisation of export earnings from agricultural commodities).
- (iii) Technical and financial co-operation
 - (a) with the European Commission
 - (b) with the European Investment Bank.

- (iv) Regional co-operation.
- (v) Aid to refugees.

In addition there is support for Non-Governmental Organisations whose projects may be financed up to 50% by the EEC under budgetary provisions falling outside the scope of the Lomé Conventions. Many such projects have been implemented in PNG.

Trade

With few exceptions and none of major export interest to PNG, the

Table 1

Commodity	Amount of transfer (ECU)	Dates of transfer agreements
Based on 1981 exports		
Coffee	7 360 518	16.9.82
Cocoa	4 482 798	
Copra	1 082 569	
Copra oil	906 347	
Based on 1982 exports		
Coffee	16 344 445	18.11.83
Cocoa	4 201 081	
Copra and copra oil	3 604 036	
	37 981 794	



The Courier

Some 40% of PNG's exports go to the EEC

Lomé Conventions provide for duty free and quota free entry of PNG exports to the EEC. In 1984 out of total PNG exports of Kina 805.5 million, EEC markets accounted for Kina 309.8 million (mainly minerals and a variety of agricultural products). On the other side of the equation the EEC supplied only Kina 58.9 million of PNG's imports from a total of Kina 866.8 million. There is, therefore, a large imbalance of trade in favour of PNG. By means of an export promotion project and support for PNG participation at international trade fairs, the EEC have tried in a modest way to support PNG's efforts to diversify her export markets and products.

Stabex

PNG has been a major beneficiary from the Stabex arrangements for commodities. In broad terms, these arrangements entitle ACP States to transfers of money when their exports of particular commodities to the EEC fall significantly below the average of such exports in the previous four years. The years 1981 and 1982 were poor ones for exports of coffee, cocoa, copra and coconut oil. As a result, transfers were made to PNG totalling ECU 37 981 794. The breakdown is shown in Table 1.

Because of the large number of requests for transfers and the limited annual provision of money to pay them, the EEC was obliged to scale down transfer payments on both 1981 and 1982 exports. After the expiry of Lomé II a balance of Stabex money became available. This is being used to pay additional transfers to those

ACP States which would have qualified for higher payments had the money then been available. PNG's share of the extra money is ECU 8 835 830. This will bring the total of Stabex transfers to PNG under the Second Lomé Convention to ECU 46 817 624.

The recipient state has the right to nominate the currency in which the transfers are to be paid. In all cases PNG opted to be paid in deutschmarks.

There is an obligation on the part of those ACP States not classified as least developed to repay these transfers when export earnings in future years recover sufficiently. The years 1983, 1984 and 1985 were good ones for some or all of the commodities on which transfers had been paid to PNG. As a result, the transfers of ECU 37 981 794 have become repayable. After a two year grace period, they have to be repaid in five equal annual instalments. The first instalment is payable on 16 January, 1987. There is no interest charge.

The year 1986 has been a particularly poor one for exports of certain commodities such as copra, copra oil and palm oil. It seems virtually certain that PNG will qualify for new transfers under the Third Lomé Convention on the basis of the full 1986 statistics when they become available.

The beneficiary state has an obligation to inform the EEC of the way in which the transfers have been used. The form of this obligation has been tightened up considerably under the Third Lomé Convention.

A word about the ECU. Its value

against the Kina has fluctuated considerably over the years. One ECU was worth 90 toea on average in 1978. It fell to a low point of 66 toea in February, 1985, but has since recovered sharply. In September, 1986 one ECU was worth one Kina and 1.5 toea.

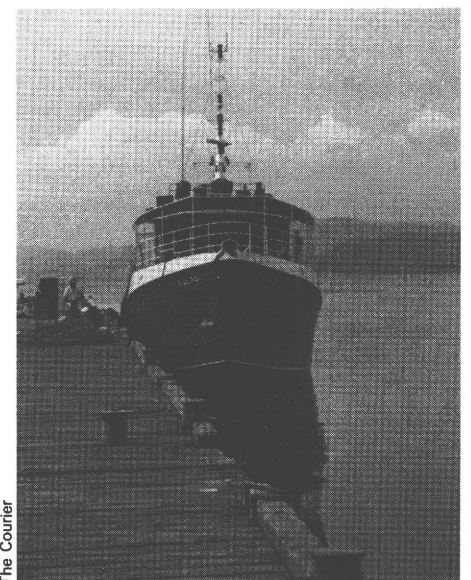
Technical and financial co-operation

[(a) European Commission]

Under the First Lomé Convention PNG was allocated ECU 10 million as direct project aid. Under the Second Convention the corresponding allocation was ECU 23 m increased later by a supplementary ECU 3 807 m for special reasons. The rules of the Conventions require the PNG Government to identify the projects on which the money shall be spent within the framework of Indicative Programmes established by mutual agreement in the early stage of each Convention. The main projects financed from these aid allocations have been as shown in Table 2.

The Lomé I programme is virtually complete. Of the order of 93% has been paid. Of the ECU 10 m, ECU 6.5 m was grant aid and the balance of ECU 3.5 m in the form of special loans (1% interest, 10 years' grace period and 40 years to repay).

Of the Lomé II total ECU 8.2 m is in the form of special loans (1% interest, 10 years' grace period and 40 years



The Courier

The EDF-financed fisheries research vessel, MV Kulasi, one of a pair designed to boost knowledge of PNG's extensive fisheries resources

Table 2: Lomé I

	(ECU)
1. Multiannual training programme	1 430 000
2. Purchase of two fisheries resource assessment vessels	2 384 000
3. Reconstruction of 22.7 kilometres of the Hiritano Highway	2 871 000
4. Beef cattle ranches at Bogia and Rigo	1 865 200
5. Microprojects programme	515 000
6. Various studies (beef resource development, fisheries, South Coast Food production and marketing, oil supply options, next section of the Hiritano Highway, Human settlement planning)	686 788
7. Reserve	245 012
	10 000 000

Table 3: Lomé II

	(ECU)
1. Multiannual training programme	3 300 000
2. Momote aerodrome (Manus Island) — resealing and reconstruction	1 000 000
3. Reconstruction of 13.5 kilometres of Magi Highway	3 500 000
4. Development of cattle ranching, coconuts and cocoa at Huris (New Ireland)	1 460 000
5. Mini-hydro scheme at Tari (Southern Highlands)	2 700 000
6. Kimbe-Talasea Road (W. New Britain)	7 000 000
7. Trade Promotion Programme and missions	627 313
8. Studies and consultancies (insect defoliation of pine trees, Tari project, mining project, tourism adviser)	385 000
9. Construction and Technical Assistant for two roads in Milne Bay Province	4 500 000
10. Reserved for further projects in Diesel Power Replacement programme (Tari was the first)	2 150 000
	26 807 118

repayment) and the rest in the form of grants. Although it will still be some time before all these projects are completed, the essential work of identification of projects, preparation of project dossiers and approval by the European Commission is virtually done. The rhythm of payments, hitherto rather slow, will quicken rapidly in 1987 and the first half of 1988.

The projects as a whole under both Conventions have concentrated on three main sectors: — training, infrastructure and agriculture including fisheries. This concentration reflects the essential needs of Papua New Guinea as defined by successive Governments. There is an urgent need to develop and make better use of scarce skilled manpower. Under the multiannual training programmes, of the order of 275 PNG nationals have been sent to EEC countries for courses of study and specialised training. The need for improvements in infrastructure (roads, airports etc.) as a means of promoting development is starkly evident in PNG. Increased food production to economise on the import bill and of cash crops to help the country pay its way internationally are also priority objectives.

Technical and financial co-operation

[(B) European Investment Bank]

The value of the European Investment Bank's operations in PNG is even greater than the value of project aid under the Indicative Programmes

of Lomé I and II. The interest rates on the Bank's loans from its own resources are normally subsidised by 3% by the European Development Fund so that the actual rate chargeable is within the range of 5%-8%. Loans from risk capital are at even more favourable rates.

Under the First Lomé Convention, the Bank granted a loan of ECU 7 m to Higaturu Oil Palm Pty Ltd to finance the installation of a palm oil processing plant. It also granted a conditional loan from risk capital to the



Oil palms at Higaturu. The plantation received a large EIB loan under Lomé I and another under Lomé II

PNG Government of about ECU 1.6 m to help finance the Government's equity participation in the project. Under the Second Lomé Convention the Bank made a second loan of ECU 7.9 million to the same organisation to help finance expansion of its processing facilities.

The Bank granted a conditional loan to the PNG Government of ECU 12 m under the Second Lomé Convention to help finance the Governments' equity participation in Ok Tedi Ltd and also agreed to an unsubsidised loan of ECU 40 m under Article 59 of the Convention to Ok Tedi via KfW (the German organisation). The Bank granted a loan of ECU 1.8 million to finance the purchase of containers for the Pacific Forum Line.

The total value of these operations is ECU 70.3 m to which should be added some ECU 2.5 m in the form of interest rate subsidies.

Regional co-operation

Under each Lomé Convention allocations are reserved from the European Development Fund to finance projects of interest to particular regions within the ACP world. The allocation to the Pacific region (where there are eight ACP States) was about ECU 26 m under the Second Lomé Convention.

Projects of special direct interest to PNG financed or to be financed out of this programme are the supply and installation of an earth satellite station near Port Moresby with associated

civil works (special loan of ECU 4.87 m); and three energy projects (grant of ECU 736 000) of which the most significant will be the supply of a wood fired gasifier.

Other regional projects of indirect interest to PNG are an allocation of ECU 3.2 m for the purchase of containers for the Pacific Forum Line and of another ECU 3.2 m to promote tourism development in the Pacific region. The EEC is also paying for a consultancy (ECU 250 000) to help get the newly formed Pacific Islands Association of Chambers of Commerce (PIACC) off to a good start.

Aid to refugees

An emergency food aid allocation of ECU 807 300 was granted to the United Nations High Commission for Refugees to help cover the costs of supporting refugees some 10 500 in number who crossed the frontier between Irian Jaya and PNG. The allocation was estimated as sufficient to pay for 1200 tonnes of rice, 160 tonnes of canned fish, 30 tonnes of milk powder and 12 tonnes of vegetable oil.

Summary

These various forms of co-operation under Lomé I and II are summarised in the following statistics:

Total Cooperation	ECU
Indicative Programme Lomé I	10 000 000
Indicative Programme Lomé II (plus supplement)	26 807 118
Stabex transfers	46 817 624
European Investment Bank Loans	70 300 000
Interest rate subsidies	2 487 431
Regional projects of direct interest to PNG	5 606 000
Aid to refugees	807 300
	162 825 473

This sum is equal to about K163 m at current exchange rates or K109 m at the lowest rate applicable during the years 1978 to 1986. So the real Kina equivalent is somewhere between the two figures. Although only about half what Australia contributes in any single year it is nevertheless a considerable total and ample evidence that PNG-EEC co-operation is more than just a polite figure of speech.



The Courier

Priority must go to infrastructure. Work on the EDF-funded Magi Highway

The Third Lomé Convention

The Indicative Programme signed on 28 February, 1986 is for ECU 32.5 m of which ECU 18.5 m in grants and ECU 14 m in the form of special loans. It was agreed that 75% of the total should be concentrated on projects and programmes to promote rural development. Discussions are being held with the PNG authorities designed to put flesh on the bare bones of the Indicative Programme.

The regional allocation is ECU 34 m. Discussions through the agency of the SPEC in Suva will determine, within the framework already agreed in March 1986, how this allocation had best be used for the benefit of the eight ACP States of the region.

The European Investment Bank has



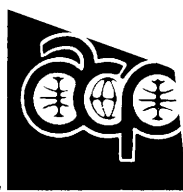
The Courier

The satellite station is a powerful symbol of regional cooperation which the EEC is fostering

already agreed to a loan of ECU 20 m as a contribution to financing the major Yonki Dam hydroelectric project.

Conclusions

Papua New Guinea has shown a close interest in the development of relations with the EEC. The former Minister for Foreign Affairs and Trade, Mr Namaliu, was the Chairman of the ACP Ministerial group at the time of signature of the Third Lomé Convention. PNG has an Ambassador and supporting staff in Brussels just as the European Commission has a Delegate and supporting staff in Port Moresby. Underlying, and possibly more important than the statistics illustrating the development of financial and other forms of co-operation between the two partners, is the spirit in which discussions between the two sides are held. After 11 years of independence, successive Governments of PNG have stoutly upheld the principles of their democratic constitution. Given the multiplicity of languages and cultural traditions in PNG, its varied ethnic composition and its daunting physical features, it is a major achievement to have created a sense of national solidarity in so short a timespan. If the EEC has been able to contribute in a modest way to supporting the successes of the Independent State of Papua New Guinea and can hope to do so in the future, the Lomé Conventions applying as they do to this distant land will have justified the efforts which went into their negotiation and their subsequent implementation. ○ R.G.



The Beira Corridor – avoiding South African ports

The Beira Corridor donors' coordination conference, held in Brussels in late October, was, it was unanimously agreed, a success, primarily because of the amount of financing obtained. After two days' talks, more than 90% of the nearly \$ 200 million needed for phase one of the 10-year programme to provide roads, railways and air links to open up parts of Mozambique, Malawi, Zimbabwe and Zambia had been found. At the previous donors' conference in Beira itself six months earlier, only 5% of the investment was raised.

But in addition to this jump in commitments the Brussels meeting was an opportunity for the participants (representatives of the SADCC⁽¹⁾ and 18 countries, including the 12 Member

States of the EEC, plus delegates from seven inter-governmental organisations and financing bodies, including the Commission) to get a better idea of their various interventions and discuss things in greater consultation. The outcome of the meeting is of capital importance, because it guarantees the success of the action of this "great donors' cooperative" (as Professor Hveding, the head of the team of Scandinavian advisers of the Beira Corridor Authority (BCA), called it).

And, in the coming years, coordination of the different donors must be even better than it is now, so that all the pieces in this gigantic puzzle, in which the projects are financed from

(1) Southern African Development Coordination Conference.

so many different sources, can be fitted together properly. That is where the real challenge lies – in the insurmountable difficulty that always arises when a developing country has to find heavy investments that no single funder can hope to cover.

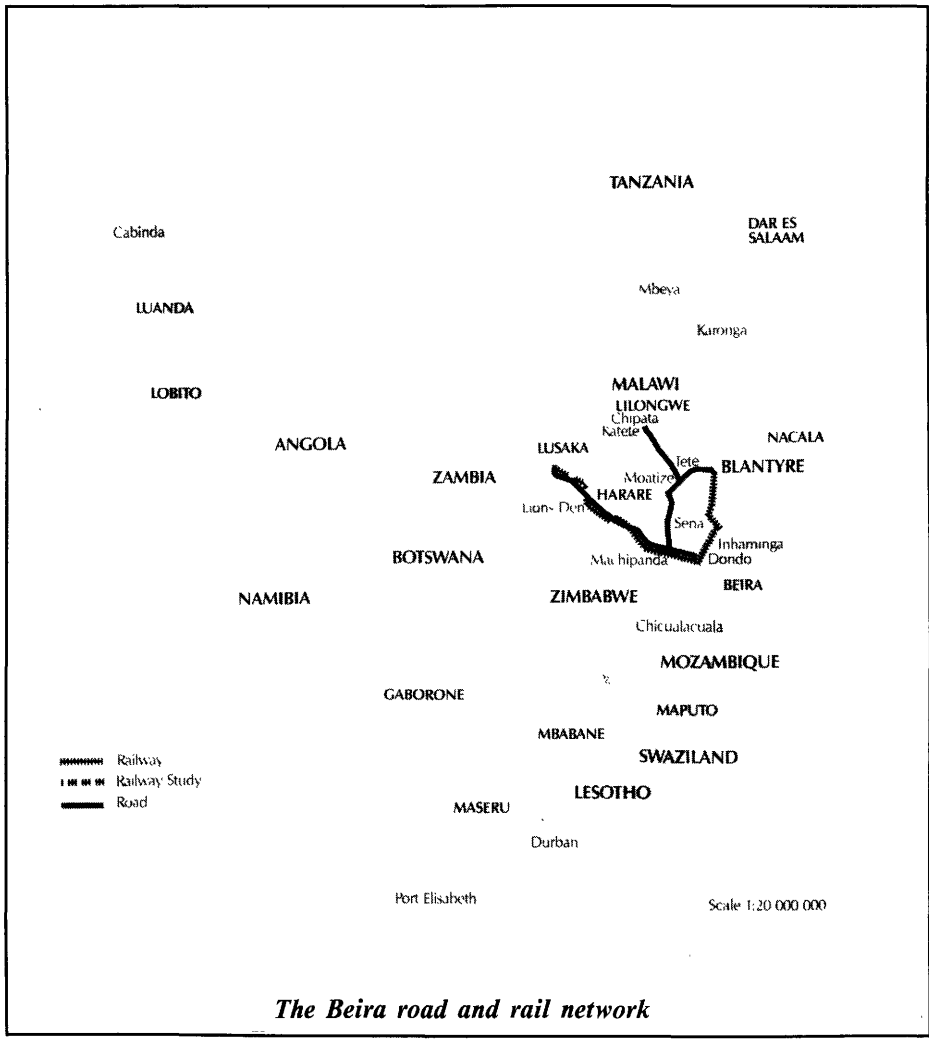
The Community is by far the most important source of financing for the Beira Corridor. The EEC and the Member States are supplying more than 50% of the investments for the first phase and the EEC alone is giving the equivalent of some ECU \$ 45 million (making it the biggest single donor), while the Netherlands are giving \$ 20 million, Denmark \$ 17 million and Italy more than \$ 12 million. In the second rank come the Scandinavian countries (Norway, Finland and Sweden*), with \$ 43 million, and the African Development Bank, with \$ 30 million.

Many other countries and organisations at the Brussels meeting expressed interest in one or more projects and indicated future involvement in the financing, although they could not always specify the amount. This was the case of Portugal, Spain, the UK, the USA and the World Bank—which will run a study mission to the area soon.

An explosive situation

But right at the last minute, this second donors' conference looked as though it would not take place. Four days before the scheduled opening, Luis Maria Alcantara Santos, Mozambique's Transport Minister, who was behind the meeting, was killed, with President Samora Machel and several of his colleagues, in the tragic plane crash in South Africa. The decision to hold the meeting nonetheless was welcomed by Dieter Frisch, the EEC Development Commissioner, as being the best way of paying tribute to them, as "President Machel and Alcantara Santos felt that the rehabilitation of the Beira Corridor was vital for Mozambique and the whole of southern Africa".

(*) Excluding Denmark, which is an EEC Member State.



This is indeed one of the top priorities of SADCC, which is trying to reduce the region's dependence on South Africa. Almost 90% of Zimbabwe's trade has to use South Africa's ports and railways at the present time. Malawi is in much the same situation, although Zambia depends on South African infrastructure for only 30% of its external trade.

South Africa only needs to decide, as it threatens to do if the international community imposes severe sanctions, to hold up (as it did with Lesotho last year) or completely block the movement of goods on its territory, and these countries' economies would be utterly paralysed. This is not, alas, an academic question. It could actually happen tomorrow or the day after. This is why, as Zimbabwe's Transport Minister Ushewokunze said in Brussels, "We should plan as if South Africa was going to make transport difficult for us at five o'clock today". In a situation of this kind, the ports of Beira and Maputo will be the obvious ways out for Zimbabwe, as Nacala and Beira will be for Malawi. So there is no point in stressing that the work is urgent as the situation could be critical at any time.

But everything in the Beira Corridor—the port, the port facilities, the railway, the road and the telecommunications—needs rehabilitation. The port of Beira, where traffic peaked at 4.3 million tonnes back in 1965, gets scarcely a million tonne through now, although it could handle 5 million. One of the reasons for this is that only 10 of the anchoring berths can currently be used. So that is why the Beira-Rui Fonseca Corridor 10-year programme hinges on returning the port facilities to their original capacity—as the BCA Executive-Director once more made clear.

The Community has agreed to take over the reconstruction of the four berths that are out of use (berths 2 to 5, the first being reserved for fishing vessels). On 22 December, the Commission, which is aware of the urgency of the matter, issued invitations to tender and expects to decide on the successful tenderers at the end of April 1987. Work should then be able to start at once. It will go hand-in-hand with the dredging operations financed by the Netherlands.

Projects	1986	1987	1988	1989	1990	Estimate costs 1986-1989/90
General projects		11.3	7.2	2.6	1.1	22.2
Port		23.8	41.2	32.5	2.0	99.5
Railway	5.0	16.7	10.6	5.0	3.5	40.8
Telecommunications		0.5		0.3		0.8
Road	0.5	2.5	10.0	10.0		23.0
Phase 1 total	5.5	54.8	69.0	50.4	6.6	186.3

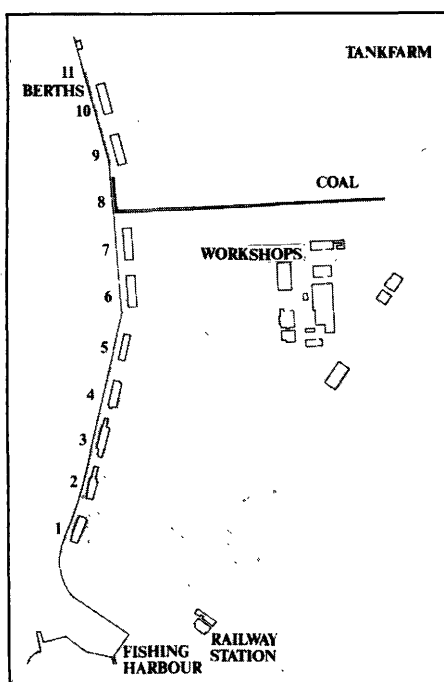
The urgent repairs to and rehabilitation of the railway between the port of Beira and Machipanda on the Zimbabwe border are already under way. They are being done by Zimbabwe railways. Even if there were no threat from South Africa, the Mozambican ports would still be the natural outlet for Zimbabwe, as they are nearer. And if the problems of security and standard of services could be solved, it has been calculated that Zimbabwe would save US\$ 105 on every tonne of goods shifted through Mozambique.

Security

Zimbabwe is well aware of all this and as well as working on the railway, it will be repairing the Machipanda-Beira road, which follows the same

route. It has just joined with Mozambique to set up an emergency repairs brigade. The two methods of transport complement each other, as Dr Ushewokunze underlined. It is vital, he maintained, to achieve a balanced development of road and rail capacity. He also stressed the need to save time by avoiding pointless studies. The road component of the Beira Corridor has attracted considerable interest from the Community, the African Development Bank and the Netherlands. A donors' consultation meeting may even be held in the new year. "The advantage of the road is that it is easier to repair than the railway", said one of the people at the Beira Corridor meeting. "If a railway bridge is blown up, it takes months and considerable means to rebuild. But with a road, repairs need only take a few weeks or a few days".

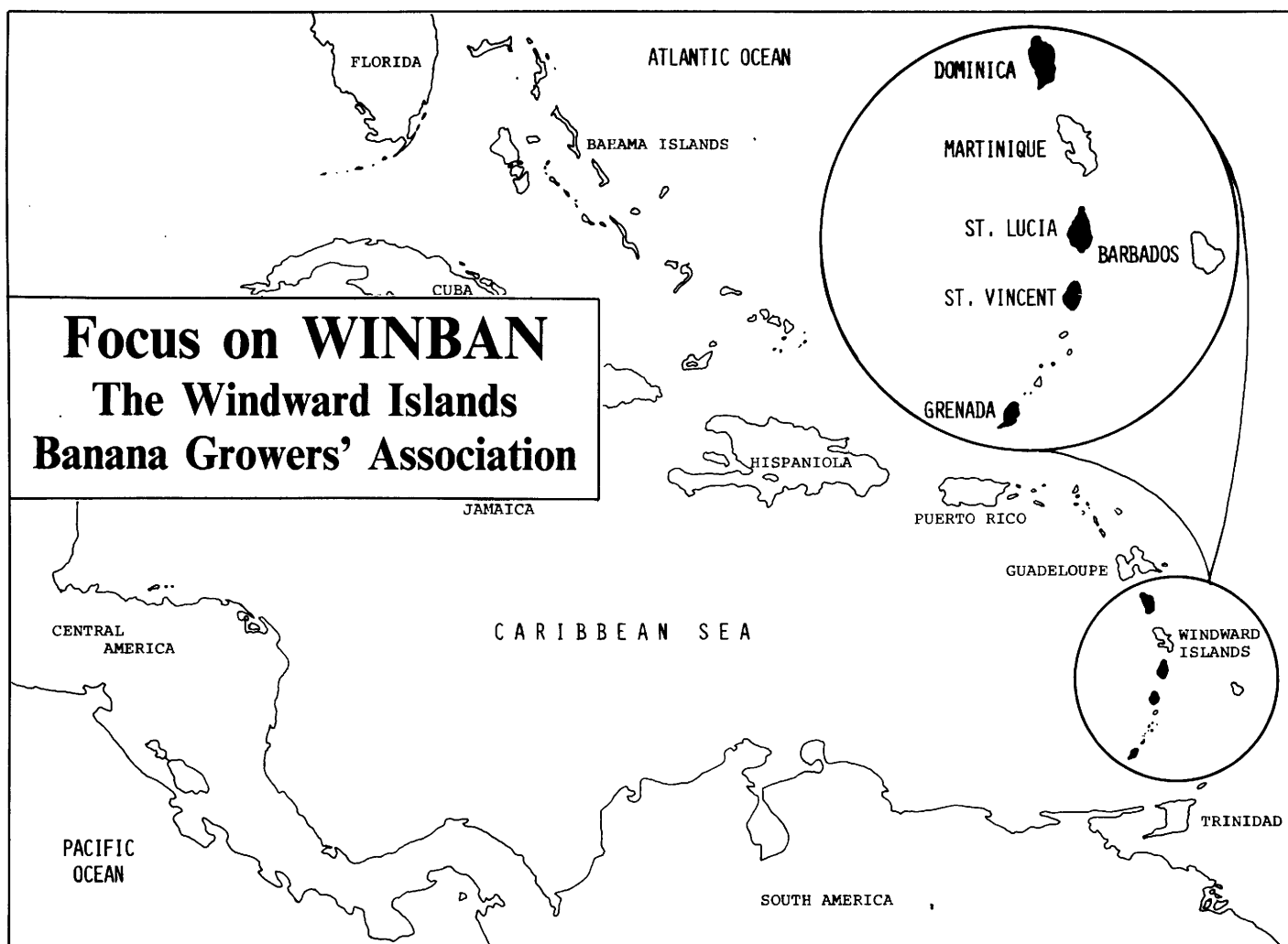
Beira Port



This undeniably points to the road as an alternative to the railway if things get difficult—which, alas, cannot be discounted, as the Mozambican guerilla movement, which South Africa is backing, has already threatened to attack the interests of Zimbabwe and Mozambique. Should every inch of the Beira Corridor be protected? Zimbabwe's Prime Minister Robert Mugabe has said on a number of occasions that he is ready to do this if there is no other way out.

At all events, security in the whole area has to be assured if Phase One of the rehabilitation scheme is to be run properly. And financing for the whole Beira Corridor programme, which will cost something like \$ 600 million, depends very much on the successful completion of this phase. o

Amadou TRAORE



Focus on WINBAN The Windward Islands Banana Growers' Association

When the banana producers' associations of the Windward Islands agreed in 1956 to form the Windward Islands Banana Growers' Association, they perhaps never dreamt that in so doing they were creating one of the most effective and durable organisations in the British Caribbean. By then, the islands concerned—Dominica, St Lucia, St Vincent and Grenada had all had chequered experiences in banana production. The following article tells something of the history of banana growing in the islands, and in particular in St. Lucia where the headquarters of WINBAN is sited.

The first recorded farmers' interest in banana production dates back to 1920. They were motivated by the Swift Banana Company which, from 1922, purchased the fruit from local dealers while producing bananas from its own plantation. Unfortunately, production ceased by 1927. A second attempt was made in 1933-34 to revive local interest in production for export to Canada and Bermuda. This was facilitated by the Lady Bird ships which loaded fruit from St Vincent as well.

The potential of bananas as an economic crop was apparently recognised

(*) Article provided by WINBAN, Castries, St. Lucia.

by 1934, resulting in a special ordinance being enacted to create the St Lucia Banana Association. In brief, this Association was made responsible for marketing bananas and to regulate and control their export. The Association purchased fruit from dealers who bought from large and small producers. It was given sole right through the ordinance to export bananas. At that time, the predominantly grown clone was Gros Michel, which is highly susceptible to the soil-borne Panama disease *Fusarium oxysporum f. cubense*. The ravages of Panama disease on the Gros Michel clone caused the second recorded collapse of banana production by 1941.

In 1948, Antilles Products Ltd. began the third attempt at establishing banana production. While the Gros Michel still formed the principal clone, new clones immune to Panama disease were introduced. They were the Robusta (Poyo) and Lacatan varieties belonging to the Cavendish subgroup. The entire Windwards production is now based on the cultivation of the Cavendish sub-group. There is now a mixture of Robusta, Valery and Giant Cavendish. Lacatan has been phased out because of yield, susceptibility to windblows, and undesirable morphological characteristics.

In 1953, an intended ten-year agreement was signed between the individual islands and Antilles Products Ltd. However that contract was taken over by Geest Industries of the UK in the following year. In taking over Geest agreed, among other things, to replace the contractual restriction of one million bunches per year with a commitment to purchase all marketable bananas produced. This commercially most astute decision provided added strength to the

foundation for the development of the banana industries of the islands. Production increased very swiftly following these negotiations.

In the same year, the St Lucia Banana Association was reconstituted and named the St Lucia Banana Growers Association. In the following year, St Vincent created the St Vincent Banana Growers Association.

The similarity among the islands' political administrations, the commonality of aims, constitution and purchaser of their bananas created the desire among the four Windward Islands to consolidate their efforts. Thus in 1956, representatives of the Governments and Banana Associations of Dominica, St Vincent and Grenada met in St Lucia to discuss common problems affecting the banana trade with a view to identifying joint action for solutions.

Two years later, on 19 August 1958, as a direct result of the recommendations of the 1956 meeting, WINBAN, the Windward Islands Banana Growers' Association, a Company limited by guarantee was formally incorporated under the Law of the Colony of Dominica. By the terms of its incorporation, it is regional in scope and cooperative in character.

Role and functions

The scope of the objects of WINBAN is broad. Briefly, WINBAN acts generally as the central coordinating institution for the four island Associations. It undertakes with the support of the Associations, contractual and other negotiations on behalf of the Associations, but particularly those concerned with the marketing of bananas. All the exportable bananas from the Windwards are destined for the UK market. It also conducts a wide range of applied research designed to improve practices and find solutions to farmer problems related to banana production. Linked very strongly with its research activities is its role in the transfer of technology to the producers. In that regard, it is continually engaged in extension and staff training activities. Procurement of agrochemicals and other materials needed for the industry is another centralised function.

The inadequacy of funds, especially for research activities, requires WINBAN from time to time to seek financial and technical assistance from donor countries and institutions. The supervi-

sion of aid-funded projects related to the industry are normally assigned to WINBAN. This facilitates both effectiveness and efficiency in implementation. Over the years, this role has been pivotal in the development of the industry especially during the many crises which have confronted the industry.

In exercising this particular role, WINBAN must, for maximum coordination and for expediency, ensure that a supportive relationship is maintained between the Governments, regional institutions and extra-regional agencies.

The structure of the industry

The industry structure within which WINBAN operates is unique in the commercial production of bananas. The industry serves nearly 20 000 producers, the majority of whom are small, as is illustrated by Tables 1 & 2. More recent figures for the Windward Islands as a group are not available at this time. However, an examination of the Dominica data indicates that, small shifts notwithstanding, the overall structure is not expected to have shifted substantially away from the 1977 position. For that year, roughly 93% of growers produced less than 15 tons per year and contributed about 43% of total production. At the other extreme 1% of growers produced over 30% of production.

This structure, combined with the rugged terrain on which bananas are grown, is the source of the complexity of problems and constitutes the root cause of

the challenge in the administration of the industry. Finding solutions is a difficult task for research, but perhaps even more difficult is the ever-elusive task of identifying the problems being experienced and of organising extension activities leading to the general adoption of the relevant technology. These activities are most often costly because temporary solutions must at least be found and communicated to the growers in a situation of expediency while more permanent solutions are meticulously investigated.

There are three divisions within the management structure of WINBAN: a secretariat, which looks after the overall accounting, economic and general administrative activities, and especially, matters related to the operation of the contract with the buying company; a research & development division, which conducts research designed to improve agronomic, fruit quality, pests and disease control and farm management practices; and the UK office, which is responsible for the continuous monitoring of market conditions and for agreement of prices on a week by week basis with the buying company. This office liaises with political and quasi-political organisations and provides the principal representative of the island Governments at intergovernmental/international meetings dealing with bananas.

The Windward Islands Banana Industry is located in four constitutionally independent States where agricultural policies and programmes bear close similarity. WINBAN must therefore develop and maintain acute sensitivity to the prevailing circumstances in each state. Thus in each island any legislative instrument required to support a WINBAN function, for example the control of fruit quality or establishment of a hurricane insurance scheme, must be in harmony with the political, social and economic policies of each individual island Government.

Financing WINBAN

The total annual expenditure incurred in the management of WINBAN is approximately East Caribbean \$ 3 m and is obtained from several sources. The individual Associations, on the basis of an agreed budget, pay a cess on banana sales and this accounts for 66% of total expenditure. Sixty three percent of the total WINBAN budget is allocated to the



A field affected by Moko disease. Disease control is a vital aspect of WINBAN's work

Research & Development division. External aid, namely from the ODA, is the other chief source of funds—26%—most of which is assigned to the Research & Development division.

The remaining sources of finance (8%) are singularly modest sums and include a membership fee, commissions from agrochemical manufacturers for trials on their products and revenues from research farm operations. An increasingly higher contribution is now expected of WINBAN to meet its expenses as sources and levels of financial assistance continue to be on the decline.

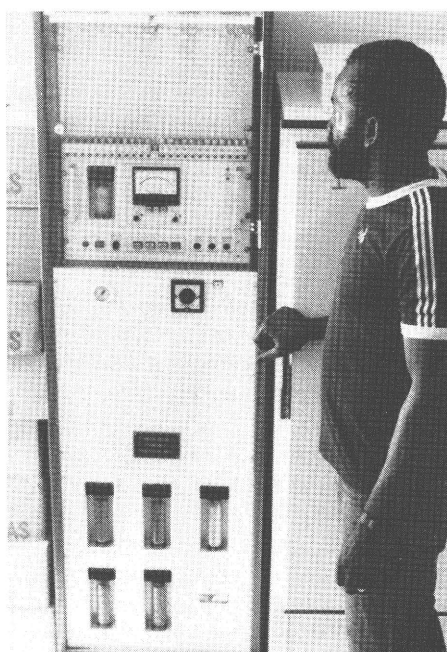
Achievements

The benefits attributable to the existence of WINBAN transcends those directly related to banana producers.

Mr H.V. Atkinson, a past President, a founding Director of WINBAN, and a past Chairman of the St Lucia Banana Growers' Association expressed the view at the 25th Anniversary of WINBAN, that WINBAN has contributed substantially to the agricultural development of the islands; in providing housing, education and health in the islands; in strengthening the earning power of farmers, public servants, private enterprises and professionals, in the development of the islands' infrastructure; in creating and sustaining stability in the economic life of the islands, and in demonstrating inter-island and regional economic cooperation.

These achievements, though, cannot be attributed exclusively to WINBAN. An acknowledgement of the indispensable support or involvement of the individual associations is pertinent.

In considering the achievements of



A gas analyser in use for post-harvest fruit quality research

WINBAN over its 28 years of existence, one must be very mindful of the fact that they have been made possible through the excellent relationship and cooperation which have existed between WINBAN and its partners in business.

The four island Governments, the ODA, CIDA, USAID, CDB, and other regional and international institutions have given meaningful assistance in various forms to WINBAN. Its success as a central coordinating institution for the four associations can be viewed against its research and development programme and consequent recommendations made to the growers; the favourable contracts obtained through negotiations with the buying company; the wholesome relationship that exists between WINBAN and regional institutions and the finance and aid obtained

through WINBAN from donor agencies.

Research & Development

The seed for the present Research and Development Division was sown in 1960 when a small banana research scheme was started under the aegis of the Regional Research Council (RRC) of the Imperial College of Tropical Agriculture (ICTA) in Trinidad. The RRC small scheme proved inadequate, for within four years, with rapidly expanding banana cultivations, problems other than those related to soil fertility were being identified. Consequently, in 1964 at the request of WINBAN, the UWI agreed to hand over the scheme.

The objectives defined at that time remain virtually intact. They included the establishment on a central farm of localised agronomic trials which required intensive detailed recording and those which could not be conducted on farmers' land; the study of various aspects of costs and revenues in banana production and the provision for training of extension workers and farmers. The division accounts for the largest part of WINBAN's annual budget. The research station is located in St Lucia on lands partly donated by and leased from Geest Industries.

Plant nutrition and fertiliser formulation to meet the excessive high nutrient demands of the banana crop was the first problem tackled. Intensive research resulted in several fertiliser analyses to meet the requirements of the exceedingly variable soil types found in the islands. Economic constraints restricted the choice to a few formulations. Continuous monitoring has been necessary for early detection of changes in soil nu-

Table 1: Windward Islands banana production - 1977

Farm production category (tons)	% Total number of producers	% Total production
0 < 15	92.5	43.0
15 < 30	5.1	17.7
30 < 50	1.4	9.0
over 50	1.0	30.3
	100.0	100.0
Absolute numbers	19 339	113 883 tons

Table 2: Dominica banana production - 1977 & 1985

Farm production categories	% Total number of producers		Total production	
	1977	1985	1977	1985
0 < 15	91.2	87.3	49.2	40.7
15 < 30	6.1	8.1	20.6	25.0
30 < 50	1.7	3.0	10.1	17.1
over 50	1.0	1.6	20.1	17.2
	100.0	100.0	100.0	100.0
Absolute numbers	5216	5021	31 908 tons	33 664 tons

trient levels. New agronomic and husbandry practices which relate to crop nutrition as well as new cost effective techniques such as fertiliser placement are being investigated. The facilities include a CIDA-donated autoanalyser which permits rapid analyses of hundreds of soil and leaf samples from farmers and extension personnel.

Nematode and borer infestation of the banana root system negates the potential response from fertilisers. In addition, the damage to the root system by these pests increases the susceptibility of the plant to toppling from windblows. The consequential excessive losses of plants had a direct influence on the abandonment of the hurricane insurance scheme, established in 1959. Research activity into pest control methods has resulted in the judicious choice and use of approved easily applied dual-activity pesticides. This has resulted in the lowering of the rates of fertiliser application, reduced losses due to windblows, heavier bunches and higher productivity.

Leafspot disease or yellow sigatoka is a continuing scourge to the industry. It is caused by a fungus (*Cercospora musae*) which attacks the banana leaf particularly in humid hot conditions. This disease has a drastic effect on fruit quality and causes uneven and premature ripening of fruit. In the Windwards the form of control is principally by aerial application of fungicides. The Research Division continually monitors the incidence of the disease in the islands and in addition regularly screens the fungus for detection of new and more virulent strains. Investigations into more cost effective control systems and chemicals are regularly conducted.

Fruit quality problems have been tackled relentlessly since the early 1960s. They are compounded by the various biological influences which naturally affect the fruit's appearance and by man-induced skin defects sustained as a result of excessive handling. The problems are further complicated by the large number of very small growers who must be attended to in the industry.

Fruit quality is crucial to the survival of the islands' banana industry. It is a stated pre-requisite in the policy of the British Government for continued protection of the traditional UK market against non-ACP bananas. Research into problems associated with protecting fruit from mechanical damage has progressed

through a series of stages. In the 1960s, trash was replaced by foam rubber as padding for trays and bunches and on transporting vehicles. With the introduction of cardboard cartons in the 1970s, foam was replaced with special trays for banana hands, and specially designed plastic field boxes.

Although each successive step resulted in improved fruit quality, the real breakthrough in finding a solution to fruit handling damage came within the past six years. The completely revolutionary system known as "field packing" developed by Geest and WINBAN involves dehanding the fruit on the tree in the field, allowing sufficient time for free latex to ooze out, followed by placement of a chemically treated absorbent pad over the cut surface and packing the hands in cartons ready for shipping. As a result of the transformation of packing methods the quality performance of and demand for Windward Islands bananas has attained a new high, far beyond expectations.

Contract negotiations

Those who administer the industry must remain perpetually conscious of the adage "the proof of the pudding is in the eating". This "proof" is represented by the price paid to the grower. Contractual arrangements with Geest Industries detailing the conditions for acceptance of fruit, shipping, marketing and the basis for the determination of prices to the Associations are reviewed or re-negotiated periodically in light of changing circumstances. Consequently, WINBAN must adequately equip itself with competent negotiators. Over the years, WINBAN has increased its own capability in that regard, relying less on technical assistance from British sources.

The impact of these negotiations may be gleaned from WINBAN's share of the British banana market. This stood at 55% in 1969 but fell as low as 22% in 1980 following a decade of catastrophes which included drought and two devastating hurricanes in 1979 and 1980. In 1985, the Windwards supplied 50% of the market. The forecast for 1986 is 63%.

Aid

The banana industry is typified by a strong resilience in the wake of natural disasters. The Windward Islands are located in the general path of tropical

weather disturbances which are frequent and which inflict varying degrees of damage. Hurricanes such as Abby (1961), Beulah (1967), David (1979) and Allen (1980), not excluding many of the lesser wind and rain storms, left farmers in virtually total ruin.

Adverse international economic forces such as the inflationary period of the last 10-15 years have subjected the industry to stresses of shortage of inputs and high input costs. In these adverse conditions, the industry's ability to provide its own funding is temporarily disrupted or impaired.

Research and other projects requiring substantial funding must be financed from external sources. Identifying sources and negotiating with aid donors is one of WINBAN's responsibilities, a most important one which must be attended to with dispatch. Piecemeal contributions are not always very effective. Comprehensive projects are very expensive. The British Government, however, was convinced that it was worth the while to provide funding for a comprehensive development package for the industry costing over \$16 million. This Five Year Development Programme conceived by WINBAN was approved and commenced in 1977.

It is often necessary to seek finances for feasibility studies, the funding of which is usually beyond the means of the industry. The ODA and the Caribbean Development Bank often help in that regard. Grant funds have been made available by the EDF for a project for the containment, control and eradication of Moko disease. The project was initiated by WINBAN which still acts as a consultant in its implementation. WINBAN continues to play its regional role in ensuring that the disease is not introduced into other islands.

For 28 years out of its 33-year history, the banana industry of the Windward Islands has benefitted from the central direction and coordination of WINBAN. This has been attested by the Heads of Governments, and regional institutions. More will be demanded of WINBAN in the future as competition increases in the market place. Its persistent dedication in its role and the experience gained in times of stress and catastrophe are sufficiently legitimate reasons for the continuation of confidence in its capability and its capacity to serve the growers further in the years ahead. o



European STD programme gears research to the economy

R & D (Research and Development), as we know, has made a tremendous contribution to America's development in most areas of economic and social life. R & D is applied scientific and technical research which was and still is aimed at the immediate translation of laboratory results into economic and social progress. The programme is a child of the practical American mind which instead of inventing it all, often knows best how to capitalise on scientific research (even that of other nations).

The European Community, which may make more discoveries but comes up with fewer scientific and technical innovations than North America, began its STD drive (scientific and technical R & D for development) in 1982.

The originality of this European programme is that it emphasises the importance of developing research capacities geared to food crops in the developing world and the complementarity of research activities in the Community and the Third World.

The first STD programme (1983-86) was given ECU 40 million for two sub-programmes of tropical agriculture (ECU 30 m) and medicine, health and nutrition in the tropics (ECU 10 m). This programme generated a good deal of interest and a large number of proposals were made by scientific institutes and centres in the ACP States and the EEC. There were 1280 on tropical agriculture and 660 on medicine, health and nutrition in the tropics and they came from 73 countries, including nine Member States of the Community. All in all, 228 agricultural research contracts were finalised, 65 of them (28.5%) directly from the developing countries themselves.

Of the 660 proposals for the tropical medicine, health and nutrition sub-programme 183 ultimately led to contracts being signed, 47 of them with developing countries. All these proposals came from 65 countries, including nine Community countries and 56 developing ones, 33 of them in Africa.

The new STD programme (1987-90)

A general analysis of the work done under the first programme suggests that the results were variable. The mobilisation of scientific potential was better in the purely scientific subjects such as genetics and parasitology, but less marked in the interdisciplinary areas such as public health, nutrition and production systems. However, the involvement of 200 new researchers on the 411 projects selected for the first STD forged new links in cooperation and work in research centres in the Community and the developing countries. And the research capacity was particularly strong in the sectors of soil, livestock and water in the developing countries and in animal protein and crop protection in the Member States.

Given the encouraging results of this first programme, the EEC Commission presented a new STD programme for 1987-90 at the end of last year.

The aims of the new programme are more ambitious. In the Community, this new programme will boost the scientific and technical cooperation capacity of the Member States so they are better able to respond to new demands, be they bilateral or Community. It will also make for greater complementarity of research and method and facilitate access to the various networks of scientific relations which the Member States and the developing countries have set up. That is not all. The new STD aims at decisive introduction of the integrated scientific and technical dimension in Community-backed development schemes and at guaranteeing that the EEC and its Member States are represented by competent and internationally-known people in the bodies responsible for scientific policy.

When it comes to research into the situation in the developing countries, the idea of the new programme is to intensify relations between laboratories in the Community and the non-

industrialised countries, particularly in the ACP Group, to make for a better balance of the means of research. This is vital to a sound cooperation policy and better use of the scientific teams and equipment that the developing countries concerned already have. This cooperation should reflect the aims of the new STD and mean the work is more in line with what the economically under-developed countries want as well as with the possibilities of putting the scientific theory into practice. We must move boldly towards the full integration of the scientific and technical aspects of knowledge with the ecological and human conditions of application.

The budget doubled— ECU 80 million

The Commission is planning new measures (training and equipment in particular) to achieve the new STD objectives. Scientific equipment is costly and soon outmoded and, as the developing countries still find it difficult to afford it today, the Commission has decided to give the laboratories in the countries with which it cooperates in the STD programme a minimum of equipment (to be financed by the programme). Of course this material will be entirely of Community origin, but it will mean the efficiency of the new instrument of research between the two partners can be considerably improved.

So the STD budget for 1987-90 has been doubled. It is now ECU 80 million. Given the extent of the scientific requirements of the developing countries if they are at last to embark on the far-reaching economic development that generates social progress and given the importance to the Community of the STD programme when it comes to the sort of scientific research that better reflects economic realities, this budget is a genuine stimulus in the new approach to the utilisation of the results of laboratory research. ○ L.P.

Outline of the programme (1987-1990)

A. Tropical and sub-tropical agriculture

1. Improvement of agricultural production:

- plant products: food crops; agro-industrial crops; plant genetics; crop protection;
- animal protein: breeding systems, animal genetics and reproduction; veterinary medicine; sea fishing, inland fishing and fish farming;
- forestry production in humid and arid areas.

2. Protection and development of the environment:

- evaluation of resources: water resources and utilisation; land management and protection; desertification and exploitation of savannah; under-exploited genetic resources; wild flora and fauna.

3. Agricultural engineering and post-harvest technology:

- agricultural engineering and mechanisation; product conservation; processing.

4. Systems of production:

- multidisciplinary approaches to agricultural products; associated crops; relations between agriculture and herding; ecologically fragile environments.

B. Medicine, health and nutrition in the tropics and sub-tropics

1. Medicine:

- transmittable tropical diseases: parasitology; bacteriology; virology; mycology;
- non-transmittable tropical diseases: genetic defects, acquired diseases.

2. Health:

- health services: operational research; organisation, management and models;
- environmental hygiene: water-borne diseases; traditional medicine and medicinal plants.

3. Nutrition:

- nutritional shortcomings: the impact of agri-food and socio-economic strategies on nutrition;
- relation between systems of production, storage, eating habits and state of health;
- bio-availability of nutriment and their toxicity.

Two examples of research undertaken

«Tropical agriculture» sub-programme

Technology transfer for the use of fixing of nitrogen in rice crops

Contractor

Centre de Pédologie Biologique, Centre National de la Recherche Scientifique, Nancy, France.

Objective

To set up two pilot operations for the inoculation of rice in the field using nitrogen-fixing bacteria strains selected in accordance with a procedure developed by the laboratory which allows a sensible choice of plants and bacteria to be brought together in the field.

Results so far

The strain to be inoculated in the field can be selected in the laboratory.

Inoculation is compatible with normal nitrogen fertilisation. The nature of the bacteria to be inoculated depends on the soil type.

Two new species of nitrogen-fixing bacteria have been discovered. Improvements in yield vary from 16 to 21% even at very high yield levels (87 to 134 q/ha).

Importance of research results

This project is an example of the application at predevelopment level of the results of basic research into methods of isolating nitrogen-fixing bacteria on plants not belonging to the legume family. The agronomic advantage of this technique is clear since it improves yield by over 16% without increasing fertiliser. The basic research was carried out by a team involving several laboratories from the North and South.

In addition to those of the CNRS, scientists from the following centres took part:

- *Centre de Recherche Agronomique Azote et Fertilisants de Toulouse*
- *Ecole Supérieure d'Agriculture Le Kef, Tunisia*
- *CALA-FOFIFA, Station Alaotra, Madagascar*
- *Soils and Water Research Institute, ARC-GIZA, Egypt*
- *INRA—Station d'amélioration des Plantes, Montpellier, France.*

Technology transfer has taken place in the context of research agreements between CNRS, SWRI of Giza, Egypt and BARI (Bangladesh Agricultural Research Institute) of Joydebpur, Dakha, Bangladesh.

Sub-programme "medicine, health & nutrition in the tropics"

AIDS (Acquired Immune Deficiency Syndrome)

Contract Holders

- *Institute of Tropical Medicine, Antwerp, Belgium*
- *Istituto Superiore di Sanità, Rome, Italy*
- *Middlesex Hospital Medical School, London, U.K.*
- *Université Libre de Bruxelles, Belgium*
- *Université de Paris VI, France*

Objective

Better understanding of the transmission of AIDS in tropical areas.

Results to date

The study of the natural history of AIDS in Africa has resulted in a better description of the magnitude of the disease and its mode of transmission. Indeed, it has become clear that the incidence of AIDS in certain African cities has reached between 550 and 1000 cases for every one million adults, 10 to 20 times higher than the rate which is found in Europe. It is important to know that for every patient one can find up to ten times as many carriers, who can in turn infect other people or develop symptoms themselves at a later stage.

There is clear evidence of the heterosexual transmission of the disease, and the infection can also be passed from a pregnant mother to her child. In fact increasing numbers of children are being born with physical signs of AIDS infection. In many tropical countries blood banks are contaminated but donors are not being screened because of a lack of resources or expertise.

Importance of research findings

The high standards of European research in this field and the researchers' privileged relationships with African research institutes have resulted in a better understanding of the mode of transmission of AIDS in tropical areas and are helping to provide the epidemiological data necessary for the basic research and the future control of this disease.

In this way five teams from Member States have teamed up with African researchers in order to undertake studies in Cameroon, Central African Republic, Congo, Ethiopia, Gabon, Kenya, Rwanda, Somalia and Zaire. ○

The ACP countries in figures

In order to improve understanding of the economic and social situation of the ACP countries, the SOEC is making two publications freely available: ACP Basic Statistics and the Yearbook of ACP External Trade Statistics. The former of these publications is produced annually and the latter once every two years. To give an idea of the information they contain, let us begin by taking a number of examples from ACP Basic Statistics.

In 1983, the ACP countries had a combined population of 401 million, i.e. 8.8% of the world population and over 10% of the combined population of the developing countries. The most heavily populated ACP country is Nigeria, which had a population of over 92 million in 1984, while the least populated is Tuvalu with a population of 8000. It may be mentioned that Barbados, with 581 inhabitants per km², is the most densely populated of the countries, while Botswana, Mauritania and Suriname have only 2 inhabitants per km². As regards prosperity, the world average as measured by GNP per inhabitant is US\$ 2 476 (1983 figures), while the average for the ACP countries is US\$ 446. This latter figure conceals vast discrepancies, the average for the African countries being US\$ 409 but for the Pacific and Caribbean countries US\$ 973 and US\$ 3 016 respectively. In 1984, the ACP countries received 34.7% of the official development aid granted by the major industrialised countries and the international organisations. If one compares the aid received per head of population, the ACP countries receive US\$ 17.53 as against an average for all developing countries of US\$ 6.46. As regards the resources of the ACP countries, the latter account for almost 15% of the world's banana production, 4.8% of sugar production and 22% of coffee production, while tea and cocoa account for 10% and 55% respectively. As far as minerals are concerned, the ACP countries produce 5% of the world's iron ore (Liberia accounting for 3.2% and Mauritania for 1.6%), 15% of its copper (Zambia and Zaïre being the world's fifth and sixth largest producers respectively) and 36% of its bauxite (Guinea and Jamaica being the world's second and third largest producers). As regards

trade, the Yearbook of External Trade Statistics provides various types of information, for example general tables (ACP countries' imports and exports of all products originating from or bound for the rest of the world and the Community), exports of a selection of the chief products of each country and imports broken down according to main trading partner or group.

Interested readers may obtain the above publications from:

The Office for Official Publications of the European Communities L-2985 - Luxembourg or Eurostat L-2920 - Luxembourg. ○

Population and density: 1982, 1983, 1984

ACP	Average population at 30 June (in thousands)			Number of inhabitants per km ²		
	1982	1983	1984	1982	1983	1984
Angola	8 140	8 340	8 540	7	7	7
Antigua & Barbuda	80	80	80	182	182	182
Bahamas	220	220	230	16	16	16
Barbados	260	250	250	605	581	581
Belize	150	160	160	7	7	7
Benin	3 620	3 720	3 830	32	33	34
Botswana	980	1 010	1 050	2	2	2
Burkina	6 360	6 470	6 580	23	24	24
Burundi	4 310	4 420	4 540	155	159	163
Cameroon	8 940	9 160	9 470	19	19	20
Cape Verde	310	310	320	77	77	79
Central African Rep.	2 400	2 450	2 510	4	4	4
Chad	4 680	4 790	4 900	4	4	4
Comoros	420	420	440	194	194	203
Congo	1 610	1 650	1 700	5	5	5
Côte d'Ivoire	8 860	9 300	9 470	27	29	29
Djibouti	340	330	350	15	15	16
Dominica	70	80	80	93	107	107
Equatorial Guinea	370	380	380	13	14	14
Ethiopia	32 780	33 680	35 420	27	28	29
Fiji	660	670	690	36	37	38
Gabon	1 110	1 130	1 150	4	4	4
Gambia	640	620	630	57	55	56
Ghana	12 240	12 700	12 040	51	53	50
Grenada	110	110	110	324	324	324
Guinea	5 060	5 180	5 300	21	21	22
Guinea-Bissau	850	860	880	24	24	24
Guyana	900	920	940	4	4	4
Jamaica	2 230	2 260	2 290	203	206	208
Kenya	18 040	18 770	19 540	31	32	34
Kiribati	60	60	60	82	82	82
Lesotho	1 410	1 440	1 470	46	47	48
Liberia	1 980	2 040	2 110	18	18	19
Madagascar	9 200	9 400	9 730	16	16	17
Malawi	6 410	6 620	6 840	54	56	58
Mali	7 340	7 530	7 720	6	6	6
Mauritania	1 730	1 780	1 830	2	2	2
Mauritius	950	960	980	511	516	527
Mozambique	12 930	13 310	13 690	16	17	17
Niger	5 610	5 770	5 940	4	5	5
Nigeria	86 130	89 020	92 040	93	96	100
Papua New Guinea	3 090	3 190	3 600	7	7	8
Rwanda	5 550	5 760	5 900	211	219	224
Sao Tome & Principe	90	90	90	94	94	94
Senegal	6 040	6 320	6 350	31	32	32
Seychelles	64	64	64	229	229	229
Surra Leone	3 410	3 470	3 540	48	48	49
Solomon Islands	250	260	270	9	9	9
Somalia	5 090	5 270	5 420	8	8	8
St Kitts & Nevis	40	40	40	111	111	111
St Lucia	120	130	130	194	210	210
St Vincent and the Grenadines	100	100	100	294	294	294
Sudan	19 800	20 360	20 950	8	8	8
Suriname	360	350	350	2	2	2
Swaziland	590	610	650	34	35	37
Tanzania	19 780	20 410	21 060	21	22	22
Togo	2 750	2 760	2 840	48	49	50
Tonga	90	100	100	129	143	143
Trinidad & Tobago	1 130	1 150	1 110	220	224	216
Tuvalu	8	8	8	:	:	:
Uganda	14 120	14 630	15 150	60	62	64
Vanuatu	120	120	130	8	8	9
Western Samoa	160	160	160	56	56	56
Zaire	30 260	31 150	32 080	13	13	14
Zambia	6 030	6 240	6 450	8	8	9
Zimbabwe	7 550	7 740	7 980	19	20	20

Source: ACP Basic Statistics, 1986 - Eurostat

ROOTS AND TUBERS

Their role in food security^(*)



ITA

For 15 years now, the majority of countries in sub-Saharan Africa have been having increasing difficulty matching food production with requirements. This situation is a reflection partly of the absence of a coherent policy on the traditional food sector, particularly with regard to roots and tubers, and partly of the lack of coordination of efforts to develop these crops. Policies are often in favour of cereals to meet soaring urban needs. This is often coupled with a desire to increase yields by resorting to the strategy of the “green revolution” adopted in other regions of the world — a strategy that has rarely succeeded in

the regions in question let alone in sub-Saharan Africa where agro-climatic conditions are unfavourable to grain production in many parts. Output has never met requirements. It has been necessary to increase imports to meet urban needs.

In the Caribbean and in the Pacific where roots and tubers are staple foods, countries are equally faced with the problem of grain imports.

This dependence, often aggravated by national price policies and fluctuations in currency markets, leads to increased spending of foreign exchange to the detriment of development and the worsening of poverty and undernourishment.

^(*) FAO and A.O.

This is why, recently, a number of countries have begun to seek ways of improving the production of roots and tubers to meet the increasing urban demand for high-energy staples. It is surprising to note that in spite of the fundamental role these crops play traditionally in the diets of the peoples of Africa, the Caribbean and the Pacific, policy-makers and researchers have waited that long to be interested in them. While this lack of interest can be attributed to difficulties in marketing and processing these products, it must be recognised that their reputation of being foods for "backward" or "poor" people has played a major part in their neglect. Today their considerable potential as abundant sources of energy and the fundamental role they can play in the fight against hunger are commanding attention. International institutes such as the International Centre of Tropical Agriculture (CIAT) and the International Institute of Tropical Agriculture (IITA) have made progress in research into their development. In addition, a number of ACP governments have established institutions that support efforts aimed at promoting their production. For example, the National Programme for the Improvement of Roots and Tubers in Tanzania, the Institute of Roots and Tubers in Togo, the National Cassava Programme in Zaïre, the National Research Institute for Rootcrops in Nigeria, the Institute of Applied Science and Technology in Guyana, and the University of South Pacific's School of Agriculture in Fiji.

These developments are encouraging. However, it will be insufficient merely to increase the production of roots and tubers through the use of high-yielding and disease-resistant varieties as is the trend at present in most of these institutes. Policy-makers must ensure that the development of roots and tubers forms an integral part of rural development and industrialisation strategies. Highly perishable once harvested, these

Table 1: Staple food consumption (kg per inhabitant) in sub-Saharan Africa, 1981-83 by Group (*)

	Group I	Group II	Group III	Total
	(kg per inhabitant)			
Roots: total	427.2	234.9	43.1	182.4
Cassava	407.4	123.0	21.3	117.8
Yam	6.6	72.4	3.5	36.8
Sweet potato	6.6	20.3	5.0	12.5
Others	6.6	19.2	13.3	15.3
Plantain	26.2	39.1	2.0	22.7
Cereals	39.7	83.8	134.1	98.3
	% (équivalent calories)			
Roots: total	74	43	8	35
Cassava	70	22	4	24
Yam	1	14	1	7
Sweet potato	2	3	1	2
Others	1	4	3	2
Plantain	4	6	—	4
Cereals	22	51	91	61

(*) These countries are grouped as follows:

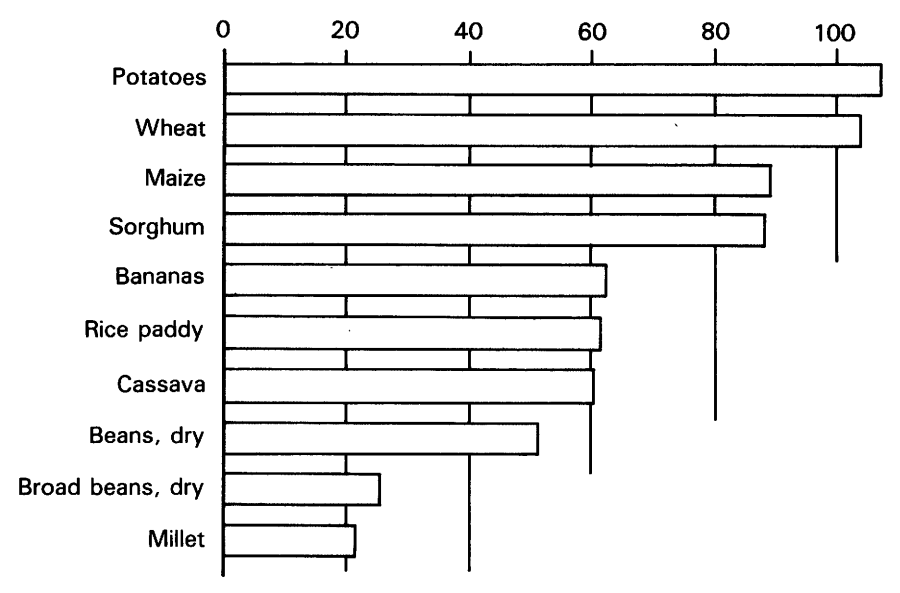
Group I: Central African Republic, Congo, Mozambique, Zaïre.

Group II: Angola, Benin, Burundi, Cameroon, Comoros, Guinea, Gabon, Ghana, Côte d'Ivoire, Nigeria, Rwanda, Tanzania, Togo, Uganda.

Group III: Botswana, Burkina Faso, Cape Verde, Chad, Ethiopia, Gambia, Guinea, Guinea Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Namibia, Niger, Reunion, Sao Tome, Senegal, Seychelles, Sierra Leone, Somalia, Sudan, Swaziland, Zambia, Zimbabwe.

Source FAO.

Table 2: Percent change in production of selected food crops in developing market economies 1961/65-1981



crops have to be evacuated to market centres and this implies at least a network of good tracks and roads. Then there is the problem of transformation and prices,

which, it is generally agreed, constitute the greatest obstacles to the expansion of consumption, in particular in the urban areas. Except for cassava, no transformation

DOSSIER

techniques have yet been devised for these crops⁽¹⁾. Furthermore, their prices, especially when transformed as in the case of cassava, can sometimes be higher than cereals. Indeed a study carried out by the FAO in 12 African countries⁽²⁾ recently shows that the retail prices of yam- and cassava-based foods are, on average, 60% higher than those which are cereal-based (flour, bread and processed rice).⁽³⁾ Countries where roots and tubers are cheaper than cereals are, in most cases, countries where cereals occupy a lesser place in the diets (Burundi, Gabon, Rwanda, and Zaïre). Striking a balance would not be easy but it is clear that efforts have to be made in these directions.

With the cooperation of experts on the subject, we examine in this dossier the potential of five of the most important root crops in the ACP States—cassava, yams potato, sweet potato and cocoyam. All, except potato, are indigenous to the tropics.

Characteristics

Cassava is the most cultivated of the crops. A shrubby tree of 4 to 5 metres high whose stem separates into several branches, it can have one or several tubers, 60 cm long and weighing in general 5 kg each. (Some varieties can weigh up to 20 kg). Ideally it is grown at under 1200 to 1500 mm of rainfall where the average temperature is 23°C and on a well-drained soil, preferably on hilly ground. Cassava can, however, adapt to a variety of soil and climatic conditions: it can give a good yield even on a poor soil, withstand drought much better than most cereals and can be left underground for up to four

(1) In some countries (Benin and Nigeria especially), there are now techniques for reducing yam to flour.

(2) Benin, Burundi, Cameroon, Congo, Gabon, Ghana, Côte d'Ivoire, Nigeria, Rwanda, Tanzania, Togo and Zaïre.

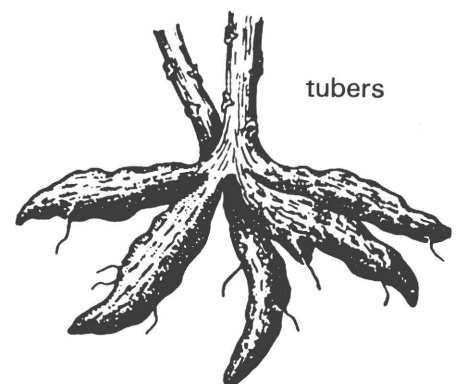
(3) A number of factors contribute to low prices of cereal-based products. They include low world prices, food aid, and sales on concessionary terms.



Large tubers of ware yams

Table 3: Value of production of ten principal food crops in all developing countries

	Number of producing countries	Production (million t)	Producer price (\$/t)	Value (Billion \$)
Rice	97	383	170	65
Wheat	69	162	148	24
Maize	119	154	119	18
Potatoes	95	91	142	13
Sweet potatoes	100	137	89	12
Cassava	95	127	70	9
Bananas & Plantains	119	62	107	7
Sorghum	69	44	123	5
Groundnuts	92	17	297	5
Millet	53	27	144	4



Cassava

years, which makes it an excellent reserve crop for times of food scarcity. Cassava can be grown either from seed or from stem cut-

tings. The latter is commonest. Its multiplication is therefore easy. There are two varieties—the sweet cassava and the bitter cassava.



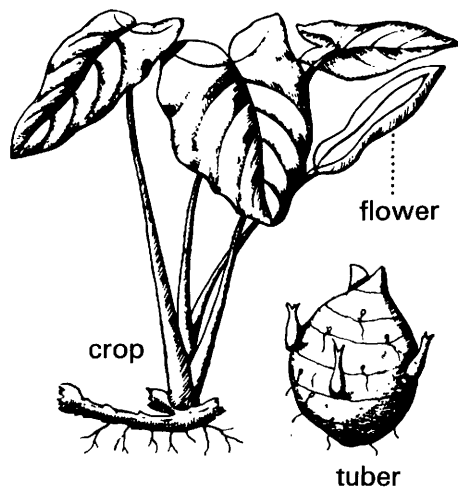
Tuber

Yam is a herbaceous crop with a twining stem. Its tubers are either solitary or in fingerlike bunches. Each, on average, is one metre long and weighs 3 to 5 kg (some can weigh up to 15 kg). Yam requires an annual rainfall of over 1500 mm, an average temperature of 23°C and a soil rich in potassium and nitrogen. The vines, which can be as long as 10 m, require support and constant attention. This is why it is considered as labour intensive. The tubers mature generally 8-11 months after planting.

Potato is a small round tuber. It is the only crop, of the five under study, that is cultivated worldwide (in over 130 countries) under a variety of soil and climatic conditions. It requires deep, and well-drained soils, an annual rainfall of 500 to 600 mm and can withstand temperatures ranging from a freezing 2°C to a warm 23°C.

A high proportion of potatoes consumed in developing countries is imported. Potato is cultivated in the tropics, mainly in mountainous environments (see article on "Potatoes in the Third World").

Sweet potato is a herbaceous perennial crop with a twining vine which trails over the surface of the soil producing roots at the nodes. Although seeds can be used as planting materials, stem cuttings are usually employed in the tropics. Sweet potato requires a soil rich in potassium, a rather high temperature (average 23°C) and sufficient humidity. The tubers are either round or cylindrical, corrugated or smooth. A tuber weighs 1-3 kg. The leaves of sweet potatoes are spirally arranged on the stem and vary greatly in shape between cultivars.



Taro.

Cocoyam (taro) tubers are corms. The crop has several stems many of which can grow up to 2 m high. Its leaves are hastate or peltate depending on variety. Cocoyam is an essentially warm weather lowland crop. It yields best at temperatures above 21°C under annual rainfall exceeding 2000 mm and in holes generally 20 to 30 cm deep. Small corms and stem cuttings are usually used in planting. Harvesting takes place between 8 and 10 months after planting.

Essential elements in nutrition

by Tony LOFTAS (*)

With Third World agriculture largely in the hands of the small farmers, there is little doubt that a permanent solution to hunger rests on a better future for the rural poor. For this reason, it is increasingly being recognised that the food crisis in many low-income developing countries is exacerbated by the serious lag in the production of what were once termed "minor" crops, including roots and tubers. Development of these crops is more and more regarded as an essential element in improving food consumption and nutrition.

The important role that these crops can play in food security, both nationally and at the household level, was underscored by the Director-General of the Food and Agriculture Organisation of the United Nations, Mr Edouard Saouma, at the Eleventh Session of the Organisation's Committee on World Food Security in April 1986. He proposed that a special study be undertaken of the constraints against the production and marketing of these crops in the developing countries.

The significance of these crops to the diet is certainly far greater than the qualification "minor" would indicate. Many of them constitute staple foods providing a significant portion of essential calories, especially to the poorest groups amongst the rural people of the Third World, and a food cushion in ecological locations unfavourable to other crops. Economists are beginning to re-assess the contribution of such crops to household incomes, as they pave the way for the small producers to proceed from subsistence into the cash economy.

What are now considered traditional food plants nourish over one billion people in the developing countries, yet they do not figure in most national plans for agriculture. A sadly neglected resource, they have remained largely invisible in terms of official recognition and, with the exception of some countries, have received little official support either through government pricing policies, research and extension efforts, or existing marketing channels. Their production technology has frequently remained at a centuries-old level, and few processing technologies have been developed to make them attractive as convenient urban foods.

(*) Of the Information Division, FAO, Rome.

An unrealised potential

Information is available on the scope for improving their production, but it is poorly disseminated and existing development activities, mainly at the village level, are rarely coordinated or officially supported, leaving their full potential unrealised.

In the past, these crops were usually seen as subsistence crops and not as cash crops and, in Africa, as women's crops and not as family crops. Yet they are often vital to food security, eaten at times of food shortage or economic stress by the poorest of the world's rural poor.

Such official neglect is contagious. The status of these valuable food plants has declined in the face of patterns of agricultural development



An African mother feeding her babies with sweet potatoes

which give priority to the increased production of major cash crops for urban consumption—and for the export market. While part of the neglect of roots and tubers can be attributed to difficulties in marketing and processing most of these highly perishable commodities, they have also suffered from being regarded as "backward" or "poor people's" crops.

Changing food habits

Consumption of these crops in the developing countries is also diminishing in the face of the changing food habits of rapidly increasing urban populations. In the towns there is little or no land on which to grow food, and limited time in which to process it. Convenience foods are what is sought, and they are often provided from non-

indigenous sources. With mass migration from the rural areas to the cities, we have seen a switch from traditional foods to diets based on imported cereals.

Imports of wheat and rice have increased in order to meet the requirements of these urban populations, imposing an added strain on the Third World's economies.

FAO estimates that if nothing is done to resolve the food crisis in Africa the cereal deficit, which currently stands at between 25 and 30 million tonnes, could reach 100 million tonnes by 2010. Under these circumstances, the cost of imports, currently at US \$ 5 billion, would soar to US \$ 30 billion, or double the estimated value of agricultural exports. Most African countries would be unable to cope with such a situation. "Chronic famine and unbearable poverty would be the result," says Mr Saouma, "and the political consequences in Africa and the world at large would be incalculable."

Traditional foods are secure foods

Traditional foods such as roots and tubers, particularly cassava, are secure foods. Indeed, cassava can be produced in rather marginal conditions of limited rainfall, unstable, infertile soils and restricted inputs. The traditional roots and tubers are adapted to local ecological conditions, to existing farming systems, to food preferences and eating habits in the rural areas and provide a source of nourishment in times of want and famine.

Any discussion of the role of these crops in feeding the malnourished requires an understanding of what they are. But a precise terminology is hard to define. They are not always "traditional" in the sense of being indigenous. They are sometimes called "minor" crops, yet a number of them are vital staple foods. While they may be neglected by government policy makers, they are rarely neglected by the women who mainly grow them, the vendors who sell them or the consumers who search for them.

The "minor crops" can be divided into two groups, depending upon their role in household consumption. The first group includes traditional staple

crops such as cassava, yams, plantain and sweet potatoes, which tend to be consumed within the geographical confines of their production area, and some of the coarse grains, such as millets and sorghum, that are used as traditional cereal staples in some regions of the developing world. The second group encompasses the non-staple crops such as cowpeas, pumpkins, gourds and tomatoes, and gathered food plants such as the mongongo (which is a fruit and a nut), wild berries and vegetables, all of which are secondary food sources in traditional diets.

Tropical roots and tubers

There are four important traditional tropical roots and tubers: cassava, sweet potatoes, yams and taro. To these must be added the white potato which is increasingly grown in tropical countries. Most of these plants originally came from South America but are now grown throughout the tropics.

Tropical roots and tubers are relatively easy to grow and they give higher yields than cereal crops. They are excellent sources of energy as carbohydrate and useful sources of calcium and vitamin C. They are poor sources, however, of protein and of the B vitamins.

Seasonality and malnutrition

Recent research has shown that the impact of seasonality in food production is an important factor in provoking malnutrition. In the rural areas of Africa the farmers say that "seasonality and rhythm" make up the rural round. There is a season of plenty and a season of want, a season of celebration and feasting, a season of scarcity and fasting. The hungry season before the new crops are ready is the time when the granaries are empty. It is the time when weeds flourish in the newly-sown fields and are pulled for relish.

Where there is only one rainy season, as in West Africa, the evidence suggests that malnutrition is most severe in the pre-harvest wet season. This sadly coincides with high energy expenditure on the part of the peasant farmers, high food prices, heavy in-

debtedness, and the lowest food intake levels when stocks have been depleted. Adults can lose up to 8 to 10% of their body weight during this pre-harvest period, and pregnant women in their last trimester have been known to lose as much as 1.4 kg in a month. Women who deliver at the end of the hungry season give birth to underweight babies. Child mortality peaks in the pre-harvest period. As is so often the case when food is short, it is the children who suffer the most. Their bodies store less and they are more liable to functional impairment. Their nutritional status deteriorates, and past weight gains are lost.

Rural families are critically aware of the damaging consequences of seasonal stress and, with the limited resources at their disposal, they try to minimise its impact by a variety of strategies. As part of their household food security they plan, as far as possible, to ensure that food supplies will be sufficient to meet these seasonal shortfalls. Contingency measures include mixed cropping to spread the risk, selling their livestock to obtain essential cash, and off-farm employment. The cultivation of certain traditional crops is a most important part of this strategy, in order to provide food for consumption in the pre-harvest period.

Cassava and taro, for example, can be cropped continuously throughout the year providing a reliable food supply with no seasonal shortages. Cassava can also be stored in the ground for up to two years, ready to be eaten in times of shortage or famine. In Papua New Guinea the introduction of the *Xanthosoma taro* has smoothed out many of the seasonal variations in consumption.

Lack of statistics

As roots and tubers are mainly grown on small farms or in family gardens by peasant farmers, it is difficult to establish precisely how much is grown. In many parts of the world there are no systematic records of the crops grown by small-scale farmers, and production figures are often merely estimates based on experience, random reports and aerial photography.

We do know, however, that each year about 550 million tonnes of staple roots and tubers are harvested

worldwide. The biggest harvest is of white potatoes, which comprise about 50 percent of the total production. Another 40% of the roots and tubers harvest comes from cassava, sweet potato, yams and taro. Not included are vegetable, fodder and industrial crops — including carrots, turnips, swedes, mangels and beet. (See the articles that follow for details on the main crops.)

African food crisis

The chronic food problem in Africa in part reflects the frequent absence of a coherent policy framework for the traditional food sector. While roots and tubers, together with plantains, are the major staples produced in approximately half the countries in the sub-Saharan region, there has been a noted lack of coordinated effort in the development of these crops. Only recently have many countries begun to give increased attention to the possibilities of expanding production, and improving marketing and processing, to meet a larger part of the growing urban demand for high-energy staples.

Lines of action

In April 1986, delegates attending FAO's Committee on World Food Security were asked to endorse a number of lines of action to enhance the role of roots and tubers in meeting food shortages in sub-Saharan Africa. It was proposed that:

- National strategies and policies should give greater priority to the encouragement of both production and consumption of roots and tubers, and to the adoption of suitable policies to reduce excessive competition from imported cereals. National policies for the sector should be developed in a coordinated way, and national statistical systems should be strengthened, giving particular emphasis to data on costs of production and marketing, quantities marketed, prices and food consumption patterns.

- Governments should develop action programmes to overcome constraints on the production of roots and tubers. This would require research on cropping systems, on improved varieties suitable to different agro-climatic zones, and the development of plant

Percentage of major staple foods in the diet of the developing countries	
Africa	
Cereals	46%
Animal products	7%
Roots & tubers	20%
Oceania	
Cereals	25%
Animal products	37%
Roots & tubers	4%
Latin America	
Cereals	41%
Animal products	18%
Roots & tubers	6%
Near East	
Cereals	61%
Animal products	10%
Roots & tubers	2%
Far East	
Cereals	69%
Animal products	5%
Roots & tubers	3%
Other developing countries	
Cereals	22%
Animal products	13%
Roots & tubers	28%
<i>Source FAO: "A Guide to Staple Foods of the World", 1984.</i>	

multiplication services. National extension services and research institutions should be strengthened to cover roots and tubers, and training activities should be supported at all levels.

- It was stressed that action programmes should aim at removing existing deficiencies in the marketing system, especially through the strengthening of transport and storage facilities and improved processing technologies.

- Lastly, in view of their importance to the food security of many countries, the consumption of roots and tubers should be promoted by an increased transfer of technology, and by an exchange of information on the development of low-cost convenience foods from these crops.

A total of 28 countries spoke in support of these proposals, and several donor countries offered bilateral aid in support of research.

Research and technology

In the past, relatively little research into the development of roots and tubers was carried out, partly because these commodities did not flow through international trade channels. Significant efforts have been made, however, by international research institutes such as the Centro Internacional de Agricultura Tropical (CIAT), the Centro Internacional de Papa (CIP), and the International Institute for Tropical Agriculture (IITA). But there is still a need to strengthen national institutions in order to promote a transfer of technology to the farming communities.

A strong case for change

The problems of increasing the productivity and living standards of the developing world's small farmers defy easy solutions. But there is a strong case for action to be taken to step up the production of traditional roots and tubers. Benefits would encompass the best possible use of available human and natural resources, the minimising of ecological degradation due to shifting cultivation, an equalisation of opportunities and incomes, increased stabilisation and security of food supplies, particularly in the pre-harvest hungry seasons and in times of famine, and an overall contribution to improved health and nutrition, particularly amongst the rural and urban poor.

Last, but certainly not least, faced with chaotic conditions affecting world trade in agricultural commodities and an ever increasing burden of debt, the value of exports from the developing countries fell last year by 5½%. Even the improved harvests in many African countries last year produced their own set of problems. The countries with new surpluses cannot break into the export market, and those in urgent need of the surpluses do not have the means to pay for them.

Increased production of traditional roots and tubers would provide an acceptable alternative to the cost of importing cereals from the developed world, a luxury that the impoverished economies of the Third World can ill afford. ○

T.L.

CASSAVA.

Its developing importance

by Hugh BENNISON (*)

*During the twentieth century, the increase in the area of land planted to cassava (*Manihot esculenta* Crantz) must be greater than for any other crop in the world. This increase has taken place while the production of other crops, particularly the traditional staple food crops, has also been increasing dramatically and it is interesting to examine why cassava, as a minor secondary crop at the turn of the century, should have developed the importance it has today.*

Ever since man began to cultivate crops between five and seven thousand years ago his choice of staple food crops has been remarkably limited. Apart from a few relatively recent and notable exceptions (the traditional yam cultivation of West Africa, the banana-based cropping systems of the Buganda and Wachagga in East Africa, the taro/yam husbandry of the Pacific region and the Maoris' reliance on taro and sweet potato), the dominant crops have always been cereals, i.e. species of the plant family Gramineae. Within this family the potential choice of plant species for domestication is large: the family comprises some 620 genera and over 10 000 species; yet few were adopted and no new ones have been introduced to cultivation within the last two thousand years. The trend, in fact, has been towards the use of fewer species. Until today the dominant crops are wheat, rice and maize, with sorghum and millet, the old staple crops of Africa, reduced to relatively minor importance on a world scale.

This persistent preference for cereals over other crops must have its justification in the early origins of agriculture. Man, in transition from food-gatherer to cultivator, will have found



Cassava (foreground) sold in the open-air market at Bouaké (Côte d'Ivoire)

roots and tubers to be an easier, non-seasonal source of food but under cultivation difficulties of propagation and the need for more thorough land preparation will have identified limitations in their adaptability as a crop plant. Cereals, by comparison, once the selection pressure of harvesting isolated forms which did not shatter at maturity, will have shown both simple cultural and low labour demands, particularly when burning was the basic land preparation, with large returns for a small amount of grain sown plus a quicker maturity suiting well an early, semi-sedentary life-style. Couple to these advantages a harvest product

which is compact, dry, easy to handle and store with a high nutritive value, and the attraction of cereals for the early cultivator is evident.

These attractions are still relevant today but an advantage of cereals of which the cultivator and farmer have not been consciously aware is the wide genetic, morphological and physiological variation in cereals which permitted easy adaptation to a diverse range of climatic and edaphic conditions and facilitates distribution and adoption worldwide. The innovation during this century of scientific plant breeding has utilised these inherent characteristics of cereals to produce

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Cassava stem cuttings

"The tuber being a root structure is not required for propagation: rather stem cuttings from the otherwise discarded bush are used"

further developments in wheat, rice and maize which have not only increased yield, subdued disease and improved nutritive value, but have extended the reliable cultivation of cereals into regions where, formerly, ecological conditions were considered unsuitable.

It is against this background, in which cultivation of cereals continues to be so dominant, that the reasons for cassava's increasing popularity must be sought.

Despite their adaptability cereals have a serious disadvantage: the harvest product is dependant on the crop being able to complete a reproductive cycle firmly linked to a sequence of seasonal changes which culminate in a dry, preferably warm period in which the grain can mature and dry naturally, sufficiently to permit harvest. Wherever these climatic conditions do not prevail or are unreliable, farmers have found greater security in turning to root crops for a staple food. The examples given earlier of cultivation systems based on non-cereal staple crops illustrate this point well, being located in or derived from equatorial rain forest regions of the world, where the dry season is either non-existent or of less than two months duration.

Security crops

Within the tropics root crops offer other security advantages. Being less tied to the rhythm of seasonal change and able to remain in the ground without deterioration for some time, planting and harvesting can often proceed throughout the year in accordance with farmer requirements. In this way, labour demands can be regulated and, more importantly, storage (which creates serious difficulties for grain in hot, humid regions), avoided.

Although there are many plants which produce edible roots and tubers and are often cultivated, only two plant families have contributed species which can be ranked as indigenous staple food crops of the Old World. The first, the true yams of the genus *Dioscorea*, were taken into cultivation independently in West Africa and in south-east Asia. From the latter area, cultivars were spread predominantly eastwards through New Guinea into Polynesia, but at least one species, *D. alata*, reached Africa over a thousand years ago being taken by Malaysian immigrants to Madagascar. The other family is the aroids of which *Colocasia*, with its origins in Indo-Malaysia and the Pacific, is the principal genus. Known as taro it is the staple food

throughout most of the Pacific islands. Another aroid, *Xanthosoma* sp., which had been domesticated for a long time in tropical America was only introduced into West Africa in the nineteenth century. Known as the cocoyam or tannia, it is preferred to taro and to a degree has been displacing yams in Ghana and other cocoa-growing areas.

Cassava, also of New World origin, was introduced to Africa during the sixteenth century but remained of relatively minor importance over the next three hundred years. Its present rise to importance is due to agronomic features which distinguish it from other root crops.

Both yams and taro require soils of good fertility. This fertility has been assured by growing them as the first crop after clearing and burning of the forest. Rainfall requirements are high, preferably over 2000 mm, but at lower rainfall taro can be grown in swampy or irrigated land. Yams are not tolerant of poor soil drainage and thus are usually grown on soil ridges or mounds. This land preparation together with the need to provide stakes or other support for the climbing vine creates a substantial labour demand for the cultivation of yams. Botanically both yams and taro are herbs, with the harvested tuber being a perennating stem structure. A proportion of the harvest must therefore be set aside to provide planting material for the next crop.

Cassava, by comparison, is tolerant of a wide range of soil fertility. It prefers well drained light loams of moderate fertility, but will continue to produce satisfactory crops of 8-12 ton/hectare on land that has been so exhausted that no other crops will grow. It is also drought tolerant. Being a shrub, growth flushes occur whenever conditions allow, so that a yield curve of the crop regressed against the sum of active growing periods will show a linear increase with time for up to 30 months from planting. This steady increment in yield, capable of continuing over a number of seasons without deterioration of the quality of the tubers is the most powerful attraction of cassava for the farmer, offering an insurance against unreliable rainfall which not even the most drought tolerant or drought evasive cereal can

achieve. To utilise this quality plus its tolerance of low fertility, the farmer often plants cassava as the last crop before land is allowed to tumble back into a bush fallow, leaving the crop to stand until required as the bush regenerates. The tuber being a root structure is not required for propagation; rather stem cuttings from the otherwise discarded bush are used. These stem cuttings are remarkably tolerant of adverse conditions and misuse. If not required for immediate planting bundles of stems can be stacked in the shade and left for up to two months before being cut up and planted. Alternatively, cuttings can be planted during the dry season nearly two months before the onset of rains and a full crop stand obtained. In terms of labour requirements, cassava's needs are minimal, being limited to a primary cultivation, planting and harvesting.

The virtues of cassava

In the early part of this century, the adoption of cassava spread slowly in Africa, mostly at the behest of the suzerain powers who identified its value as a long standing crop able to withstand locust attack and act as a famine reserve within the area of need. The real expansion began with the enormous growth of rural populations which has created intolerable pressures for agricultural land, broken down traditional farming systems and forced farmers to continue cropping exhausted soils or exploit new, less favourable lands. In these circumstances farmers, always risk averse but finding themselves less able to achieve self-sufficiency with their customary crops, have recognised the virtues of cassava and adopted it as a means of maximising their food production with optimum reliability. As a consequence cassava has been replacing yams and taro in traditional root crop zones but also, more significantly, it has become a dominant, if not staple, crop in areas normally reliant on cereals.

As noted earlier, cassava is a crop of New World origin and was one of the many crops that were distributed around the world following the discovery of the Americas by Europeans at the end of the fifteenth century. Cassava is a crop of some antiquity as it is not known in the wild state nor can its progenitors be identified with

precision. Two centres of speciation of the genus occur, one in southern Mexico and part of Guatemala and the other in north eastern Brazil. Cultivars of *M. esculenta* are found in both these regions and by the time of Columbus its spread in the New World lay between latitudes 25°N and 25°S. There is some archaeological evidence to show that cassava was grown in Peru some 4000 years ago. Sweet cassava, that is those cultivars in which hydrocyanic glucosides are confined to the rind or cortex of the root tuber, are more widespread than bitter cassava cultivars in the Americas, but bitter cassavas are usually grown where cassava is a dominant staple.

The Portuguese took cassava to Sao Tomé and Fernando Po and the adjoining mainland of Africa in the last half of the sixteenth century, but it spread little until this century. It was introduced to the eastern coast of Africa during the early eighteenth century and from there was carried to Ceylon, India and Malacca by the end of the century. The Spaniards probably introduced cassava from Mexico to the Philippines somewhat earlier.

Today, more than half the world's production of cassava occurs in Africa

where it is essentially a subsistence food crop. It is also a significant crop in Indonesia where land pressure in Java and limited land suitable for paddy in other islands has led to a heavy dependence on it for basic sustenance. The most striking development of the last decade has been the dramatic expansion of cassava production in Thailand where up to 20 million tonnes are grown annually for export to Europe as livestock feed.

Improvement

Cassava has been subject to improvement at the hands of plant breeders since the 1930s. In Africa cassava is susceptible to two virus diseases: mosaic and brown streak. Both were first recorded in East Africa in the 1890s but serious damage causing considerable yield reduction was not reported until the 1920s. Of the two, mosaic is the more important. It is spread by white fly vectors (*Bemisia* spp), but also by planting infected cuttings when crop loss is more severe. The breeding programme identified resistance to the viruses in other species of *Manihot* and crosses made between these and *M. esculenta* retained resistance with reasonable agronomic characteristics. Following a programme of back-crossing, resistant sweet cassava cultivars were released to East African farmers in the 1950s. During the last twenty years in response to the increasing importance of the crop in the region, breeding and research has been centred in West Africa with work concentrated on resistance to mosaic, bacterial blight and biological control of mealybug and green spider mite. Programmes to distribute new cultivars and release natural predators of the plant pests are being successfully introduced throughout West Africa and Zaïre. (See article, "Combating pests and diseases of tropical root and tuber crops"). Research efforts are also being made to develop cultivars tolerant of colder climates than the lowland tropics but despite its adaptability to otherwise adverse conditions it remains uncertain whether it will exhibit, even with its recently enhanced genetic complexity, the plasticity of a cereal such as maize which is now grown from the equator to as far as 60°N and from sea-level to altitudes higher than 3000 m. ○ H.B.



Adding fertilisers to a soil planted with cassava. The crop nevertheless can grow under very poor soil conditions

Cassava, staple food crop of prime importance in the tropics

by Bernard BOCCAS(*)

Spread all over the world through European colonisation, cassava has become, in three centuries, a staple crop of prime importance in a number of developing countries of America, Africa and Asia.

Today, it is grown over 12 million hectares of land, most of which are in Africa, although Asia has the biggest yield, with 48 million tonnes in 1983, Africa behind with 46 million t, and America in third place, with only 29 million t.

Three regions of Africa—the Congo basin, the countries on the Bight of Benin and eastern Africa—account for 90% of the continent's production. Almost all the output is consumed at home. In parts of central Africa, Congo and Zaire or Gabon, for example, cassava is the basic source of carbohydrate in the human diet, while on the Bight of Benin, it is only a possible substitute for the staple food—which could be rice or plantains or, more rarely, yams.

Most of the cassava grown in Asia, and Thailand especially, is exported to the countries of the EEC—which imported 16.5 million t of it for their food industries in 1982.

Cassava, which likes the sun, can be grown over a period of 6-24 months. It is one of the most efficient plants when it comes to converting solar energy into carbohydrate—of which it is one of the tropics' cheapest sources.

So it is very easy to grow. It is spread from cuttings taken directly from the stem at the end of the growth cycle and they take and get established at a fast rate. The tuberous roots develop slowly in the earth and they can be harvested bit by bit as needs arise.

The crop has a remarkable ability to mobilise reserves in poor soil and, after the early stages, it does not require much water. The annual variation in output is also very small compared to other cereals.

The starch in the roots is of good quality. However, the tubers are poor in protein, which only accounts for about 1% of the total dry weight. Although the roots are the most useful part of the crop, people in some regions eat the leaves too. These, which have a 20-30% protein content, are a useful dietary addition.

The cassava root, however, cannot always be directly consumed. Many varieties in fact contain cyanogenetic compounds which release the highly toxic hydrogen cyanide and if these varieties, called bitter cassava, are to be used, they have to be detoxified. There are a number of ways of doing

this. The most common one in rural areas is steeping, using large quantities of water. Grating, mixing and washing followed by drying will also eliminate hydrogen cyanide, but this is a method that tends to be used by the starch works.

Cyanogenetic glucoside, which is a precursor of hydrogen cyanide, has been observed in all cassava clones, but the quantities vary, so the different varieties can be classified according to toxic content. These are sweet varieties, non-bitter and bitter and very bitter varieties, of which only the first two can be consumed directly.

There are three ways of eating cassava and the extent to which each is used depends on the individual country in question.

The most important use is for human consumption—500 million people depend partly or wholly on cassava for their daily food. The sweet varieties are eaten raw, boiled or fried. The bitter varieties are steeped first. The pasta, starch and flour made from the tubers is stable and can be sold and cassava flour is often mixed with wheat flour to make bread.

The crop is, on the other hand, used for animal feed and for the industrial manufacture of certain derivatives (starch, dextrin and alcohol). Most of this is done in the EEC.



Kneading of cassava, an important stage in its transformation into flour

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There are few problems attached to the production of cassava in the ecological zone outlined above, in a traditional, low-density human environment. However, there are production problems if the population growth rate is high or when surpluses are needed for industrial processing or for urban food requirements.

The problems in this case are the same as with any other food crop, which is to say that the different strains have to be improved and better growing methods and plant-health schemes introduced.

Research in the cassava sector is geared to just these difficulties, although the order of priorities has altered over the past 10 years. Better plant health conditions are now the African researchers' top priority, following continent-wide deterioration of the crop by the arrival in the 1970s of two pests: the green spider mite and mealy bug, and a disease, vascular bacteriosis.

These pests and disease from South America, to which must be added the African mosaic, the longer-standing but never-controlled virus disease, are the greatest threats to cassava production throughout Africa. In the most dramatic cases, the yield loss can reach 30%.

Researchers are hoping to achieve pest and disease control in a number of ways. Basic studies are being run on the biocenosis of the pests and the epidemiology of the diseases and in both cases on the biology of the relevant predators and pathogens.

Chemical, biological and agricultural methods of control are also being developed and one of the aims of genetic engineering is to produce varieties that are resistant to the various enemies of the crop.

The research is being run in a number of institutes. The international Advisory Group for Agricultural Research has made CIAT (Centre Internacional de Agricultura Tropical), in Cali, Colombia, responsible for cassava and CIAT has invited the IITA (International Institute of Tropical Agriculture, Ibadan) to run the African investigations.

The IITA is the centre of an informal network made up of the national units of several African countries, var-



Meals of beans and cassava

"Five hundred million people depend, totally or partially, on cassava for their daily nourishment"

ious development aid bodies and some European universities. France is cooperating with this organisation, although the bulk of its considerable research effort goes into bilateral cooperation with the French-speaking na-

tions of Africa. Practically speaking, the two main countries involved at the moment are Congo and Côte d'Ivoire, where different teams are working on coordinated research.

The teams bring together researchers from ORSTOM (Institut Français de Recherche Scientifique pour le Développement et la Coopération), CI-RAD (Centre de Coopération Internationale en Recherche Agronomique pour le Développement), INRA (Institut National de la Recherche Agronomique) and the University with Congolese and Ivorian researchers. The whole Franco-African network involves 40-odd researchers and covers a wide range of agricultural and biological topics.

The need was felt recently to federate these various groups so as to make better use of the international financing and make research more efficient by coordinating the programmes to avoid duplication. This means both association and cooperation. The EEC and ORSTOM have taken the initiative here and organised an international conference to discuss the possibilities of setting up such a network. The meeting came to clear and positive conclusions—and a Euro-African network should be set up in 1987. ○

B.B.



Peeling cassava in an African home

Industrial uses of cassava

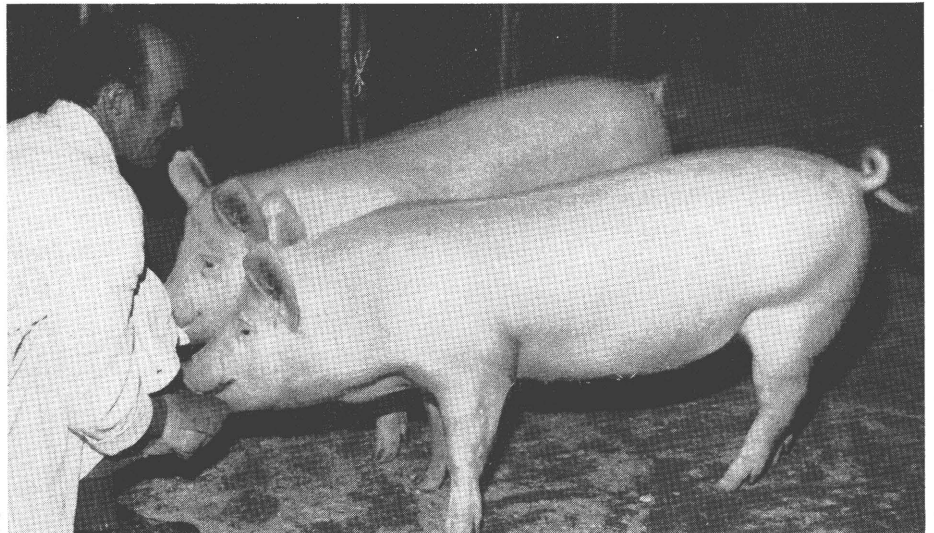
by Peter R. WALTERS (*)

The majority of world cassava production is used for human consumption in the producing countries where it is valued as a staple source of carbohydrate. The freshly peeled tubers are eaten as a vegetable after boiling or roasting; they may be boiled and pounded into a paste and added to soups and stews ("fufu" in Nigeria). The tubers are often preserved in the form of sun-dried chips and consumed after cooking or being ground into a flour. Alternatively, cassava is eaten as a fermented meal known as "gari" in West Africa or "farinha de manioca" (which is usually less fermented) in South America.

Although statistics are imprecise, it is estimated that about 80% of global production is consumed in these ways. The balance of production is processed and used industrially, mainly for the manufacture of compound animal feed and as cassava starch. Other possible industrial uses include the production of ethanol, single cell protein and high fructose sweeteners.

Since cassava deteriorates rapidly after harvesting most of the production destined for industrial use is processed. There are two basic forms of processing. The first is the manufacture of cassava chips and pellets. The former are made by slicing the roots into chips which are then sun-dried. The dried chips can be further ground and compressed to form pellets. It is in these forms that cassava is used by the animal feed industry.

The second form of processing cassava is to extract starch. Various methods are in use, ranging from the cottage industry scale of operation based on the use of settling tanks to the factory scale of operation where relatively sophisticated machinery such as centrifuges are used. Small quantities may be further processed to



A pair of Cutten pigs at an agricultural show in London

"Animal feed compounders of the European Community form by far the most important market for cassava"

form the so-called grocery tapioca products—seeds, pearls and flakes. The residue from starch production can be used for animal feeding.

The animal feed industry

Small quantities of fresh cassava or chips are used for animal feeding in the cassava growing countries. However, the animal feed compounders of the European Community form by far the most important market for cassava, the majority of which is imported in the form of pellets, although some chips are still solid. The main consuming countries are the Netherlands, West Germany, Belgium and France. Smaller quantities have been used in other EEC countries, such supplies normally being transhipped through Rotterdam. Table 1 gives the volume of imports to these four major markets. In particular, it shows the rapid rise in cassava pellet imports between 1975 and 1978, since when they have tended to fluctuate between five and seven million tonnes. By far the main source of origin is Thailand, with Indonesia and, to a lesser extent, China being the only other significant suppliers.

The value of cassava in compound feed lies in its high starch content. It is competitive as an ingredient because the EC's Common Agricultural Policy maintains internal grain prices at a high level, thus making it economically attractive to use alternative protein and energy feed ingredients. Cassava is one such feed; others are numerous

and include corn gluten feed, cereal brans, citrus pulp, etc. At the same time, cassava pellet imports are subject to a maximum import duty of 6%, this value being bound under GATT. Since cassava has a low protein content compounders need to incorporate additional quantities of protein (usually soybean meal) to obtain a balanced feed.

The distribution of cassava consumption within the EEC depends on several factors. The most important is the fact that the maintenance of Monetary Compensatory Amounts (MCAs) and "green" currencies within the EEC has resulted in cereal prices varying between countries. Thus in countries which have relatively stronger currencies, cereal prices are higher and the economic incentive to use cassava much greater than in countries where cereal prices are lower.

Transport costs themselves are also important. Most supplies of cassava are unloaded through Rotterdam and compounders within easy reach by barge through the canal system will be able to obtain cassava cheaper. Cassava dust, which causes handling difficulties and environmental problems, has also had the effect of limiting consumption in certain areas.

The strong demand for cassava in the EEC has in turn stimulated considerable industrial development in the supplying countries, and in particular in Thailand. The development of the Thai cassava pelleting industry has been a remarkable success story. In

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the early 1960s small quantities of cassava were exported to Europe in the form of chips and meals. The first pelleting factories were introduced into Thailand in the mid-1960s. These were financed and managed by the European shippers, using imported European machinery. The Thai Government assisted this initial development by allowing duty free importation of machinery and granting tax holidays in the early years of operation.

Thai manufacturers copied and adapted the original European machinery and set up their own factories. Very soon a network of cassava chipping and pelleting factories was operating throughout the cassava producing regions. These producing regions themselves spread rapidly; initially cassava was grown in the central regions to the east of Bangkok, mainly on virgin land. However, with the rapid expansion of exports in the 1970s, production spread to the north-eastern and northern regions of the country.

Exports from Thailand have been further facilitated by the good network of well-surfaced roads that has been constructed throughout the cassava growing regions. Similarly, developments in shipping have resulted in cargo sizes of up to 100 000 tonnes and have enabled freight costs to be considerably reduced. Cassava has thus become one of Thailand's major exports, the industry being a very good example of a successful export diversification exercise.

The very success of this trade has, however, brought problems in its wake. With growing grain surpluses in Europe, cereal farmers were concerned that cassava imports were replacing EEC produce to their detriment. For several years, the EEC has been trying to limit imports of cassava pellets.

A cooperation agreement between the EEC and Thailand on cassava production, marketing and trade was signed in 1982. This covers the period from 1 January 1982 to 31 December 1986 and commits Thailand to limit its exports of cassava to the EEC. The agreed maximum export quantities for 1982 were 5 million tonnes (subsequently increased to 5.5 m tonnes); for 1983 and 1984, 5 m tonnes annually; for 1985 and 1986, 4.5 m tonnes, subject to a 10% increase spread over each pair of years.

Table 1
EEC imports of cassava pellets ('000 tonnes)

Destination	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
The Netherlands	1233	1514	2027	2765	1433	1492	3486	4829	2839	3750	3250
Germany, Fed. Rep.	484	666	961	1509	1512	1354	1600	2055	1812	1842	1689
Belgium	449	680	733	1026	954	822	1073	1357	863	662	651
France	146	174	201	713	570	365	681	604	249	264	307
Total	2312	3034	3922	6013	5469	5033	6840	8845	5763	6518	5897
of which from											
Thailand	1974	2678	3647	5493	4422	4146	5682	7361	5042	5794	4942
Indonesia	313	172	109	216	697	378	418	234	67	305	396

Source: National trade statistics.

Table 2
Non-Thai cassava import quotas (in tonnes)

	1982	1983	1984	1985	1986
Indonesia	500 000	750 000	750 000	825 000	825 000
Other GATT member countries	90 000	132 355	132 355	145 590	145 590
Non-member countries of GATT (eg. China)	370 000	370 000	370 000	300 000	300 000
Total	960 000	1 252 355	1 252 355	1 340 590	1 270 590

Source: EEC.

For its part, the Community has undertaken to ensure that Thailand's position in the market will not be significantly undermined by a substantial increase in quantities of cassava imported from other countries. In this context quotas on imports from other suppliers have been allocated as shown in Table 2. The EEC will also provide assistance for projects aimed at rural development and crop diversification in Thailand, particularly in the poorest cassava producing regions of the country.

From 1 January 1987 a new Protocol Agreement has been signed between the EEC and Thailand to cover the four-year period to the end of 1990. During this time, Thailand will have a total quota for 21 m tonnes, with the provision that the maximum level of imports in any one year will be 5.5 m tonnes.

The effect of the agreement can clearly be seen from Table 1, with EEC imports dropping significantly after the 1982 peak. Imports from Thailand alone have averaged over 2 m tonnes annually below their 1982 figure. In response to this situation the

Thais have looked to diversify their exports of pellets and new markets have so far been found in the USSR, Japan, Taiwan, South Korea and Israel.

Prices for cassava pellets in Europe are listed in Table 3. On the demand side, to be competitive the price of the cassava/soybean meal mix must be cheaper to the feed compounder than EEC cereals. This effectively creates a ceiling price, with pellet prices remaining below EEC cereal prices. On the supply side, factors determining prices have become more complicated since the cooperation agreement came into effect. The Thai Government has tried to maintain cassava root prices to the farmer. However, through 1984 large stocks of pellets built up causing international prices to fall significantly, as illustrated in the table.

Starch

A substantial industrial outlet for cassava is in the manufacture of starch (often also called tapioca starch) for use in the foodstuff, textile and paper industries, as well as the manufacture of plywood and veneer, adhesives, glu-

DOSSIER

cose and dextrin. Minor industrial applications include use in the manufacture of explosives, dyes, drugs, chemicals, carpets and linoleum, the production of alcohol and the coagulation of rubber latex.

Cassava starch is produced in many parts of the world and, with the exception of Thailand, most is utilised in domestic markets. Statistics are not available on world production. Estimates, however, suggest that around 1.5 m tonnes are manufactured annually.

The most important producing region is Asia where Indonesia and Thailand are the largest producers. Although their production fluctuates widely, together these countries produce around one million tonnes of

100 000 tonnes annually, is Latin America and notably Brazil which has several large-scale cassava starch factories. Other producing countries in the region are located in Central America and in the north of South America. In Africa, production of cassava starch has probably never exceeded 20 000 tonnes per annum. The largest factories are located in Togo and Madagascar, with production also reported in Kenya and Ghana.

Although cassava starch is produced in many countries, the export trade is dominated by Thailand which accounts for over 80% of global exports. Other countries exporting smaller quantities include Brazil, Malaysia and Madagascar.

The major traditional importers of

In Taiwan, imports have increased significantly in recent years from 11 000 tonnes in 1976 to around 150 000 tonnes in 1984 and 1985. The reasons for this growth are that the domestic cassava starch industry has declined, partly due to the reduced availability of raw material, whilst consumption has continued to rise rapidly. Major uses of cassava starch in Taiwan are in the manufacture of maltose and for modification.

The only other significant market for cassava starch is the EEC. The imposition of a levy on imports means that it is effectively excluded from the market on price grounds, except where it is required for its special properties. Over recent years demand has been fairly steady at around 10 000 tonnes

Table 3
Cassava pellet prices (a)
(US \$ per metric tonne)

	1982	1983	1984	1985	1986
January	122	138	123	88	126
February	114	145	124	81	127
March	121	156	125	84	129
April	121	167	122	92	135
May	127	168	115	89	134
June	139	156	105	98	132
July	130	144	98	103	
August	132	148	99	111	
September	139	148	98	119	
October	137	154	101	130	
November	140	147	104	126	
December	132	139	98	121	

(a) Delivered quality, cif Rotterdam.
Source: Oil World.

Table 4
Cassava starch prices (a)
(US \$ per metric tonne)

	1982	1983	1984	1985
January	332	349	334	282
February	344	352	328	275
March	337	355	335	272
April	362	356	338	270
May	391	366	333	276
June	432	373	316	286
July	406	377	310	288
August	348	362	299	288
September	328	343	292	278
October	323	315	290	273
November	328	315	285	293
December	350	336	285	293

(a) Thai cassava starch (food grade) cif New York.
Source: FAO Monthly Bulletin of Statistics.

cassava starch annually. The Indonesian industry is long established and, although a number of larger factories have been built in recent years, is based on hundreds of small-scale producers. The major usage of cassava starch in Indonesia is for "krupuk" (a snack food) and the remainder is absorbed by the food processing, glucose and textile industries. In contrast, the Thai industry is based on large-scale factories using modern equipment and focusses on the export markets, although there is also considerable domestic industrial consumption. Other producing countries in Asia include Malaysia, Philippines, India, China and Taiwan.

The second most important producing region, accounting for over

cassava starch are Japan and the USA, with Taiwan buying increasing quantities in recent years. The USA in 1965 imported 160 000 tonnes of cassava starch, a substantial user being the paper industry. However, such imports are no longer competitive with domestically produced maize starch. Today, only 30 000-40 000 tonnes are imported annually with the food industry being the major user. In Japan, the domestic starch industry is highly protected, imports being limited by a system of quotas and tariffs. In the early 1980s imports fluctuated around the 60 000-80 000 tonnes level but they increased in 1984 and by 1985 had reached 155 000 tonnes, the major users being the pharmaceutical companies and the starch modifiers.

with the main consuming countries being the UK, France, West Germany, the Netherlands and Belgium. The major use is in the food industry, where applications are mostly for instant puddings, baby foods and confectionery.

Prices for internationally traded cassava over recent years are listed in Table 4. The determinants of starch prices are numerous and complex and, in the case of cassava starch, are not primarily decided by the supply and demand situation of the competing starches. The price of Thai cassava starch is primarily determined by the factory purchasing price of cassava roots which in turn is primarily determined by the selling price of cassava pellets for animal feed in Europe (ex-

ports of pellets being far more important than exports of starch from Thailand). The international price trends for cassava pellets and cassava starch are therefore similar, although historically starch prices have been more volatile due to the fact that a greater quantity of roots is required per tonne of starch than per tonne of pellets. This is best illustrated from the Tables which show, in 1984, prices for both starch and pellets falling significantly.

Other industrial uses

Among other possible industrial uses of cassava which have been investigated, three of particular interest are the production of ethanol, single cell protein (SCP) and high fructose sweeteners.

The production of ethanol for use as a petroleum substitute received increased attention following the energy crisis and the rapid rise in petroleum prices through the 1970s. Ethanol can be manufactured from cassava, sugar, maize and other grains. The best known example is the Brazilian Government's National Programme which principally uses sugar cane, although cassava is also used.

In the tropics, sugar cane is considered the most economic raw material for use in this process since the bagasse produced can be used as a fuel and because the process is simpler than that based on starch raw materials, such as cassava. However, recently the possibility of using a combination of cassava and sugar cane has been suggested.

Whilst production of alcohol has been a technical success, its economic viability is still questionable and is certainly country and situation specific. The recent fall in petroleum prices has further adversely affected the situation and it now appears that increases in ethanol production in the foreseeable future will be much less than was once anticipated.

The use of cassava as a substrate in the manufacture of SCP for animal feed has been investigated. The SCP processes can use feedstock ranging from petroleum fractions to agricultural materials, including cassava. Although a number of SCP plants are now operational around the world, production costs using present technology are generally high and uncompeti-

tive compared with animal feed protein obtained from traditional sources. The possibility of further plants being constructed therefore appears poor. Of the potential feedstocks, if cassava is ever to be used in this process, it must prove to be price competitive with the alternative available materials.

The use of cassava starch as a feedstock in high fructose sweetener pro-

duction is a possible future application. Fructose syrups are being used increasingly in developed countries to replace sugar (eg. high fructose corn syrup in the USA). Cassava may have potential in some countries as the basis for a fructose syrup industry, since the process depends on starch hydrolysis to glucose followed by enzymatic conversion to fructose. ○ P.R.W.

Popularising roots and tubers: the Nigerian experience

African city dwellers generally loathe cumbersome culinary practices of the types sometimes occasioned by roots and tubers. To obtain "fufu", for example, it is necessary to peel, (ferment in the case of cassava), boil and pound with utensils as incongruous to city life as mortars and pestles. Such drudgeries are considered undignifying. Even where the roots have been partially transformed by the rural people they are invariably scorned in favour of cereal-based meals, nutritively richer and more convenient. The resultant increase in import bills, particularly in areas where climatic and soil conditions are unfavourable to cereal production, constitutes one of the greatest economic nightmares of governments. In recent years, this problem has been worsened by yet another—that of urban migration, which has accelerated and given rise to massive increases in the number of jobless and urban poor, generally slum-dwellers for whom roots and tubers are of capital importance. This has, inevitably, led to increased demand and higher prices.

In Nigeria, as well as seeking increased production of the crops through improvements in varieties, in the methods of cultivation and storage and in the elimination of pests and diseases, research over the past 30 years has been geared towards industrial processing. The aim is to reduce the drudgery involved in the traditional ways of transformation, meet demands at reasonable prices, and encourage consumption. At the vanguard of this drive are the Federal Institute of Industrial Research (FIIRO) in Lagos, the International Institute of Tropical

Agriculture in Ibadan, the Roots and Tubers Research Institute at Umudike and a number of universities. Achievements have been modest: the first notable success was recorded by FIIRO in the late 1960s when it developed a "gari" making machine—which grates, presses, fries and grades. It is now manufactured and marketed by Newell Dunford Company of Surbiton in the United Kingdom. Three of these plants have been installed in Nigeria, where they are already making considerable impact on "gari" production, one in Ghana and another one in Gambia. Experiments at FIIRO and IITA on the use of mixed cassava and wheat flours for the baking of bread have proved positive, but the bread obtained through this process unfortunately is not popular because of the "offensive odour" which it gives off, especially when stored in an environment as humid and warm as that of Nigeria.

Great strides, on the other hand, have been made in the production of yam flour from which "instant" pounded yam can be obtained by merely pouring boiling water over it and stirring until it forms a paste. Of particular interest is the process designed and developed by Dr. O. Ofi of the University of Ibadan which is increasingly proving successful in Nigerian cities.

The Nigerian experience, though very modest in comparison with requirements, show that the road to popularising roots and tubers among city dwellers lies in their industrial transformation into convenient forms of consumption. They store, in any case, better. ○

B. ADENAIKE and A. OYOWE

YAM, SWEET POTATO AND COCOYAM

YAM. Economic and definitely profitable to produce

by Dr Malachy AKORODA (*)

Yams are of great regional importance in West Africa, Southeast Asia, the Pacific Islands, the Caribbean Basin and tropical Latin America. They can be boiled, baked, or deep fried in oil. A popular West African preparation is pounded yam, for which the cooked tuber is mashed in a mortar into a stiff glutinous paste termed "fufu" and eaten with a stew. In a processed form, yam flour, yam flakes, and yam chips are made.

In times of food scarcity, wild types of yam are sometimes used to alleviate hunger. Some yams contain organic compounds useful in pharmaceutical industries. The size of the global harvest, about 19 million tons annually, makes the crop of crucial importance to the world's food supply. Yams are of great ethno-agricultural significance in the West African region where a considerable amount of ritualism has developed around their production and utilisation. Most of the world production is consumed within the country of origin with little entering international trade, and is therefore important to the domestic economies of such countries (1).

Cultivation

Usually the first crop on the land after clearing the bush, yam cultivation is almost exclusively by manual farm operations. Other than the preparation of ridges by tractors, no other process is currently mechanisable. Thus, as a crop, yam is still very traditional in outlook, but because of the high prestige it carries amongst the peoples of the African yam zones its cultivation is on the increase. This zone covers the southern portions of the stretch of countries from Côte d'Ivoire to the Central African Republic where there is a minimum annual rainfall of around 1000 mm spread over five to six months. In Nigeria, the yam zone chiefly covers the southern Guinea savanna, the derived savanna and the rain and freshwater forest vegetational zones.

The greatest yam production areas are, however, in the savanna areas rather than the forest. The apparent widespread misinformation of the more significant contribution of the

forest areas relates to the predominance of yam studies around the universities and root crop research institutes that are mainly situated in the forest areas. Secondly, the cultural attachment of people to yams in these areas appears much stronger than elsewhere. Most of the yams produced in the forest are consumed in the same areas. The percentage of total yam output marketed is much less in the forest areas compared to the savanna areas.

The common sight in Nigeria as regards yam transportation is lorry loads of yam tubers moving from the savanna areas to the southern population areas of Ibadan, Enugu, Port Harcourt and Lagos. To conclude that yam production is uneconomic or unprofitable is definitely incorrect. Such a conclusion must be related to the use of crop budgets developed in the least agro-ecologically suitable yam producing areas. In the forest areas, rainfall is high and leach innate and applied soil nutrients lead to poorer yield responses of yam crops. Shorter tubers from unstaked or minimally staked stands of yam in the savanna incur much lower production costs, and are easier to harvest, pack and transport

due to lower predisposition to damage and injury.

Research

Yams belong to the botanical genus *Dioscorea*. Of over 600 species only six are important worldwide, four of which are particularly so in tropical Africa. These are, in order of importance, *rotundata* (white yam) which accounts for over two-thirds of total yam output, *D.alata* (water yam), *D.cayenensis* (yellow yam), and *D.dumetorum* (trifoliate yam). This relative order of importance has been reflected in the priority given to research especially at the International Institute for Tropical Agriculture. Research activities here centre principally on the genetic improvement of large populations of genotypes from which desirable types are selected. The objectives involve: reducing bio-physical constraints to high and stable yields; improving genetic characteristics for better storage of harvested tubers; raising the nutritional, processing and culinary qualities of tubers (such as poundability of the boiled tuber), and developing efficient sett, multiplication techniques.

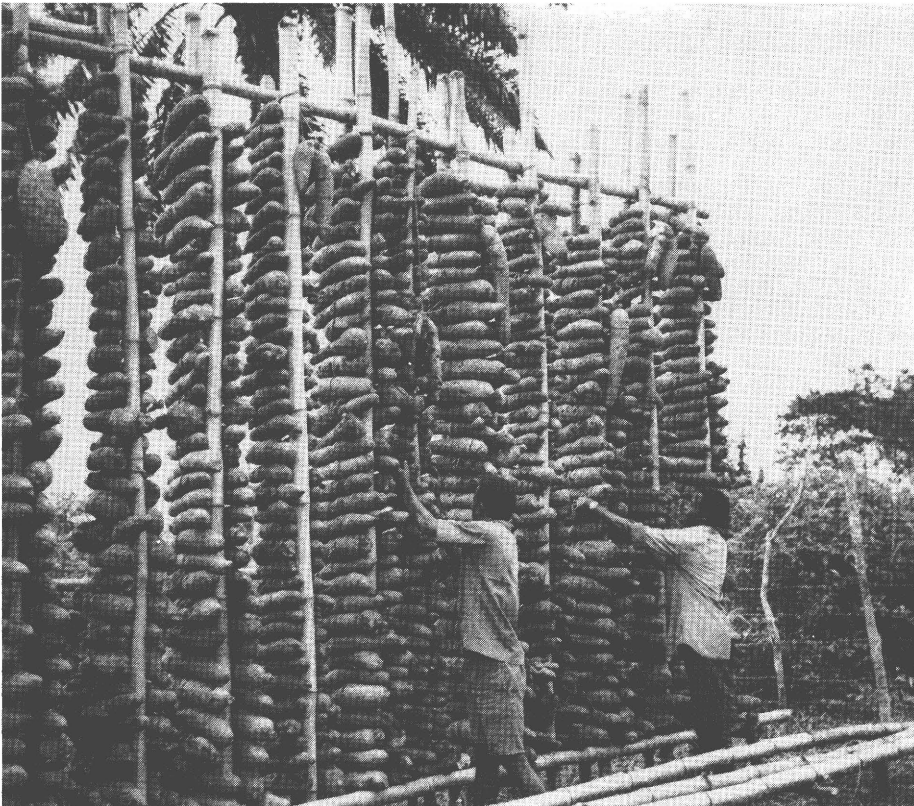
Since 1971, when IITA began research into yam, a germplasm base of clones has been assembled together with useful genotypes derived from true seeds. Breeding work and varietal development initially centred on generating basic knowledge on the sexual biology, seed germination and seedling establishment in the field.

Progress in IITA's yam research

Research in yams, though ongoing before the advent of IITA, was at a low level. This was so because of a previous dearth of basic research information from which technology development could benefit. The relevant basic research needed for purposeful direction of further work were therefore being accumulated by IITA yam experiments. Of prime importance were the verification of the viability of yam pollen, the laboratory investigation of seed dormancy, field germination, and direct planting of seeds to

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(1) Extracts from "Global Workshop on Root and Tuber Crops Propagation".



Yam storage in Nigeria

The barn system of storage enables yam to preserve for up to 6-9 months "depending on variety and prompt removal of post-dormancy sprouts"

produce a great diversity of yam genotypes. Although these achievements seem insignificant in terms of direct benefit to farming and food production, their long-term impact on yam crop development is monumental.

Difficulty of sett multiplication also stimulated work on vine cuttings, microset (10 g) techniques for extra-rapid multiplication of breeder stocks and dwindling germplasm or even for rejuvenating the over-diseased tubers from improper storage. These achievements have opened avenues for more progressive and dynamic approaches to yam research.

In the 15-year period of yam research at IITA about seven changes occurred at the scientist level — a rampant discontinuity which has seriously affected work efficiency. The technology for effective field breeding, clonal selection and field production of ware yam tubers have only just been sufficiently understood to enable bio-economically sound systems to be pieced together. Whereas, IITA research has been hampered by inadequate resources and too rapid a turnover of key scientists, there also has not been the necessary link between

research and farmers. This link-role rightly belongs to National Programmes but they have not been able to satisfactorily shoulder such responsibilities.

By 1987, yam research at IITA unfortunately is to be greatly reduced within the Root and Tuber Improvement Programme, and yam breeding operations will be discontinued. Other than some experiments on miniset production technology and the maintenance of yam germplasm no further improvement research is envisaged.

The future

In West and Central Africa, yam is very important in food culture and tradition. Food yam festivals and their timing play great roles in determining the cropping calendar, gender participation in farming and crop-farm systems. Most people living in the areas with over 1000 mm of annual rainfall eat yam several times a week or several times a day. Current trends toward increased production of dry reconstitutable yam flours are expected to boost the consumption of yam and change the yam consumption pattern of tropical sub-Saharan Africa. ○ M.A.

Ware yam production: useful advice

Agronomic research at IITA has continued alongside genetic improvement. The practices for profitable ware yam tuber (1-5 kg) production are outlined below:

Agro-ecology

1. Yam will grow well if your area has 6 months of rain that wets the soil. Soil should retain moisture but should not be waterlogged or poorly drained.

2. Yam yields are high (40t/ha) or low (5t/ha) depending on the way you cultivate the crop. However, good field soil conditions and crop maintenance are the key to a successful yam production.

3. **Fertile soils.** Yams need rich nutrients to produce high tuber yields. So, use new lands or fertilise old soils if depleted by repeated cropping. About 4 bags (50 kg) of NPK (15.15.15) or (12.12.12) applied at three months after planting can be used to upgrade soil fertility.

4. **Planting bed.** Prepare mounds or heaps or ridges or holes in light soils. The bigger the better. Remould the bed if washed down by rains or make cross-bunds to reduce erosion.

5. **Seed yams.** Seed yams or setts are the tuber material that is planted. Use healthy tubers which are whole or cut. Allow cut surfaces to air-dry before planting so as to avoid rotting. On beds below half a meter high plant 200-250 g setts. Generally, whole seed yams are preferred to cut pieces because they establish better in the field.

6. **Planting time.** Plant healthy seed tubers two weeks before time for the usual start of annual rains in your area.

7. **Planting.** Plant setts and where possible mulch above the spot with some dry leaves and straw held in place with some soil.

8. **Spacing.** Plant to plant distance in the row should be one metre and also one metre between two rows. This distance will determine the size of mounds or heaps within one hectare of farmland. Mounds

or heap should be around 40-50 cm high where soil is not deep.

9. **Staking.** May not be required if you cover bed with plastic sheets. Stakes should reach 1-4 metres tall depending on your local sunshine level. Post stakes one month after planting and train the vines onto the stakes. Stakes help to expose yam leaves to sunlight needed for good growth.

10. **Weed control.** Remove weeds by hoeing monthly for first four months after planting otherwise, low yields will result. Apply a suitable herbicides if available. If you lay plastic sheets over ridges, only little extra weeding is necessary. Weeds compete with yam plants for soil nutrients and water, thereby suppressing full growth of plants.

11. **Field inspection and maintenance.** Periodic checks on your farm is important for early detection of problems. This will alert you on when to plan and execute a remedy. Fallen stakes, fallen vines, eroded beds should be repaired immediately. Leaf eating insects during early crop life do not require any control except when damage is large.

12. **Tuber harvest.** Start when leaves turn yellow and begin to die. Dig out earth around tubers and avoid injury to tubers. Expect yields of 1-5 kg/stand, do not heap freshly harvested tubers together to prevent disease transmission among damaged tubers and allow them to cure before storage. Damaged tubers do not store well due to rapid rotting. Wound points and bruised areas are entry spots for bacteria and fungi.

13. **Tuber storage.** Wounded tubers should not be stored. In the savanna, tubers are heaped on grass straw and covered with more grass to cure for several days before being arranged in a hut covered with grass. In the more humid forest areas, yam barns are common. In these, tubers are tied horizontally on vertical poles. The barn is shaded by live trees whose canopy is appropriately pruned to regulate air currents and the intensity of sunshine. By this method, yams store for up to 6-9 months depending on variety and prompt removal of post-dormancy sprouts. o M.K.

SWEET POTATO. A high yield potential^(*)

Sweet potato, *Ipomoea batatas* (L) is a worldwide food crop eaten in a variety of ways. They can be made into flour and starch, canned, frozen or dehydrated. They can be used in industry in the manufacture of such products as glucose syrup, alcohol, acetone, lactic acid, vinegar and pectin. Both the tuber and the plant top can be used as animal feed. As a crop with a high yield potential⁽¹⁾, in comparison with the other major tropical food crops, the sweet potato should be of considerable socio-economic concern. Furthermore, it is a highly adaptable crop. It has been shown to have a greater tolerance to an extended range of edaphic and climatic conditions than most other tropical root crops. Its optimal habitat falls halfway between cassava at one extreme and taro at the other, but it readily extends into the realm of both. It is also tolerant to cold and can be grown at altitudes as high as 300 m in the tropical zones although yields decrease the higher the altitude.

The economic importance of sweet potato has consequences for the farmer, the consumer, and the society. For the farmer, higher yields generally mean a higher quality product as well. Both of these attributes are likely to affect the price and the farmer's total revenue since production costs per unit of resources should decrease as yield and quality increase.

Two classes of consumer are affected: those who use the product for direct consumption and those who use it for producing other goods. The direct consumer could see a stable or reduced cost for the crop, which may affect the amount consumed relative to other staple foods. Also, where there is a higher quality product, the consumer's total satisfaction will be increased. The consumer who uses the raw material for further processing would benefit from a stable source of

supply and a higher quality processed product. This in turn could further expand his share of the market through final consumer satisfaction.

Another economic factor of some importance is that most of the world production of sweet potato is consumed locally with very little entering the export trade. Rises in local food prices tend to restrain growth in developing countries and increase relative and absolute poverty. Therefore, it becomes feasible to place a greater emphasis on agricultural production than was justified previously. Successful agricultural development will diffuse the benefits of growth more widely than alternative strategies and will even accelerate national growth where earlier agricultural programmes were inadequate for their time. If this is the case, then the economic pressures in the field of agriculture may well have a salutary effect on the pace and pattern of development.



Sweet potato cultivation in Senegal

(*) Article based on CIAT's "Global Workshop on Root and Tuber Propagation" on Sweet Potato, Yam and Cocoyam Production by F.E. Caviness, S.K. Hahn and M.N. Alvarez of IITA.

(1) This yield potential is illustrated by the 53t/ha produced in 5 months from an improved sweet potato line grown under good management at IITA (Alvarez and Hahn 1983).

Cultivation

"The most important human-influenced adaptation of sweet potato has been its integration into agricultural systems, the diversity of which is only hinted at by the variations of environments. It is a comparatively easy crop to grow, and in the tropics it exhibits no strict seasonality, so that it can be combined in mixed fields with other tubers or roots, vegetable species and even grain... It is a constant provider of farinaceous staple, and is often integrated into indigenous cultivation cycles with a secondary role as a feed for livestock, often occupying inferior land." That quote from Yen (1982) clearly indicates the utility of the sweet potato in numerous diverse

cultivation systems. It is widely grown in tropical, subtropical, and warm temperate areas under systems ranging from highly intensive mechanised cultivation to subsistence farming. A wide range of cultivars are used that differ greatly in their adaptability. However, optimum growth occurs at about 24°C or more, coupled with abundant sunshine and warm nights. The sweet potato is tolerant to periods of drought but needs 500 mm or more of rain throughout the season. Sandy loam soils that are well-drained are best, with yields being reduced by varying degrees on less ideal soils.

The three major methods of land preparation for sweet potatoes are ridges, mounds, or flat surface prepa-

ration. Of these, ridge planting is the most generally accepted method. It has been well demonstrated that higher yields are obtained on higher ridges to a maximum ridge height of about 36 cm. In each situation, the optimum ridge height depends on soil type and the sweet potato cultivar being grown.

The sweet potato cropping systems around the world are determined by local conditions, and in more sophisticated farming operations, by the dictates of economics. In some tropical areas, rainfall patterns allow for two crops of sweet potato a year whereas in the drier areas only a single planting is possible. ○

COCOYAM. Strategies for progress (*)

Colocasia spp. and *Xanthosoma* spp. are commonly referred to as cocoyams among other names. (*Colocasia* spp. are often called taros, with two predominant types: eddoe and dashen. A common name for *Xanthosoma* spp. is tannia). Three others, *Alocasia*, *Amorphophallus* and *Crytosperma* are important only in the Pacific Basin (see article: "Taro-varieties and their uses in the Pacific Island States"). As with yam and cassava, cocoyam can be boiled, baked or deep fried in oil. In West Africa, "fufu" is made from boiled corms. In the Pacific Islands area, the manufacture of "poi" is an established industry. The fresh or cooked corms can be milled into flour after drying. The leaves and petioles, especially when young, are used as a vegetable. Except for the roots, all parts of the cocoyam can be used as animal feed. Industrial uses include mucilage for paper and pharmaceuticals.

Cultivation

Taro is grown under flooded lowland conditions similar to that re-

quired for rice. Tannia and upland taro are grown as dryland crops. For flooded taro a level land is required and preparations follow the same pattern as for rice, i.e., ploughing, discing and harrowing, and puddling for minimum percolation of impounded water. The operations are either manual or mechanised depending on locality and technical level of the farm practices. For taro or tannia grown in an upland situation, land preparation involves clearing, ploughing, harrowing, and sometimes the formation of furrows. Planting on the flat ground is the most common method, although ridges or beds are sometimes used. In traditional farming, planting is done on low mounds often similar to those prepared for yam or cassava, or on flat, unprepared land. Growing cocoyams as an intercrop is also a common practice.

Research

Of all the roots cultivated in Africa, cocoyams are the least studied. Although research into the crop began in the early 1930s, it has not been pursued in a sustained manner. Cassava and yam have by contrast commanded greater attention. It was, in fact, only recently that tissue culture techniques for storage and dissemination of *Xanthosoma* and *Colocasia* were developed⁽¹⁾. Any research stra-

tegy must be well planned with all its diverse elements perfectly coordinated to increase the chances of success.

Planning must be entrusted to an organ like IITA which can thus coordinate the works of institutions cooperating on cocoyams throughout Africa. In this regard a two-phase programme can be envisaged.

Phase I should be preparatory, devoted to identification, evaluation and quick distribution of elite cultivars chosen from those that already exist. It is therefore necessary to begin a system of gathering of varieties, wild or cultivated, from all the regions in the world where cocoyams are already well established and where collections already take place to a large extent. These areas include: for *Colocasia*, Hawaii, the Pacific Basin, India and New Zealand; for *Xanthosoma*, the West Indies and other regions of Latin America. Nowhere else are *Xanthosoma* collected and it is time their gathering is carried out in other areas.

Phase II should begin as soon as possible but not before all known varieties have been well identified, selected and classified. At this stage, studies should become multidisciplinary allowing physiology, pathology and entomology to play predominant roles. The information that these sciences could bring to geneticists and agronomists would in the long term contribute to progress in research into cocoyam cultivars, their cultivation and use. ○

(*) This article is drawn from CIAT's "Global Workshop on Root and Tuber Crops Propagation" and from a paper on taro by E.V. Doku published in IDRC's "Tropical Root Crops; Strategies for the 1980".

(1) See paper by Elizabeth Acheampong, "Proceedings of the Second Triennial Symposium of the International Society for Tropical Root Crops - Africa Branch held" in Douala, Cameroon.

Potatoes in the Third World (*)

by Douglas E. HORTON (**)

Developing countries must accelerate their agricultural growth to feed a growing population to meet future demands for livestock feed and fibre, to employ an expanding labour force, and to reduce dependence on foreign supplies of agricultural commodities. In practical terms, rapid acceleration of agricultural growth requires progress in three areas. Reliance on the major cereals—rice, wheat, and maize—must give way to greater crop diversification. High-yielding production methods that are profitable and socially acceptable must be put into practice by a multitude of small farmers. Post-harvest losses and marketing costs must be reduced. To slow migration to the cities, to maximise the efficiency of agricultural growth, and to ensure that its benefits are widespread among low-income groups, more productive forms of employment must be generated for rural people. The potato can play a useful role in agricultural development strategies. This article shows how.

Potato is often thought to be a crop of the industrial nations and of minor importance in developing areas. Developing countries, however, now produce a third of the world's potatoes. Since 1950, potato yields have doubled in developing countries and production has tripled. The growth of potato production, which exceeds that of most other food crops, is particularly rapid in Africa, Asia, Central America, and the Caribbean. In monetary terms, potatoes are now the fourth most important food crop in developing countries, after rice, wheat, and maize.

Despite the rapid changes, potato production still averages less than 30 kilograms per head in developing countries, of which two-thirds is for human consumption. Since average potato consumption is still less than 20 kg per head in most developing countries, there is still considerable room for increased consumption—Western Europe consumes an average of 80 kg per head.

Constraints on potato production

High temperature. Potatoes do not form tubers unless average night temperatures fall below about 20°C. Hence, they are not an economic crop

(*) This article is based on Douglas E. Horton's *Potatoes: Production, Marketing, and Programs for Developing Countries*. Boulder and London: Westview Press, forthcoming 1987.

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in areas with high temperatures throughout the year. They are grown, however, in many lowland tropical areas, like Bangladesh and coastal Peru, that have three or four months with moderate night temperatures.

Seed. The limited supply and high cost of seed tubers are the major constraints on potato production in many developing areas. Farmers generally plant one to two tons of "seed tubers" per hectare. The large volume of seed tubers that has to be produced, harvested, handled, stored, hauled, and often desprouted before planting in the next season makes potato production expensive. The use of tubers also limits where and when potatoes can be planted, since the maturity and condition of seed tubers influence the emer-



Showing samples of potatoes harvested in Sudan

gence, vigour, and yield of subsequent crops. Tubers can also spread pests (like nematodes) and diseases (viruses and bacteria) that depress yields and reduce tuber quality.

Because of the difficulties of producing and distributing high quality planting material, potato programmes need to pay special attention to improving seed systems for lowland tropical areas.

High production costs and risk. Potato yields are highly responsive to improvements in seed quality, tillage, irrigation, fertilisation, and pest control, and most farmers invest more in producing a hectare of potatoes than in their other crops. That investment is threatened by climatic hazards, pests, and diseases that can cause crop failures. Hence, two important goals for potato research and extension are to reduce the costs and risks of potato production.

Post-harvest problems. Due to their high water content (about 80%) potato tubers are bulkier and more perishable than grains (which generally have less than 15% moisture). This makes potato storage, processing, transportation, and other post-harvest operations costly in the tropics where hot weather, insects, fungi, and bacteria can result in severe post-harvest losses. For this reason, post-harvest technology is a vital area for potato research in developing countries.

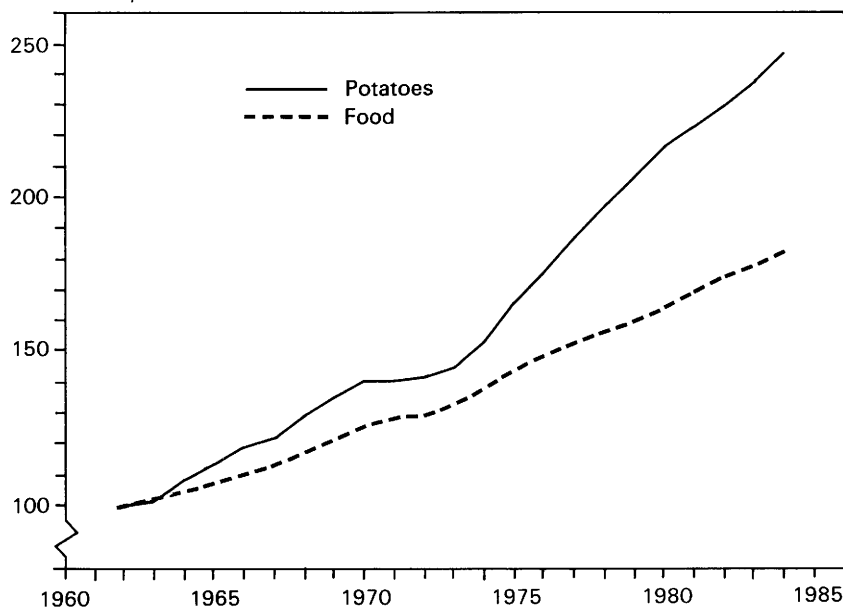
Market risk. Because potatoes are not easily stored for long periods or transported over long distances, fluctuations in supply may result in sharp price changes, which compound production risks with price risks. Public agencies can help farmers cope with supply and price fluctuations by gathering and promptly disseminating information on areas sown, expected yields, and market conditions.

Types of potato producers

Some of the world's largest and smallest, richest and poorest, most progressive and most backward farmers grow potatoes. Most potato producers fall into one of three groups: subsistence farmers, commercial farmers, and market gardeners. Uncounted households, both rural and urban, also grow potatoes and other vegetables in home or kitchen gardens.

Trends in potato production and total food production in developing countries

Index 1961/63 = 100



Source: FAO Basic Data Unit.

Subsistence farmers usually have smallholdings and manage highly diversified cropping systems with heavy labour use; they purchase few inputs and get low yields. Commercial farmers generally have larger and more specialised farms; they generally use chemical fertilisers, pesticides, and machinery; and they harvest higher yields. Market gardeners tend to have small land holdings but make intensive use of both labour and purchased inputs; their yields are usually high.

Subsistence potato growers in isolated mountain areas in Rwanda and Bolivia are among the world's poorest farmers. Commercial growers in Northern Mexico and Brazil are among the richest. Market gardeners in parts of Guatemala and the Philippines are among the world's most intensive and productive.

Production zones

Potatoes are grown under a wider range of altitude, latitude, and climatic conditions than any other major food crop. They are grown from sea level to over 4000 metres elevation and from the equator to more than 40 degrees north and south. The diversity of agro-ecological zones in which potatoes are grown practically defies classification. However, three extreme

types of production zones can be identified:

Highland tropical zones (including the Andes, the Himalayas, and mountainous areas scattered throughout Africa, Asia, Central America, and Oceania).

Lowland tropical zones (the Indo-Gangetic plain from Pakistan through India into Bangladesh, Peru's coast, and northern Mexico).

Temperate zones (Southern Argentina and Chile, the Korean peninsula, northern Turkey, and northern China).

Highland farming systems vary greatly from place to place depending on markets and environmental conditions (elevation, latitude, topography, soils, rainfall). In cool high areas and temperate zones, most farmers plant potatoes in spring and harvest them in the autumn. Cold winter weather facilitates storing potatoes for home consumption, sale later in the year, and for planting in the next season. In many highland and temperate zones, climatic hazards like frost, hail, and drought are major sources of risk and depress yields. Late blight—the fungal disease that ravaged Ireland's potato crop in the 1840s—affects most highland and temperate areas; insects and nematodes pose serious problems in some localities. Because many small farmers cannot afford costly manufac-

tured inputs new varieties that are resistant to climatic hazards, pests, and diseases can have a significant impact both on production and social welfare.

At intermediate elevations, potatoes may be planted in two or more growing seasons each year. In the warm, lowland tropics, farmers generally plant potatoes in the autumn and harvest them in the spring. Most lowland potato-growing areas are irrigated or have abundant residual soil moisture for winter production. In warm environments, potatoes are subject to more pests and diseases than in cool areas. It is difficult for lowland farmers to produce and store high-quality seed tubers, and many buy seed produced by growers in highland or temperate zones. Unfortunately, the varieties available are seldom ideally suited to the local growing conditions. Hence, significant expansion of potato production in warm lowland areas usually requires a combination of improvements in seed technology, varieties, pest management, and storage.

Mediterranean and sub-tropical potato growing systems are intermediate between those of temperate and tropical lowland zones in many respects. Farmers may plant potatoes in spring, summer, or autumn. In North Africa and the Middle East, seed tubers for the spring and summer crops are imported from Europe and part of those tubers harvested in the spring crop are kept to use as seed in the autumn crop. Some potatoes from the autumn crop are exported to Europe in springtime, and potatoes are the principal vegetable crop export of the region.

Consumer demand for potatoes

The demand for potatoes depends on population size, income levels, prices, and food habits. Conventional projections of demand assume that changes in income level have only a small effect on demand. In other words, it is assumed that the "income elasticity of demand" for potatoes is low. It is also assumed that changing prices and food habits have little impact on the demand for potatoes.

In most developing countries, potatoes are in fact a luxury, not a staple food, and, hence, the income elasticity of demand is high. In many places, potato prices are falling and food habits are changing towards including

more potatoes in the diet. As a result, the demand for potatoes is increasing rapidly. In fact, contrary to expectations, the demand for potatoes has grown more rapidly than the demand for most other foods in developing countries. Since average potato consumption is still low, this trend is likely to continue well into the future.

Potato programmes

The backlog of scientific information on potatoes in developed countries together with practically-oriented research promoted by the International Potato Centre (CIP) and regional networks have created many opportunities for high returns to national potato programmes in developing countries.

But not all programmes are successful. To be able to utilise and adapt the results of research conducted at CIP and other institutions around the world, a national programme needs a solid research base. Expertise is needed in five key areas: seed systems, varieties, pest management, post-harvest technology, and socio-economics. The specific priorities within each of these areas should be determined on the basis of specific local conditions and resources. A number of programmes that have generated an impressive amount of new information and technology have had negligible impact on production or social welfare because they worked on topics that had little practical importance or produced technologies that were impractical for the typical farmer.

Most successful potato programmes have had two factors in common: they place high priority on improving seed production and distribution, and they set specific goals and implemented strategies that were in keeping with local needs and resources. Because of differences among the countries, and among regions within some countries, each programme had to develop its own solutions to the seed problem.

In cases where economic costs and benefits have been estimated (as in Tunisia, Rwanda, and South Korea), the potato programmes' rates of return were substantially higher than those of most other development projects.

Aside from yield increase, which is a central measure in most programme evaluations, successful potato pro-

grammes have had several other types of impact. For example, the Rwandese seed programme facilitated the rapid introduction of new, blight-resistant varieties that can be grown in the rainy season. The Indian programme contributed to a massive expansion of the area planted to potatoes on the plains in the winter season. This, in turn, helped to intensify cropping systems, increase employment and rural incomes, reduce potato prices, and stimulate greater potato consumption. Improved seed storage in Sri Lanka helped to cut post-harvest losses, extend the potato-growing season, and reduce dependence on imported seed.

The future

In most of the developing world, potato production and consumption are expanding rapidly. In many places where potatoes are still little known or eaten only occasionally, they are likely to become an important vegetable in the near future. And in some areas where potatoes are now consumed as a vegetable, they may become a staple food.

A sharp increase in supply may lead to temporary market gluts and low prices. But if cost-reducing technology is introduced, this will make it profitable for farmers to sell potatoes at lower prices, which, in turn, will stimulate consumers to eat more potatoes. Home economists, school teachers, and rural development workers can also help stimulate potato consumption by spreading information on new ways to prepare potatoes and on their nutritional value. Nonetheless, the key to expanding potato production and consumption is not promotional campaigns but effective productivity-increasing programmes.

Policy makers and researchers can best tap the unexploited potential of the potato as a food crop by strengthening research and extension in the framework of an integrated potato programme. The central goal of this programme should be to identify and solve those production and marketing problems that make potatoes expensive. The specific problems that merit priority attention vary from place to place. This highlights the need for strong client-oriented national research programmes that have both technical and socio-economic expertise. ○ D.H.

Combating pests and diseases of tropical root and tuber crops

by Stephen L. LAWANI(*)

*Pests and diseases constitute major constraints to increased and stable production of tropical root and tuber crops. Many pests and diseases have been recorded on the major crops—cassava, sweet potato, yams and cocoyams. However, they do not all cause economically significant damage. The importance of any given pest or disease tends to vary from continent to continent except for a few, such as sweet potato weevils—*Cylas formicarius* and *Cylas puncticollis*—either of which occurs and causes severe damage wherever sweet potato is grown.*

Cassava

Historically, cassava spread rapidly and widely in Africa following its introduction because of its freedom from diseases and pests, particularly its ability to withstand locust attack. But the story has changed. A disease, the African cassava mosaic, which does not exist in cassava's native Latin America, has become a major problem. This disease is also endemic in India. Cassava is today a potential victim of many pests and diseases which may depress yields but rarely cause complete crop failure. Some insects, such as hornworms (in Latin America) and grasshoppers (in Africa) occur sporadically but do dramatic, conspicuous damage, like complete defoliation. But the plant can recover. Yield losses due to such pests are not as high as those caused by diseases that are present throughout the long growth cycle (12 months or more) of the crop. The latter group includes African cassava mosaic, cassava bacterial blight, and *Cercospora* leaf spots.

In Latin America, where cassava was domesticated, are to be found all the known pests and diseases of the crop except African cassava mosaic and locusts. But natural predators and parasites co-evolve with the cassava pests and keep their populations low. And so, they do not do as much damage as the same pests do in Africa and elsewhere where there are no effective indigenous predators and parasites.

The most economically important

pests include mealybugs (*Phenacoccus manihoti*, *Phenacoccus madeirensis*, and *Ferrisia virgata*), hornworms (*Erinnyis ello*), green spider mite (*Mononychellus* spp.), cassava red mites (*Oligonychus gossypii*, *Tetranychus cinnabarinus*, *t. neocaledonicus*, and *T. telarius*) and grasshoppers (*Zonocerus variegatus* and *Z. elegans*).

Sweet potato

Sweet potato, like cassava, was first domesticated in Central America. But now, it is basically a crop of Asia which accounts for about 83% of total acreage and 93% of world production. Among over 40 species of insect pests that infest sweet potato, the sweet potato weevils *Cylas formicarius*, *C. puncticollis* and *C. brunneus* are the most destructive, causing crop losses of up to 90%. Adult weevils attack leaves and vines but the most serious damage is caused when adults and larvae tunnel through the tubers, resulting in subsequent rot due to bacteria and fungi. Damage initiated in the field continues in storage.

Many viruses or virus-like diseases have been reported on sweet potatoes from various parts of the world. However, considerable confusion exists. Many different names have been used to describe what may be the same disease. Viruses can be a serious constraint to sweet potato production. Crop losses of up to 50% have been reported.

Yams

Yams belong to the botanical genus *Dioscorea* of which there are from 300



Wilting and defoliation of cassava plant caused by cassava bacterial blight disease

to 600 different species. The most important species cultivated for food are white yam *Dioscorea rotundata*, yellow yam (*D. cayenensis*), water yam (*D. alata*), Chinese yam (*D. esculenta*) and trifoliate yam (*D. dumetorum*). Yam production is a labour intensive operation. Planting materials are expensive and often unavailable, seedbed preparation is tedious and staking is usually necessary. It is necessary to control weeds for the first four months and harvesting requires special care. These, not pests and diseases, are the constraints to yam production.

Among the limited number of pests of yam, the yam tuber beetles (*Heteroligus meles* and *H. appius*) rank first in economic importance. But they appear only every three or four years and attack only early planted yams. Other pests include stored yam beetles and yam leaf beetles.

Three groups of nematodes, the yam nematode (*Scutellonema bradys*), lesion nematodes (*Pratylenchus* spp.) and root-knot nematodes (*Meloidogyne* spp.) can cause severe losses. They disfigure infected yam tubers reducing their market value drastically, and predispose them to attack by other organisms which cause rots in storage.

(1) Director Documentation, Information, and Library, International Institute of Tropical Agriculture (IITA), P.M.B. 5320, Ibadan, Nigeria.

DOSSIER

White yam and yellow yam are susceptible to diseases caused by the Yam Mosaic Virus (YMV) or similar viruses. Though widespread, YMV does not appear to cause much economic damage.

Cocoyams

There are two types of cocoyams, taro and tannia, which are representatives of two closely similar genera, *Colocasia* and *Xanthosoma*, respectively. They have received even less attention from research workers than other root and tuber crops. Cocoyams have few pest problems. The taro leafhopper (*Tarophagus proserpina*) has been reported on cocoyams in most South Pacific territories, Hawaii, Indonesia, Malaysia, Philippines, Ryukyu Island and Queensland. In Hawaii, satisfactory control reducing injury to an unimportant level was achieved through biological control. The biological control agent was a mirid (*Cyrtorhinus fulvus*) introduced in 1938.

A few diseases do cause economic damage. Indeed, the cocoyam root rot complex (caused principally by *Pythium myriostylum*) is the greatest limiting factor in the production of tannia (*Xanthosoma*) in Africa. This disease is so damaging in the high rainfall areas of Cameroon that tannia cultivation is being abandoned and are being replaced with *Colocasia* cultivars that are resistant to the disease. Root and corm rots of cocoyams are also a problem in the Pacific.

A leaf blight disease, caused by *Phytophthora colocasiae*, is distributed worldwide and occurs on both types of cocoyams. A virus disease, dasheen mosaic virus, has been recorded on cocoyams in many countries. Scientists at the International Institute of Tropical Agriculture (IITA) have studied the virus in Nigeria and observed that it is not important on farmers' fields.

Major control programmes

Cassava diseases. As already stated, the two most important diseases of cassava are African cassava mosaic disease and cassava bacterial blight. The staff of the Root and Tuber Improvement Programme of IITA, building on earlier work by others, have bred cassava varieties resistant to both diseases. Fortunately, the correlation between resistance to the two diseases is positive; selection for resistance to one disease generally results in resistance to the other.

Cassava families from Latin America and India, which were susceptible to mosaic disease, bacterial blight, and lodging but had other desirable agronomic traits, were crossed with the IITA resistant sources and selections were subsequently made. Through many cycles of crossing and selecting, indigenous varieties have been substantially improved for various desirable traits while maintaining resistance.

Improved cassava cultivars resistant



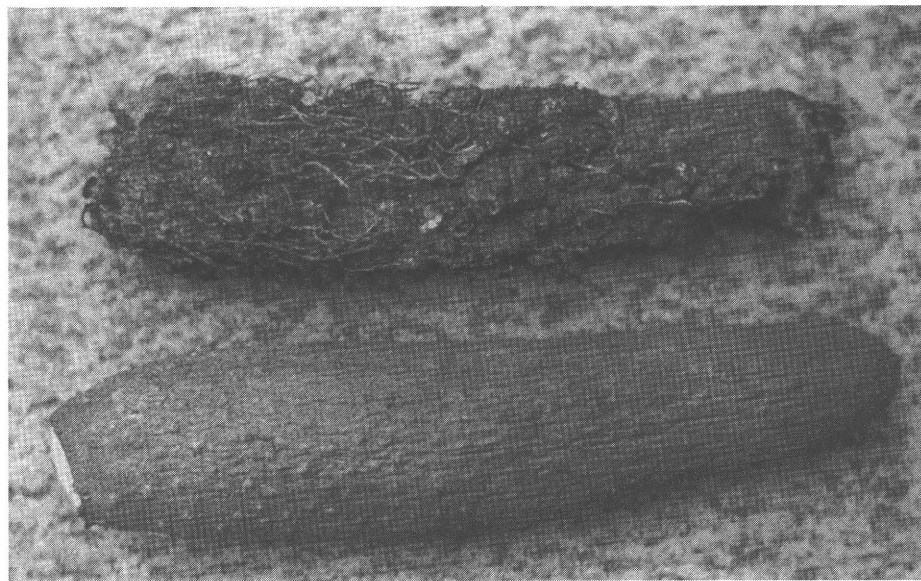
IITA

The sweet potato weevil, the most damaging of sweet potato pests

to African cassava mosaic disease and cassava bacterial blight out-yield local varieties by factors of 2 to 18 times. So striking is the impact of this IITA programme at the farm level that its leader, Dr S.K. Hahn, a Korean, on the recommendation of beneficiary rural farmers, was made a honorary chief in the Yoruba town of Ikire, Nigeria. Chief Hahn, as many colleagues prefer to address him, also received the Guinness Award for Scientific Achievement in 1982.

About a dozen high-yielding and resistant varieties derived from IITA tissue culture and breeder seed materials have been officially released in Burundi, Cameroon, Gabon, Ghana, Liberia, Nigeria, Rwanda, Seychelles, Sierra Leone, Sudan, and Tanzania. These varieties have also spread from Nigeria to the neighbouring Republic of Benin, from Gabon to Congo, Equatorial Guinea, and also Sao Tome, by farmer-to-farmer distribution. Over 31 countries in Africa have received improved cassava from IITA in tissue culture form for multiplication and distribution within their borders.

Varietal resistance against cassava pests. The highly successful method of varietal resistance used to combat cassava diseases is one of the two-pronged approach being adopted against the two most important pests of cassava in Africa. These pests—green spider mites (*Mononychellus spp.*) and the cassava mealybug (*Phenacoccus manihoti*)—were accidentally introduced into Africa from Latin America. Cassava green spider mites were first identified in Uganda in 1971, and the cassava mealybug was reported in Zaïre by an IITA research team in 1973. They have spread rapidly and are now found in over 60% of



IITA

Top, yam tuber shows nematode damage, while the one below shows a normal tuber. Note the bumpy, knobby tuber surface which renders it unmarketable

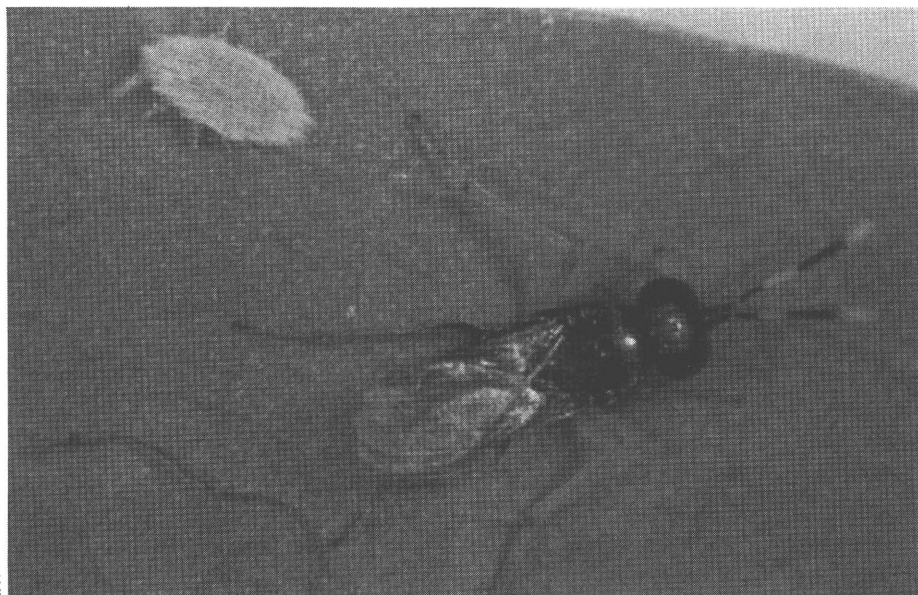
the cassava-growing areas of Africa. It is estimated that these two pests alone cause economic losses of nearly US \$2 billion yearly.

Sources of plant resistance to the two pests have been identified and are being incorporated into susceptible but high-yielding and disease-resistant varieties. It appears that pubescence (the presence of hair-like structures) on young apical leaves is an important factor responsible for resistance to both pests. Another form of resistance to the mealybug has been found by scientists in the Zaïre National Cassava Programme, a programme with which IITA is associated. It is antibiosis, a defensive mechanism of plants against their pests through adverse influence on growth, survival or reproduction of the insects by means of chemical or morphological factors.

Biological control of cassava pests

In addition to breeding for resistance against green spider mites and the cassava mealybug, a major biological control project is being pursued by IITA. It is a highly collaborative project involving Centro Internacional de Agricultura Tropical (CIAT), the Commonwealth Institute of Biological Control (CIBC), the Organisation for African Unity/Scientific, Technical and Research Commission as well as laboratories and individuals in Europe and the United States.

The basic strategy is to search for predators and parasitoids in Latin America, the native land of these pests. (Predators are insects that attack the pest; they are the lions, wolves and sharks of the insect world. Parasitoids live in or on the insect pest.) Any predators or parasitoids found are sent to CIBC for rigorous investigations to ensure that they cannot possibly constitute any problem whatsoever if introduced into Africa. After such certification, and with the approval of the Nigerian Plant Quarantine Service, and the Inter-African Phytosanitary Council, they are sent to IITA in Ibadan, Nigeria, where they are reared in large masses using sophisticated insect rearing techniques. Their suitability as predators or parasitoids are studied closely in the laboratory and in the field. Finally, successful predators and parasites are released from the ground



A parasitic wasp (in the foreground), *Epidinocarsis lopezi*, has been released and established in 13 countries to control the mealybug (top left hand in the picture)

or aerially utilising an aircraft specially designed and equipped for the purpose.

Among the biological control agents introduced so far for the control of the cassava mealybug is a parasitic wasp, *Epidinocarsis lopezi*, that has been released and established in over 650 000 square kilometers of cassava growing areas of Africa. The countries in which releases have been made include Congo, the Gambia, Ghana, Guinea-Bissau, Côte d'Ivoire, Malawi, Nigeria, Rwanda, Senegal, Sierra Leone, Togo, Zaïre and Zambia. However, one would not rely only on one parasitoid; the aim is to establish a complex of enemy species that will eventually provide lasting, permanent and economical control of the mealybug across the cassava belt.

Reduction in the number of cassava mealybugs to below the injury level has been observed in every zone colonised by the parasitic wasp. In those zones, mealybugs now reach peak population densities of only 10 to 20 per terminal cassava shoot compared with a peak population of more than 1 500 per shoot before the introduction of the wasp.

Work on the control of cassava green mites is still at an early stage. Three phytoseiid mite predators have been introduced from South America and are in culture at IITA. They are yet to be established permanently in the field. More are being sought.

In Latin America, biological control is also being used against the cassava hornworm (*Erinnyis ello*). Research at CIAT has shown that hornworms can be controlled by introducing two wasps, *Polistes* spp. and *Trichogramma* spp. into cassava fields. Farmers in the Caicedonia region of Colombia are reported to be using this system of biological control. This form of control has reduced hornworm outbreaks and decreased the severity of damage. Cassava growers maintain populations of *Polistes* wasps by placing the wasps' nests in the cassava fields in small structures covered with palm fronds. The wasps attack hornworm larvae. *Trichogramma* wasps are commercially available and may be purchased and released in cassava fields to parasitise the eggs of hornworms.

Control of sweet potato pests and diseases

Varietal resistance is the primary approach being used at IITA and in other major sweet potato improvement programmes around the world to control weevils and the sweet potato virus complex. At IITA, many different varieties (germplasm) of sweet potato have been assembled from sites in Africa, Asia and the Americas. This collection has been evaluated for resistance to weevils, the sweet potato virus complex as well as desirable agronomic characteristics (such as yield and factors related to consumer accep-

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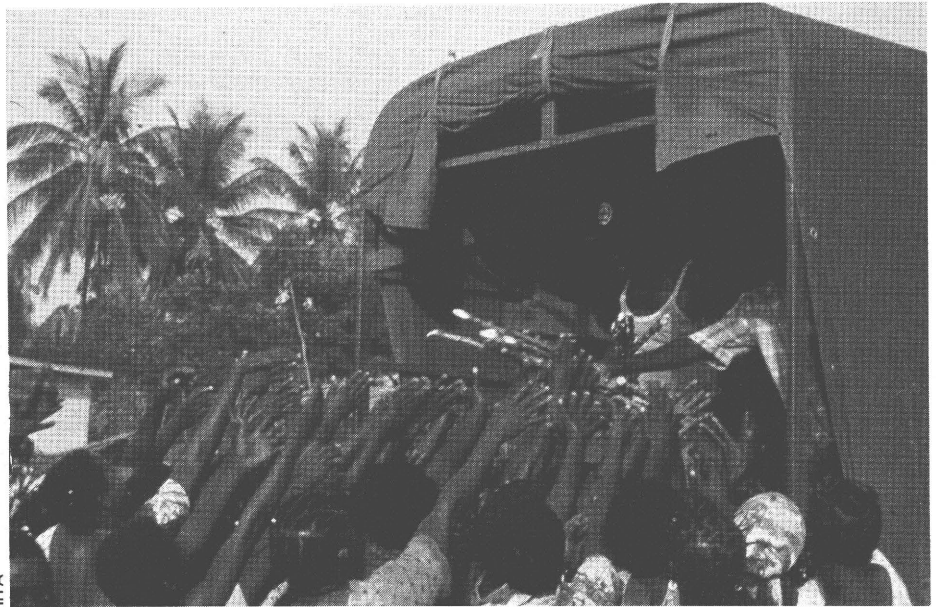
tance). Sources of resistance to the pest and the disease have been identified. These sources have been incorporated into breeding populations. The populations are being continuously improved through cyclic recombination and selection.

Seeds from the improved populations have been distributed to many national programmes for selection and evaluation. Moreover, through tissue culture and virus indexing (a process which ensures production of disease-free plantlets) many improved clones have been sent to 30 countries in Africa for further testing. As a result, local researchers have selected promising clones and released some to farmers as recommended varieties.

Among the new varieties are some, such as the clones TIS 2498 and TIS 9265, that combine high yields with resistance to both the sweet potato virus complex and weevils. Many new varieties yield from 20 to over 40 tons per hectare in 140 days without fertilisers. Yields of traditional varieties under comparable conditions in Africa are about 6 tons per hectare. But there is still a need to improve the level of resistance to weevils in high-yielding and virus-resistant varieties.

Weevil damage to sweet potatoes occurs not only in the field but also in storage. Effective methods of control in storage tried at IITA include:

1) Storage of undamaged tubers in underground pits after they have been



Distribution of improved cassava stem cuttings in Nigeria by IITA. "Improved cassava cultivars resistant to African cassava mosaic disease and cassava bacterial blight out-yield local varieties by factors of 2 to 18 times"

cured by leaving them in the open tropical weather for about three days following harvest;

2) Immersion of infested tubers in tap water for about 24 hours; this kills all developmental stages of the weevil. The tubers are then laid in the open to dry the wet surfaces before storage; and,

3) Use of high temperatures to get rid of the weevils before storage. When weevils were buried at different soil depths, those within the first 5 cm depth died after three days (afternoon temperatures reached 42°C).

Cultural methods of control of sweet potato weevils in the field have also been investigated at IITA. Early planting and harvesting are beneficial because the weevils are dry season pests and their populations build up during that period of the year. Furthermore, the weevils locate and damage the crop by following cracks in the soil around growing tubers. Earthing up the plants or placing an additional layer of soil on the ridge (re-ridging) makes it difficult for the weevils to locate the tubers.

Root-knot nematodes (a class of tiny worms) are also a problem of sweet potatoes. About 400 accessions of sweet potato varieties have been screened for resistance to these nematodes (*Meloidogyne incognita* and *M. javanica*). Fifty-five varieties have shown resistance.

What is the impact of this sweet potato research? Varieties developed at IITA or derived from materials supplied by IITA are being grown as recommended varieties in 13 countries: Cameroon, Fiji, Gabon, Kenya, Liberia, Nigeria, Puerto Rico, Rwanda, Seychelles, Sierra Leone, Sudan, Trinidad, and the United States. In some of these countries, farmers' adoption of the varieties is widespread. In Sierra Leone, about 80% of the total sweet potato growing area is under one such variety named ROPOT 2. The adoption in Cameroon is similarly high. ○ S.M.L.



Damaged sweet potatoes

"Weevil damage to sweet potatoes occurs not only in the field but also in storage"

The pre-eminence of roots and tubers in the diets of the Caribbean peoples

by Nigel DURRANT (*)

*Historically, root and tuber crops have occupied a pre-eminent place as staple food items among Caribbean peoples. Today, the major root and tuber crops cultivated are yam (*dioscorea spp.*), sweet potato (*ipomoea batatas*), cassava (*manihot esculenta*), dasheen and eddoe (*colocasia esculenta*) and tannia (*xanthosoma sagittifolium*). Potatoes (*solanum tuberosum*)—called “Irish” or white potatoes in the Caribbean—feature highly in consumption patterns but significant production is confined to Jamaica. Attempts at cultivating potatoes have also been made in Dominica, Guyana and Montserrat, with varying levels of success. Moreover, production in all cases is dependent on costly imported planting material.*

Despite their widespread production and consumption within the region, the importance of root crops varies markedly from country to country. (See Table). The major CARICOM⁽¹⁾ producer, Jamaica, accounted for 212 822 tonnes or 70% of the annual average production for the 1980-83 period with other significant producers being Dominica, Guyana, Barbados, Trinidad and Tobago, and St. Vincent and the Grenadines who together accounted for 81 710 tonnes or 27% of the total.

Per capita production of root crops also varies quite considerably on a country basis. Although the overall regional average was 58.3 kg less than 1.5 kg for The Bahamas and Belize to over 100 kg for Dominica and Jamaica.

Imports of potatoes into the region were 44 560 tonnes and it is estimated that these accounted for 12% of total consumption.

Generally, production and consumption of indigenous root crops have been declining over the last two decades and this trend has been ascribed to a wide variety of factors.

(*) Of CARICOM Secretariat.

(1) The Caribbean Community and Common Market (CARICOM) member countries are Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Montserrat, Saint Christopher and Nevis, Saint Lucia, St. Vincent and the Grenadines and Trinidad and Tobago. It should be noted that The Bahamas, though a member of the Community, is not part of the Common Market.

Among these factors, the most important would seem to relate to the limited forms in which root crops may be consumed—given the current low levels of processing technology. In addition, there is the relative inconvenience involved in the preparation of these foods, when compared with other high-energy staples such as rice and wheat flour. The storage life of root crops is also fairly limited and this has contributed to their declining popularity.

On the production side, root crop production is a fairly high-cost labour intensive activity. Agronomic research related to root crops has been fairly limited over the years—especially when compared with the attention which has been given to the major export crops such as sugar cane and bananas. Thus, serious pest and disease problems, the use of unimproved varieties and low technology production methods tend to be features of this subsector.

Root crops in relation to other high-energy staples

Any examination of root crops as food items must take into account the importance of other high-energy foods. Other such foods which are produced in the region are plantains, bananas, breadfruit and rice. The banana is not widely regarded as a basic food item except (as in Jamaica), where it is cooked green and con-

sumed as a vegetable. Plantain consumption is much more widespread, while the breadfruit is subject to varying degrees of acceptability. Rice, on the other hand, is included in the diets of all Caribbean countries.

It is the second most important agricultural product in Guyana (after sugar cane) while smaller amounts are produced in Belize, Jamaica and Trinidad and Tobago. Regional rice production, however, constitutes only about 25% of consumption and in recent years, the value of imports into the region has approached EC \$ 112 479 000 (US \$ 41 617 230).

Maize, generally in the form of cornmeal, is another important high-energy staple. This product takes on much greater importance in Belize than it does in the rest of the region. Average annual maize production for the 1980-1984 period was 23 612 tonnes of which Belize produced 19 051 tonnes or 80%. Imports into the region for the same period amounted to 702 000 tonnes or 97% of total consumption.

It should be noted, however, that a large portion of imported maize finds its way into animal feed production.

The other major high-energy staple is wheat flour, which has attained the status somewhat of a “super food”. Average annual imports of wheat and wheat flour were about 13 million tonnes for the 1981-1984 period and in 1984 were valued at EC \$ 223 million (US \$ 83 million). Regional governments have more or less resigned themselves to the fact that wheat flour will continue to be a basic part of the Caribbean diet.

Production systems

Most Caribbean root crop producers are small holders who farm on less than one hectare of land. Generally, they operate close to subsistence on marginal land (often on steep slopes) engage in multicrop production and have limited access to necessary inputs. Costs of production are relatively high and this, combined with the lower prices of competing high-carbohydrate foods, has served to limit the market for these products.

One of the exceptions to the above is the case of Barbados, which probably has the most technologically ad-

DOSSIER

vanced root crop production system in the region. This fairly large-scale cultivation of yams and sweet potatoes is carried out on "thrown-out" lands which have undergone primary and secondary tillage immediately prior to commencing the new planting of sugar cane.

The fact that the plantations have been involved in root crop production has meant the introduction of innovations such as mechanical harvesting aids. It has also been observed that small farmers have been adopting many of the agronomic practices of the plantations. Paradoxically, one of the factors contributing to the decline in root crop production in Barbados over the last decade has been the reduced acreage now being devoted to sugar cane.

some of the negative features of the traditional distribution system by setting up agricultural marketing corporations. These have had the effect of guaranteeing a more stable level of farm income, increasing the flow of market information and improving the availability of appropriate transportation. The history of these marketing corporations has, however, been a chequered one with many of them experiencing serious financial problems resulting in a curtailment of services which farmers had come to depend upon.

At the CARICOM level, trade in root crops is minimal. There have, however, been fairly brisk exports from Dominica and St. Vincent and the Grenadines to Trinidad and Tobago (and to some extent, Barbados)

of licensing requirements and other bureaucratic measures which have served in the past to limit the trade.

Another improvement in regional marketing has come with the inception of the Caribbean Agricultural Trading Company (CATCO) a CARICOM enterprise with private sector participation. CATCO, after a prolonged starting-up phase, has begun operations both on the CARICOM and external markets with yams and sweet potatoes being the main root crops traded.

Some countries, notably Dominica, Jamaica and St. Vincent and the Grenadines have been placing emphasis on "non traditional" exports mainly to "ethnic" markets in North America and Europe. Root crops feature significantly in this drive.

CARICOM: Production & consumption of root crops — Annual averages 1981-1984

	Production (1980-1983) (tonnes)	Imports (tonnes)	Exports (tonnes)	Consumption (tonnes)	Per capita production (kg)	Per capita consumption (kg)	Population (1983) (000)
Antigua & Barbuda	5 974	963	842	6 095	77.6	79.2	77
Bahamas	254	4 266	—	4 520	1.1	19.9	227
Barbados	14 083	9 066	708	22 441	57.0	90.9	247
Belize	200	1 711	—	1 911	1.3	12.1	158
Dominica	23 861	177	506	23 532	318.1	313.8	75
Grenada	1 218	504	2	1 720	11.4	16.1	107
Guyana	20 526	2	2	20 526	25.8	25.8	797
Jamaica	212 822	333	6 999	206 156	101.8	98.6	2 091
Montserrat	200	70	—	270	16.7	18.8	44
St. Christopher & Nevis	504	402	80	826	11.5	22.5	12
Saint Lucia	1 538	664	50	2 152	12.2	17.1	126
St. Vincent & the Grenadines	9 821	669	8 119	2 371	76.7	18.5	128
Trinidad & Tobago	13 419	55 600	—	69 019	11.9	61.1	1 129
All countries	304 420	74 427	17 308	361 539	58.3	69.3	5 218

Marketing

The marketing system for root crops has also proven to be a limiting factor in the development of these products. As is the case with the production system, the traditional marketing system is characterised by large numbers of small traders who are able to assemble equally small quantities of the product. Handling costs are therefore high and much of the benefit of increased prices fails to reach the producer. In addition, the lack of proper storage and packing facilities results in wastage, periodic gluts and price fluctuations.

Since the mid-1960s, CARICOM Governments have sought to address

over the years. The main products in this trade are yams, cassava, sweet potatoes and dasheen and these have been moved traditionally by itinerant small vessel operators.

Since the inception of CARICOM (and its predecessor, the Caribbean Free Trade Area — CARIFTA) special arrangements have been made to promote the intra-regional trade in fruit and vegetables (including root crops) by way of negotiations between Member Countries for the disposal of surpluses. Recently, CARICOM tariffs have been increased on a wide range of items (including potatoes and rice) and an understanding has been reached that there will be unfettered free intra-regional trade—free that is,

Consumption and processing

Available figures indicate that the overall consumption of indigenous root and tuber crops has been declining. Generally, it has been observed that, with fairly rapid urbanisation in the last two decades, consumers have been shifting towards foods which involve less preparation. This has been compounded by the fact that there have been very few innovations in the processing of root crops for domestic or industrial purposes.

There has also been a marked consumer preference for potatoes—the majority of which are imported from outside the region. The reasons for this preference are not altogether clear

but it is known that some consumers regard potatoes as being easier to prepare and being more versatile than the indigenous root crops which are their closest substitutes. On the other hand, much of this has to do with tradition and certainly, there is a degree of "snob appeal" attached to the consumption of potatoes.

Traditional methods of consumption

Traditionally, in the Caribbean most root crops are not subject to processing, (that is, chipping, grating, pounding, fermentation, etc.) before final consumption takes place. The major exception is cassava which is made into "cassava bread" (cazabe — also called "banny" in Jamaica). Of all CARICOM countries, it is in Guyana (which has a large Amerindian population) that this process is most developed. A major by-product is cassareep which is the concentrate of juice pressed out of the tubers during the production of flour and which serves as a flavouring and preservative for meats.

There have in the past been some attempts at increasing the scale of production and processing of some root crops but the experience has been far from encouraging. One noteworthy example was the production of "instant yam" in Barbados during the late 1960s. This involved the production of a dehydrated flaked product which could be prepared simply by adding hot water and was therefore a good substitute for mashed potatoes. The product was produced commercially and sold both on regional and international markets and achieved a high degree of consumer acceptability.

However, the enterprise encountered serious problems with the availability of raw materials and caused a cessation of production.

In the late 1970s, in Guyana and Jamaica, attempts were made to process flour from cassava. In both cases, cassava flour was also blended with wheat flour (up to about 15%) as a means of reducing foreign exchange expenditure on wheat imports. Serious problems developed in both cases. In Jamaica, because of the limited capacity of the cassava mill, there was much deterioration of harvested raw materi-

al. In addition, the necessary specifications for blending (for example, grain size, moisture content, etc.) could not be met on a consistent basis. In Guyana, where three cassava mills were set up, the major problem had to do with the low prices which were offered to farmers. Paradoxically, it was Guyana's policy of banning the importation of wheat which reduced the scope for cassava flour production. The mills have since ceased operation.

More recent (and hopefully more successful) attempts have been made in Trinidad and Tobago to manufacture various processed products from cassava.

Research

Research in root crop production has been fairly limited over the years—at least in comparison to work carried out on the major export crops (sugar and bananas, cocoa and coffee). The two major regional agricultural institutions, namely, the Caribbean Agricultural Research and Development Institute (CARDI) and the Faculty of Agriculture of the University of the West Indies (UWI)—both headquartered in Trinidad and Tobago—have been conducting various types of investigations and development activities on the major root crops.

UWI maintains germplasm collections of sweet potato, yams, cassava and tannia and conducts comprehensive multidisciplinary studies on these crops. In addition, work has been done on the development of improved soil preparation and planting techniques, harvesting equipment as well as processing technology. The latter has involved, among other things, the development of technology for the production of instant yam flakes and sweet potato flour for use in bread making and breakfast foods.

CARDI conducts agronomic research at its headquarters and in member countries. In many of the smaller countries, CARDI is the only body which conducts, or has the capacity to carry out, research in root crops. Some of CARDI's achievements in this area include the propagation of virus tested yams in Barbados; the development of aroid production (tannia, dasheen and eddoe) in the Eastern Caribbean; and the rapid

propagation of potato planting material in Montserrat.

Work is also being done on the development of cassava for animal feed. In Barbados, for example, varieties are being evaluated for the suitability of making dried cassava chips which are used in the feed mixing mills, while in Jamaica and Trinidad and Tobago, farmers have been making silage from chopped cassava for feeding beef cattle and pigs.

To the extent that national agricultural research institutions engage in root crop research, much needs to be done in developing a coordinated thrust in this area. In recognition of this need, there has been an initiative by the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) to develop a research and development network which would involve CARICOM countries and other members of the Caribbean Development and Cooperation Committee (CDCC). This, among other things, would facilitate greater contact between Caribbean researchers and specialised institutions such as the International Centre for Tropical Agriculture (CIAT), the International Potato Centre (CIP) and the International Institute for Tropical Agriculture (IITA).

The future of root crop production in the CARICOM region would thus seem to depend on the development of improved production and processing technology.

Current government policies throughout the region emphasise the diversification of the agricultural sector away from traditional exports, the development of non-traditional exports (particularly fruit and vegetables) as well as the promotion of indigenous foods. In this respect, therefore, root crops are receiving more official attention than previously was the case.

However, in the absence of higher production, efficiencies, product development and lower prices to the consumer, there is a limited extent to which root crop consumption can be increased at the expense of other high-energy staples. Similarly, export development of root crops is limited by these very factors as well as the need to improve harvest and post harvest techniques and the storage life of the product. ○ N.D.

Taro varieties and their uses in the Pacific Island States

by Emil ADAMS(*)

The term root crop is generally used for underground storage organs that are either roots or stems by origin. In the Pacific, roots and tubers are the principal starchy food crops grown. A wide range of root and tuber crops is consumed by some 90% of the indigenous people. In twelve island countries of the Pacific Basin⁽¹⁾, 20 000 ha are under root crops, about 10% of the cultivated land area. Besides being the principal food item, root crops are also of great significance in ceremonial activities.

The Pacific Islands overall annual production of root crops stands at 180 000 tonnes. According to FAO's Food Balance Sheet rootcrop consumption per caput per year ranged from 154 kg for Vanuatu to 339 kg for Tonga. In terms of the contribution to total exports, rootcrops account for 5% in Tonga and 10% in Western Samoa. Fiji, Niue and Cook Islands also export root crops in lesser amounts.

This article will highlight the significance of the varieties: aroids, (*Colocasia esculenta*), tannia (*Xanthosoma* spp), alopecia (*Alocasia macrorrhiza*), and swamp taro (*Cyrtosperma chamissonis*). In terms of research these taros have somewhat been neglected by the scientific world. Here in the Pacific there is a growing awareness of the need for higher yielding varieties which are resistant to the major pests and diseases. Attempts are, as a result, being made now at breeding better varieties. The Islands have reached agreement to exchange germplasm of the major root crops for breeding purposes and also to share their research

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(1) These are the island nations, situated in the waterlocked archipelagoes of the Pacific Basin. They can be grouped into three categories according to race. The Polynesian stock of light coloured skin and this includes the Samoan group, Tokelau, Tuvalu, Tonga, Rarotonga, Niue, Tahiti and Hawaii. The Melanesian stock with dark skin and frizzy hair which includes Fiji, Papua New Guinea, Vanuatu, New Caledonia and the Solomon Islands. The Micronesian stock with dark skin but soft hair which includes the Federated States of Micronesia, Nauru, Kiribati, Guam, Ponape, Palau, Papua New Guinea which is the biggest of the islands with 461,639 sq km and Tokelau the smallest with 1000 ha of land.

(2) This differentiation may prove difficult to make in some situations because some varieties of colocasias also have hastate leaves although not many.

results. A similar agreement is also being sought between the Pacific and Asian countries.

Two major varieties *Colocasia* and *Xanthosoma* are grown as subsistence food crops. They are, however, increasingly becoming items of significant commercial value with exports to New Zealand, Hawaii, Australia and the United States where Pacific Islanders have emigrated to. Government policies of providing incentives to local industries that are import-substitution in nature have boosted research into these crops for industrial purposes. We will look into some of the traditional ways of preparing these root crops for consumption and the availability of rootcrop-based industries.

The Colocasia variety

There are many species of *Colocasia* but the one most commonly used for

food is *C. esculenta* or taro (as it is commonly called). *Esculenta* is a very variable species and many forms and varieties are grown throughout the Pacific. *Colocasia* commonly has peltate leaves, different from *Xanthosoma* hastate leaves⁽²⁾.

Taro is the main starchy food crop grown and eaten in the Samoan group, Niue, Rarotonga, Vanuatu and the Solomons. It is one of Western Samoa's second largest foreign exchange earners. Research into marketable yield and taste preference have resulted in identifying a few varieties found in each island with the desirable combination of high yields and good quality. In Western Samoa there are 14 varieties. The main ones grown for consumption and export are "Niue", "Manua" and "Uli". These varieties appeal to consumers; the corms are of the correct size for cooking; they are high yielders with very good taste. In Micronesia there are about 20 to 30 varieties. Here the taro is mainly preferred because of its leaves which is also used for food (one or two young tender leaves around the center of leaf canopy). The traditional food prepared from it is known as 'palusami' or 'luau'. It is prepared by pouring coconut cream into a hollow, shaped with the hands, using the taro leaves. This is then wrapped in banana and breadfruit leaves to maintain the spherical shape. It is then baked in the traditional earth oven. There are variations adopted to this basic method of preparation. In Tonga and Fiji, for example,



Transporting taros to the market in Western Samoa
Root crops account for 10% of Western Samoan exports

instead of pouring coconut cream, they place sliced pork meat or tinned meat inside. Often the traditional earth oven is done away with by cooking in a pot over a fire, leaving out the 'wrappers' of banana and breadfruit leaves. In Fiji, they also use the young stems as fresh vegetables. Another very important traditional food prepared with taro is the "taisi" which is presented chiefly at village ceremonies: two or three taro corms are sliced into quarter size portions which are then wrapped in banana and breadfruit leaves and baked in the earth oven. Traditionally, this food and "fine mats" are presented by villagers to visitors in the welcoming ceremony of "usa". The welcoming ceremony is basic to the Pacific group of islands.

There are variations where yams and other foodstuffs appropriate to each culture and tradition are used. Taro can also be prepared into a sweet dessert-like delicacy known in the Samoan group as 'faausi', in Fiji as 'vakalolo' and in Tonga as 'faikakai'. It is prepared by scraping taro, then cutting it up into bite-size squares, cooking it and then pouring sweet sauce made of coconut cream and melted sugar over it. Research into using taro starch and taro flour as base for baby foods has been moderately successful. The potential of these two taro-based products remains to be explored fully for industrial purposes. However, on the upswing is the processing of taro to make snack food such as taro chips. Tests have shown that locally produced taro chips are more nutritious than the imported ones based on rice and flour.

Xanthosoma

Xanthosoma sagittifolium (L) Schott, has many species of which tannia is the most popular. It closely resembles taro and is often confused with taro. As mentioned above, *Xanthosoma* leaves are hastate, and this is the major characteristic which differentiates it from *Colocasia*. They also appear to be rather coarse and large. Their leaves are more arrow-shaped, with sharp tips and deep, wide basal lobes, and a prominent marginal vein. They are larger than *Colocasia* and grow well in well-drained soils, unlike *Colocasia* which can withstand continuous flooding. Tannia constitutes the

main starchy food item in the islands of Tonga, Fiji, Vanuatu, Papua New Guinea. It is seldom used as an item of food in Niue, Rarotonga and Samoa. Tannia is called 'taro palagi' in Samoa, 'taro futuna' in Tonga, 'taloni-tanna' in Fiji, 'taro Fiji' in Vanuatu, "Tokelau" in the Solomons.

Xanthosoma, introduced only in the last century, is spreading rapidly and widely because of its high yield. It is resistant to diseases and drought. This makes it popular and more profitable than *Colocasia*.

Alocasia

Alocasia macrorrhiza (L). Schott is the major species. These are large perennial herbs with long, elongated stems that are edible. The leaf blade points upward in a straight line with the main axis of the leaf stalk. This differentiates it from *Colocasia* and *Xanthosoma* both of whose leaves point downwards to form an angle with the axis of the leaf stalk. Plant height varies from 1 to 3 m with leaves over 1 m long. It is known as 'taamu' in Samoa, 'ape' in Hawaii, 'fia' in Vanuatu, 'mamala' in the Solomons. In the Polynesian group it is eaten during drought periods and as emergency food. Islanders harvest *Alocasia* when other starchy foods such taro, breadfruit, sweet potato are in short supply and in times of drought. Stems of this crop, which are starchy, develop above ground and it is these that are consumed. In Tonga, the *Alocasia* corm is socially and ceremonially important. The stem varies from 0.5 m to 1 m in length, and weighs 20 kg or more. *Alocasia* corms are more acrid than taro's.

Regarded as drought food, it is planted and then left unattended, usually to mark borders of family land or as an intercrop with cocoa or coconuts. Sometimes they are left for four years or more. *Alocasia* has a stringy texture and is very acrid if not properly prepared before consuming. It has one advantage: a fully grown plant can feed a family of ten.

Cyrtosperma

Cyrtosperma Chamissonis (Schott) Merr. are important in the coral islands. It is the main starchy food crop in the Micronesian group. Specially prepared pits of organic material

mixed with coral sand provide a suitable soil mixture for growing them. There are many varieties distinguishable by the shape, the rate of maturity and colour of the base of the leaves. The crop life-span is usually 4 years or so but can go on for 10 to 15 years with stems weighing 40 to 80 kg if left to grow that old. Like *Colocasia* it can withstand high water tables, damage from storm and high salinity.

Cyrtosperma is almost non-existent in most Pacific islands these days. One can only find a few scattered patches in most Polynesian Islands. Some of its local names in the Pacific are giant swamp taro, pulaka, babai, pula'a. It is most important on atolls and low coralline islands lacking good natural resources like Kiribati, Tuvalu, Tokelau, Papua New Guinea, Solomon Islands and Micronesia. Like *Alocasia* it is cultivated as an emergency reserve food in Cook Islands, in the river deltas in Fiji with poorly drained conditions, high island freshwater swamps of Papua New Guinea and coastal swamps of the Solomon Islands. They are also found in wild stands in Western Samoa.

Cassava, sweet potato and yams

These three root crops are not of major importance in the Pacific. In Fiji and Tonga, however, cassava constitutes a major portion of the daily diets of the people. This is followed closely by yams, especially, in Tonga. Yams are also very important in ceremonial occasions in Papua New Guinea, Vanuatu and Solomons. Sweet potato plays an important role in the daily diets of most Melanesians.

Prospects

The taro family crops will continue to be the most useful root crops in the Pacific. This is as much a result of taste preference as their significant role in cultural activities. *Alocasia* and *Cyrtosperma* will remain the main staple of low coralline islands and atolls as they are hardy and can withstand extreme climatic conditions. With the increase in migration of Pacific islanders to Pacific-rim developed countries, there will be the inevitable export of the taros to these countries to cope with the demand from the Pacific islanders there. ○ E.A.

What the CTA is doing in the area of roots and fibres

by Robert DELLERE (*)

The CTA is currently organising a conference on African cassava mosaic control, which will be held in Yamoussoukro (Côte d'Ivoire) in May 1987. The conference is being run in conjunction with ORSTOM, with the active involvement of the FAO and the IITA, and it will be attended by national representatives from the African cassava producing countries, scientists working on African cassava mosaic and people from international organisations and research institutes working in Africa. Although the main idea is to discuss leaf mosaic, bacteriosis will also be on the agenda because there are certain similarities in the way the two diseases spread and an apparent link in the genes governing resistance.

The meeting will begin by looking at the African cassava mosaic situation in the countries affected by it. As a preamble to this, a specialist will describe the cassava situation and national reports will then be summarised during the session. There will also be a report on bacteriosis. This will be followed by an outline of scientific knowledge on leaf mosaic and a list of the available plant stock tolerant to it. This will be under five headings—the virus, the vector, the plant, epidemiology and selection. Lastly, methods and research and action programmes aimed at controlling the disease will be outlined. In particular, strategies for plant health and selection will be dealt with and action programmes and suggested projects will be listed.

Still in the cassava area, the CTA is involved in setting up a research network in Africa. This is an initiative taken by DG XII (Science, Research and Development of the EEC Commission) as part of the science and technology for development drive. The idea is to coordinate research through a network of exchange and scientific cooperation. The CTA has agreed to help disseminate the information and is ready to cooperate with the scientific bodies (particularly the IITA) which are planning to circulate an information bulletin.

The CTA is also active in the field of publications. It had the report of the AVRDC (Asian Vegetable Research and Development Centre) 1982

(*) Of the technical division, Technical Centre for Agricultural and Rural Cooperation.

conference on sweet potatoes translated from English into French, for example. This meeting is the only one ever to have been held on the subject and the papers presented in the course of it are still very much up-to-date. Every aspect of sweet potato research was covered—germplasm collection, the distribution of sound stock produced from tissue cultures, sterility and improvements (resistance to pests and disease), multiplication, inclusion in rotation systems, conservation, storage and the improvement of product preparation technology with a view to wider use. The CTA has decided to help produce and distribute this work. Note that the Cultural Agency for Technical Cooperation (ACCT) has said it would be interested in participating too. The publication is due to appear in 1987.

The CTA has also brought out a technical document, in French and in English, on tissue culture and the rapid multiplication of young potato plants. This paper also discusses virus detection techniques (ELISA—the immuno-enzyme test)—i.e. the methods which the IPC (International Potato Centre) developed in Europe and in Peru for application in a developing country (the Philippines in this case). This is available from the CTA.

Lastly, the CTA is about to bring out a document on the influence of weeds on taro crops in Western Samoa and on the biology of seed germination in the most common of them. ○
R.D.

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THE ARTS

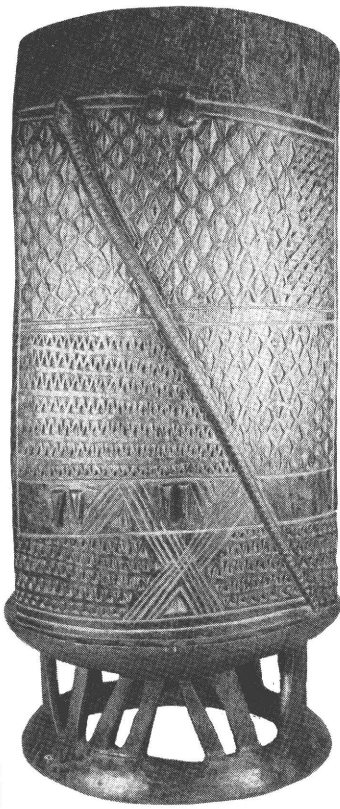
Tabwa art

An exhibition of Tabwa art, and sculpture particularly, was held at the Royal Museum of Africa in Tervuren, in Belgium, in October and November 1986. It followed two other exhibitions of substantially the same exhibits in the USA, in Washington from January to March 1986 and Ann Arbor, Michigan, from April to August. It was an opportunity for visitors to see some aspects of what was Tabwa culture until about 50 years ago. Since then, the Tabwa's cultural expression has often taken forms other than sculpture, but their beliefs are still the same and they continue to inspire creativity in such things as art and craft, or dance and song.

The Tabwa are a small bantu tribe of about 200 000 people living (mainly off agriculture — cassava, bananas, vegetables and fish) south-west of Lake Tanganyika, i.e. spread between Zaire and Zambia. Their region, closed in a zone of high plateaux, is, in spite of the hilly ground, a kind of cross-roads where waves of migrants and invaders, and countless merchants and slave traders have passed.

The Tabwa are a warlike and individualistic people who live in little villages led by local chiefs. They have never been ruled by one king, but their very varied culture has absorbed things from the peoples with whom they have come into contact—decorated thrones, for example, and their use of cross-shaped scarification, both inspired by Nyamwezi (Tanzania) art.

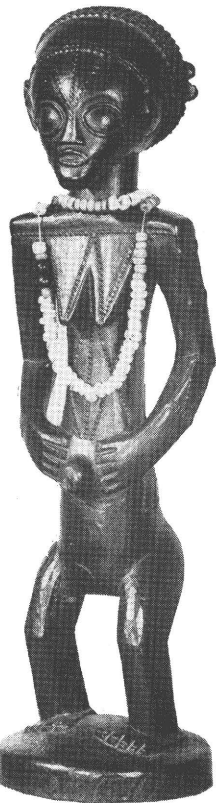
However, one feature of Tabwa art is that it has two distinct forms — the functional and the more formal. The former covers objects which evolve in the light of the needs and the situation, for didactic or therapeutic purposes, say. The latter covers objects of



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Typical balamwezi design on a high-backed (76 cm) chair carved from one block of wood. Note the snake figure

Standing woman (22 cm) with heavily tattooed face and body. The protruding navel may have contained magic ingredients. Note the triangular face



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Stylised figure with head of Janus. The schematic, lightly carved face merges into a receptacle for magic ingredients at the top of the head. Note the slender neck. Both parts of the cylindrical body contain a square cavity closed with cloth

Chief on the shoulders of a standing dignitary



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immutable form, linked to rites and ceremonies, for example. So, visitors to Tervuren saw figurines used by traditional healers (anthropomorphic wooden statuettes with a cavity, usually at the top of the head, in which the magic substances were placed) side by side with images of ancestors and personified earth spirits used for the ancestral cult.

The striking thing about functional Tabwa art is the large number of everyday articles that have refined decoration on them. There are kitchen tools (jars and spoons and so on), musical instruments (drums and lutes) and furniture (chairs, beds, wooden headrests and more) and there is jewellery (bracelets and head bands) and transport (pirogues). The motifs used to decorate them are often either human or geometric figures. Sometimes, some of these objects replaced the statuettes where people could not afford a sculpture or were unable to carve one themselves. A water bottle or a little basket can easily represent a particular spirit and were treated with all the respect due to it, secrecy particularly. This is still a very common practice.

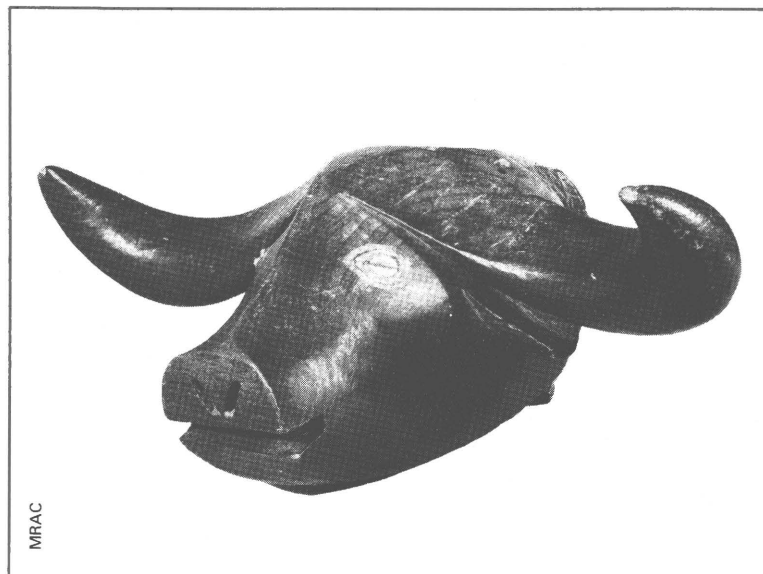
The everyday life of the Tabwa is imbued with relations with spirits and ancestors. They pray to them to be cured, to be protected from bad luck or helped in the daily round. Statuettes are placed by the sick to drive out disease or offer protection when the body is weak and vulnerable. They are placed at the entrance to the village to ward off enemies and lions and other fierce animals. They sit at the place of judgment to ensure that everyone tells the truth and avoids severe punishment by the ancestors. They are by the path to the smithy so nothing stops the fusion of iron ore, they are by the traps so the hunters find their quarry and, quite simply, they are among the food set to dry in the sun, to scare away the birds and the hens.

In other cases, statuettes are offensive rather than protective. They are responsible for stealing or kidnapping

someone or committing some other crime. When this is their purpose, they usually have a cavity or an antelope horn pointing downwards, full of magic ingredients.

Statuettes have offerings made to them. They are covered in kaolin (symbolising moonlight), their heads are covered with palm oil and they are given coloured beads and beer and the first water drawn after the new moon.

At the close of the 19th century, under the influence of exchanges with other civilisations, Tabwa culture evolved. Some local chiefs assumed more and more authority, introducing a kind of rigidity into the people's worship of them. Most of the known thrones date from this period.



Buffalo mask with cowrie eyes. The exact significance of these tough masks, which are often faithful reproductions of savannah buffalo, is not known

The natural environment, and Lake Tanganyika and the moon especially, are very much connected with Tabwa culture. The moon is the basis of Tabwa cosmogony and a common motif is the *balamwezi* design, a repetitive pattern of isosceles triangles placed so their bases are parallel, symbolising, apparently, the perpetual reappearance of the moon — something the Tabwa wanted so much that they performed a special ritual in the nights preceding the new moon. The *balamwezi* is continuity and union in the evolution of Tabwa art. It is found on the thrones and on the facial markings, on masks and on objects of all kinds.

Other pictures from nature are used in art too. Buffaloes are a common theme for masks, in particular, and we find snakes and lizards and twins (a large number of statuettes represent twins or heads of Janus and are still made today). The twins have a special, ambivalent place in Tabwa society, as they can be a threat, with their ability to “communicate without words”, but they can also be proof of exceptional fertility and thus a good sign. There are special ways of celebrating their birth and, if they die, there is a special ritual, particularly the fashioning of a statuette which is given a morsel of food from the hand of the mother for as long as the child would have depended on the family had he lived.

It is not easy to describe the main features of Tabwa sculpture, as the pieces vary enormously. Some anthropomorphic statues have triangular faces, other faces are oval. Some of them have round eyes and some almond-shaped. Some hair-dos are flat, others are tightly plaited and some have one long tress. There are scarifications almost everywhere. Often the bodies are very long, cylindrical sometimes, and the hands are usually placed on the abdomen. A common theme is one person

carrying another on his shoulders. Some people say this represents a chief whose dignity would not allow him to touch the earth so that he has to be carried by a slave (this recalls the Luba rites which have sometimes inspired Tabwa art). But others claim it is a blind man being carried by a sighted man, or a ritual object used for circumcision or marriage.

Look at the statues and the other works of art and the sculptures leave a different impression. Although the buffalo masks are highly realistic and powerful and vigorous, the representations of human figures and the geometrical shapes point to great refinement and make us regret that, in spite of all the research, we do not know more about Tabwa culture. ◦

M-H.B.

The Carthage Film Festival

JCC (Journées cinématographiques de Carthage, the Carthage Film Festival) had its 20th anniversary this year. It celebrated by holding its 11th festival—this is a two-yearly event in Tunis from 14-25 October. Its aim is to promote African and Arab films. It is not the only African festival of its kind, of course, as ever since the first African-designed, African-made film, Senegalese Ousmane Sembène's "Borom Sarret", scored a hit at the International Festival of Tours (France) in 1963 and was screened in Europe, there has been the annual International Cinema Panorama in Constantine in Algeria (the 1986 theme was "Pictures of Women"); FESPACO in Ouagadougou, Burkina Faso (alternate years to Carthage and next scheduled for 21-28 February 1987, when the theme will be "Cinema and cultural identity"), Mogpaafis, the Mogadishu Pan-African and Arab Film Symposium in Somalia (12-21 October 1987, with its first awards) or the African Film Week in Nairobi in Kenya.

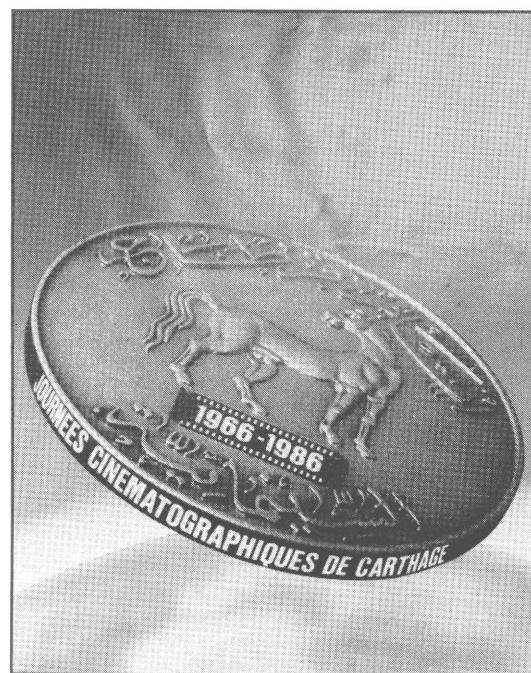
But JCC is different in that events are varied. There is an official competition for both short and long films

(there were 30 entries from African and Arab countries this year), an information section showing the Tunisian audience a range of films selected by the Steering Committee (more than 150 European, American and Asian works were screened this year) and a children's film section. There is also a look back at the winners of JCC's big award, the *Tanit d'or*, tributes (this year to the Algerian, Moroccan, Burkinabé, Syrian and Quebec cinema), an international film market and talks and lectures generating lively discussion between the professionals and their audience. This year, they discussed the new film distribution circuits, Arab film criticism, Latin American films, the cinema of emigration, films from the Maghreb and the elder generation of the Arab and African cinema.

It is remarkable that so many African films were screened at Carthage now that so many film-makers complain about the morose approach and the extreme difficulties facing African production. Films produced by the ACP countries alone included:

— full-length films: "Ironu" by François Sourou Okioh (Benin); "Visages de Femmes" by Désiré Ecaré and "Ablakon" by Gnoan M'Bala (Côte d'Ivoire); "N'tturudu" by Umban U'Kset (Guinea Bissau); "Il était une fois le Moyen-Ouest" by Benoît Rahampy (Madagascar); "La leçon des ordures" by Sheik Oumar Sissoko (Mali) and "Le temps des léopards" by Edravko Velimirovic (Mozambique);

— short and medium-length films: "L'autre école" by Nissi Joanny Traoré, "1^{er} séminaire international sur l'information" by Aminata Ouedraogo; "Propos sur le cinéma africain" by Gaston Kaboré; "L'interpellation de l'étrange" by Mohamadi Raymond Tinendre Beogo; "ANPE mon amour" by Georges San Kara; "Le Yatenga d'hier et d'aujourd'hui" and "Larmes d'un enfant" by Hamadou Ouedraogo (all from Burkina Faso); "Hommage" and "Fivre jaune—Taximan" by Jean-Marie Teno (Cameroon); "Le singe fou" by Henry Jozef Koumba and "Raphia" by Paul Mouketa (Gabon); "L'homme et l'environnement" by Gilbert-



Claude Minot and "Mercédès 230" by Alsény Tounkoura (Guinea); "Burkina cinéma" by Joseph Akouisonne (CAR); "David Mandessy Diop, poète de l'amour" by David Diop and "Baw-Naan" by Gaï Ramaka (Senegal); "La route", "L'eau" and "Caoutchouc Arabe" by Gadalla Gubara (Sudan) and "Le mariage de Mariamu" by Mangayoma Nggoge (Tanzania).

The international team of judges, chaired by Tahar Guiga (Tunisia), included Boujemaa Kareche (Algeria), Alfonso Gumucio Dagron (Bolivia), Jean-Pierre Dikongue-Pipa (Cameroon), Kémal El-Cheikh (Egypt), Jacques Baratier (France), Inoussa Ousseini (Niger), Mrs Safi Faye (Senegal), Mohamed Malas (Syria), Jiri Sequens (Czechoslovakia) and Mahmoud Ben Mahmoud (Tunisia).

It awarded the *Tanit d'or* for full-length films to the Tunisian work "L'homme de cendres" by Nouri Bouzid, the *Tanit d'argent* to the Algerian film "Le moulin de Monsieur Fabre" by Ahmed Kaled and the *Tanit de bronze* to the Malian film "La leçon des ordures" (see inset). The gold award for short films went to "Raphia" and the judges' special prize to "L'autre école". The award for the best new producer went to "Le singe fou". "La leçon des ordures" also took the ACCT (the cultural and technical cooperation agency) award and the Confédération Internationale des Cinémas d'Art et d'Essai's prize.

"Raphia" and "Le singe fou" were the first two films produced by CEN-ACI, the Gabonese national film centre, which announced it will also be producing full-length films. o M-H.B.

"La leçon des ordures" (Nyamaton)

Production: CNPC

Screenplay & direction:
Sheik Oumar Sissoko

Photography: Sheik Hamala Keita

Editor: Vojislav Korijenac

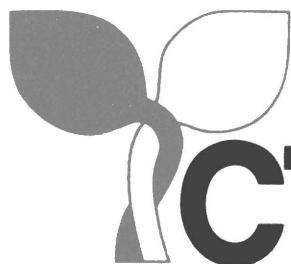
Music: Sidiki Diabate, Moriba Keita, Mamadou Diallo and Marouna Barry

Cast: Diarra Sanogo, Maciré Kanté and Ada Thiocary

Synopsis: Children have to collect rubbish to scrape a living and get an education. Through them, the film looks at the life of one of the districts of Bamako, with all its social inequality, its material difficulties and its problems of education and health.

Direction: This is Sheik Oumar Sissoko's first full-length film. An earlier short feature was on drought. The young director aims to make his second full-length work on women in the rural world.

Cost: CFAF 6 150 000
(about US\$ 18 000)



Agroforestry: a concept for strengthening rural security

A diverse range of cultivation practices are brought together in the land-use concept known nowadays as agroforestry (*); it is this diversity on which the promise of a more secure rural life-style is based.

There can be few people concerned with rural development who are not now familiar with the word "agroforestry", although the term is often used incorrectly, with no clear knowledge of what it is about. This confusion is understandable: the term has, after all, been in popular use for less than a decade, although it was coined around 1960. Although mainly associated with rural development in the tropics, the concept is also applied in temperate regions of the world. Two events in particular stimulated the initial interest in agroforestry. The first was the decision to establish the International Council for Research in Agroforestry (ICRAF), and the second was the Eighth World Forestry Conference in Jakarta (1978) which generated worldwide interest in the subject.

A land-use concept

ICRAF was founded in 1977; it has its headquarters in Nairobi, Kenya. ICRAF's mandate is "to increase the social, economic and nutritional well-

being of people in developing countries through the promotion of agroforestry systems designed to achieve better land-use without detriment to the environment, to encourage and support research and training relevant to agroforestry systems, to facilitate the collection and dissemination of information relevant to such systems and to assist in the international coordination of agroforestry development".

Whilst the purists try to arrive at a universally-acceptable technical definition of agroforestry, most people will rest content with a few clear statements which serve to define the term. Agroforestry is a concept in land-use and production systems: it is not a science. More specifically, it consists of a holistic approach to sustained land-use. It does not define one particular kind of land-use, but is a comprehensive term covering many forms of land-use in which tree and shrub cultivation is combined with the production of agricultural or horticultural crops on the same piece of land. Livestock production can also be an integral component of the system. The word "agroforestry" may be relatively new, but the concept is not new: there are traditional agroforestry systems, although rather few survive to any

great extent. They include traditional "shifting cultivation" and "bush fallow" systems, all forms of "taungya" afforestation systems and the home gardens of many wet tropical regions.

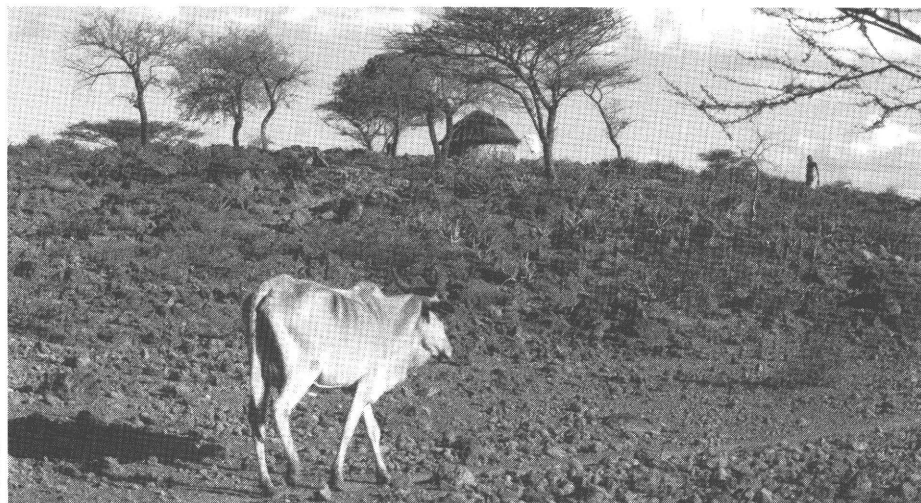
Why has this apparently straightforward concept assumed a special significance today? In the more distant past, tropical forests provided a great deal else besides timber: they were, for instance, the source of food for much of Africa before maize, cassava, rice, wheat, sweet potatoes, amaranths and other crops were introduced from elsewhere. In more recent times they were set aside for timber production and were managed by Forestry Departments which were, for the most part, administratively separate from Departments of Agriculture. This separation of agriculture and forestry is rooted in history: the very word "forest" comes from the Latin "forestare" meaning to put outside, or to throw far away. A forest was originally an area where, in the interests of the hunting community, farming and habitation were forbidden.

Nowadays, the limited availability of good land puts pressure on its use; and in many parts of the world the tree cover has fallen to dangerously low levels. This situation creates competition for land-use and a need to restore the tree cover. Agroforestry not only holds out the promise of a net increase in tree cover, it stresses the need for integration of agriculture and forestry and minimises the competition and conflict between the two.

A diversity of practices and products

Agroforestry offers an end to the trend towards largescale monocultures of crops (mainly annuals, often export-oriented) and the beginning of a movement towards more manageable,

(*) In order to promote a wider appreciation of agroforestry, CTA commissioned ICRAF to prepare two reports on the subject, on which the present article is based. One is a state-of-the-art review on "The Potential Role of Agroforestry in ACP States"; the other concerns "the Role of Agroforestry in Combating Desertification and Environmental Degradation". Both reports are being published by CTA, in English and in French. Copies will be available on request.



E. Fernandes

Agroforestry can eliminate the overgrazing which leads to this kind of erosion

small-scale mixed cultivation practices. It is based on the diversity of species which characterises the tropics; it offers the prospect of sustained, low-risk land-use and will enhance rather than destroy the natural resource-base. This contrasts with the practices of destructive felling of forests and of tilling the soil in order to sow annual crops: the soils of much of Africa, in particular, are too fragile to withstand the consequent exposure to the elements. Agroforestry practices minimise soil exposure and this is one of the ways in which they make a very positive contribution to soil conservation.

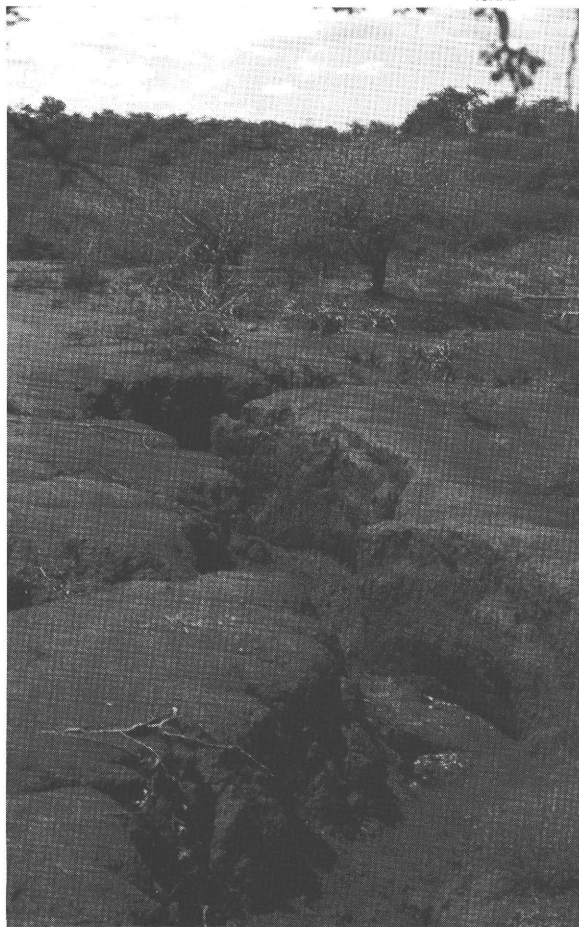
The diversity of the components of agroforestry systems not only enhances the stability of the natural resource-base; it leads to a diversity of products, which helps to provide a sound economic resource-base for the rural people. Food production may actually be increased (partly through control of soil degradation, but also through nitrification where leguminous trees are part of the system), but there are other benefits: a supply of fuel is assured; timber, medicines, dyes, nuts, edible leaves, fibres, tannin, resin, waxes are produced; honey can be produced if beekeeping is incorporated into the system; and wildlife is conserved (rodents can be important sources of food). All this can be achieved on one plot of land, managed by one farmer. And if the element of risk in production is decreased, price fluctuations in the markets will be narrower. The result is a trend towards economic stability: the acceptable risk level—that important factor which determines the peasant farmer's willingness to adopt innovations—will also change for the better.

An aid to soil conservation

From what has been said it should come as no surprise to learn that agroforestry can help to combat desertification. Whether agroforestry will be able to achieve its potential in this respect will depend upon many factors: governmental will and efficient planning are obviously prerequisites, but there is a danger that another pre-

requisite, participation by the populations who are to benefit, may be overlooked.

There are four fundamental reasons why agroforestry is important as a practical means of desertification control. Firstly, it tends to meet the needs of the peasant farmer as he perceives them; it uses locally-available, low-cost inputs; it increases total productivity and, finally, it stabilises the production unit.



Loss of tree cover is frequently the prelude to serious gully erosion

What is the biological basis for the claimed potential of agroforestry? The answer is that there are many separate bases, but interestingly a great many of these tend to focus on that most fundamental resource of all: the soil. Could it be that agroforestry should really be viewed as one of the most potent soil conservation measures available to the peasant farmer?

The biological advantages that agroforestry offers are many and varied. Woody perennials, for instance, add organic matter to the litter; they may fix atmospheric nitrogen; and the ac-

tion of fungi and bacteria associated with their roots may help to release phosphorus. Physical features of the soil may be improved: for instance, the water-retaining capacity, permeability and aggregate stability may be increased. Temperature fluctuations may decrease as a consequence. Evaporation of soil moisture is decreased through a combination of mulching and shading. Deep tree roots will tend to recover nutrients that have leached

from the surface; they may also mobilise nutrients from lower levels and make them available to shallow-rooted crops. Woody perennials can minimise the erosive action of wind and rain; they may also suppress weed growth.

Perhaps the most important feature of agroforestry in the context of soil conservation is that it aims to maintain plant cover: risks of erosion, compaction and loss of soil structure are greatly reduced. Little wonder that agroforestry has been called a "tool for biological redemption".

Adoption strategies

In view of the benefits that agroforestry offers, particularly with regard to desertification control, it is important that governments should have a clear understanding of the factors they must consider if they are to exploit the concept effectively. The complexities of agroforestry systems (which it would not be appropriate to explain here) demand that study and research must be carried out on the environmental, technical, social and economic aspects. Problems of present land-use must be diagnosed, constraints on solutions studied, available technologies identified and complementary research projects established. This farming systems analysis approach (which ICRAF calls its "D and D"—Diagnosis and Design-methodology) is new, and so it is not yet backed by a large body of scientific findings.

Unfortunately, the application of agroforestry technology is made difficult by the rigidity of established institutional structures, which generally do not encourage the efficient functioning of multi-disciplinary approaches to rural development. On the other hand,

this disadvantage is counterbalanced by the fact that the techniques involved in agroforestry appeal to the farmer because they are similar to those with which he is already familiar: he is not being asked to modernise, or to mechanise. It may be that he will need less institutional support than he requires at present.

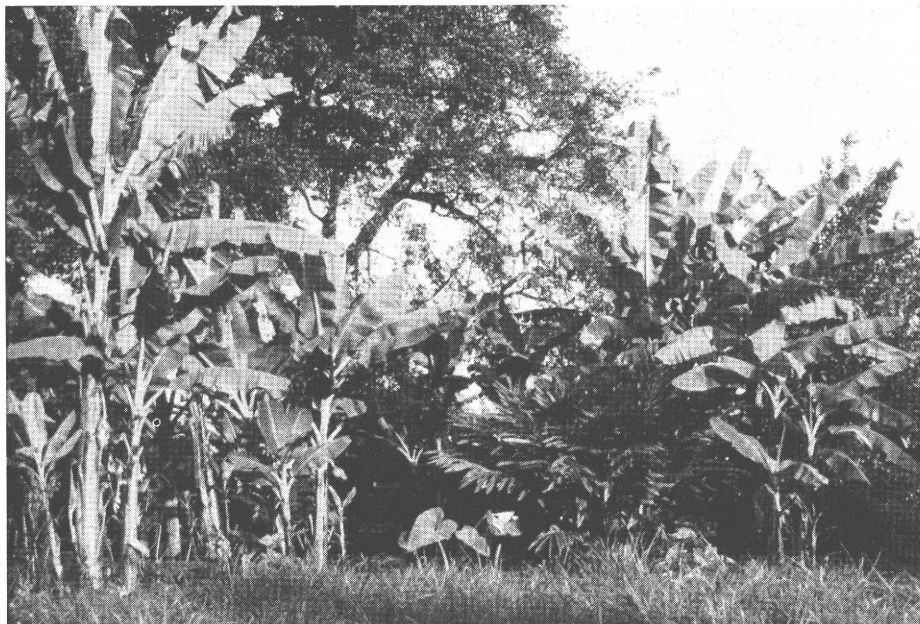
Land tenure systems can inhibit tree planting. The most favourable situation for tree planting is where land is privately owned and where individuals hold clear and unambiguous title to the land they farm: they are assured of reaping the benefits. Agroforestry holds little appeal to the tenant farmer. However, private ownership of land does not encourage the establishment of shelter belts, for example, which are for communal benefit.

Conflicting claims of grazing rights

Grazing rights can conflict with the requirements of agroforestry: in countries where animals are traditionally allowed to roam freely in the dry season it is difficult to protect privately planted trees, as this means infringing what others in the community view as their rights. This is a particular problem in countries where nomadic tribesmen pass through at certain times of year. These factors must be taken into account in rural development planning because, if farmers do not have secure rights over the trees they plant, agroforestry is likely to be a pointless activity for them.

Strategies to encourage the adoption of agroforestry must address an unusually broad range of issues and constraints. Research is needed (there are few fields where the potential for research is so high; little work has been done and little proven technology is available). Project design procedures that recognise the need for farmer participation and the integrated nature of village communities must be developed. Proven technology must be effectively disseminated through extension services not yet familiar with this approach to land-use.

The question of education and training in agroforestry has received



W. Beets

Alley cropping: an agroforestry practice for sustained high productivity



E. Fernandes

Agroforestry in the home garden: banana, coffee, taro, cardamom and fodder grasses thrive beneath the trees

little attention in most countries, although India is a notable exception. Planners are not yet familiar with agroforestry and do not yet know the most effective means of encouraging community action and participation—what forms of incentives might be considered, for instance? Ensuring tenurial rights? Providing credits? Removing price controls on fuelwood and charcoal?

Given the need for the research community to promote only safe, proven technologies among poor farmers, agroforestry researchers in particular face a race against time: yet their craft cannot be hurried. Development workers in the field of agroforestry deserve the support and understanding of the community at large.

○

A.C. JACKSON

ACP Council of Ministers meets in Brussels

Ten years after its creation in Georgetown in 1976, the ACP Group, which is still seeking uncontested recognition as a full member of the foremost international organisations, still has a profoundly dual nature. Seen from the outside, it is an institution of many assets, with all the economic and political strength of its 66 members and the privileged relations it has established with the Community. But on the inside there are problems of operation undermining its efficiency.

The last (41st) session of the ACP Council of Ministers, the Group's supreme political body, was unable to avoid the Manichaeian trap. On the one hand there were the discussions of the major multilateral negotiations of today, of the Uruguay Round and UNCTAD VII, opened, respectively, with speeches by GATT Director-General Arthur Dunkel and UNCTAD Deputy Secretary-General Alister McIntire, who travelled to Brussels specially for the meeting — proof of the seriousness with which the Group is taken in the outside world. On the other hand were the painful debates about the ACP Secretariat's shortage of money, largely created by the many arrears in the organisation's budget contributions and by the clear lack of rationalisation in its workload criticised by the President-in-Office, Mersie Ejigu, Ethiopia's Minister of Planning, which results in a repeated overburdening of the Council's agenda.

The McIntire and Dunkel speeches were the high spots of the winter ses-

sion of the Council, the second in the year and the one which, by tradition, focusses on internal questions.

Halting the erosion of preferences

The Deputy Secretary-General of UNCTAD was the first to speak at ACP House. He began by reminding listeners of the role of his organisation and what it had helped achieve in the recent past. He then went on to describe UNCTAD VII, scheduled to take place in Geneva from 9-31 July 1987 when the agenda would contain just one important point — how to revitalise development, growth and international trade by dealing with related subjects such as development financing, commodities, international trade and the problems of the least developed countries. As Mr McIntire saw it, the ACPs had to seize this opportunity of promoting their drive to rebuild their economies and to develop — even if they had to be careful

about pinning too many hopes on UNCTAD VII completely overturning the adverse trends of the past few years.

Arthur Dunkel, the Director-General of GATT, talked about the protectionist tendencies currently affecting international trade and about the disorder they create, to which the developing countries are the first to fall victim. He then told ACP Ministers about the Punta Del Este declaration of two months before, which marked the official start of the latest round of

Also in the yellow pages

The Convention at Work

- III. Meeting of the ACP-EEC Socio-economic Partners
- V. Lomé Programming
- VI. EDF Financing
- IX. Visits
- XI. New Deputy Directors-General

General Information

- XIV. Emergency aid

European Community

- XV. European Council in London
- XVI. Development Council



Mersie Ejigu (centre) President-in-Office of the ACP Council of Ministers, makes his opening speech. With him are Peter Peipul (Papua New Guinea), Chairman of the ACP Committee of Ambassadors, on his right, and Edwin Carrington, Secretary-General of the ACP Group

multilateral trade negotiations, stressing the topics of interest to the Group — tropical products, for example, products based on natural resources like non-ferrous metals, fish and forestry products, agriculture and manufactures. He also mentioned the new areas of negotiation — service and investments linked to trade.

Mr Dunkel was accompanied by one of his colleagues who is well-known in Brussels as he was the ACP Group Secretary-General under Lomé I — Tiéoulé Konaté, currently a GATT director (in charge of technical assistance), whose speech concentrated on how his organisation would help the ACPs benefit from the Uruguay Round. He gave the ACP Ministers details of the services on offer — briefings, technical notes, country studies identifying tariff and non-tariff bar-



The Council meeting room. Mushobekwa Wa Katana, Zaire's State Commissioner for External Trade, front left, with Dr Kiyonga, Uganda's Foreign Affairs Minister, beside him

Budget issues

The Council also dealt with internal matters, adopting the Secretariat-General's budget for 1987. This is BFrs 159 148 555, an austerity budget that is BFrs 8 million down on last year's (which was roughly similar to that of 1984 and 1985). It will be fed by BFrs 68 049 484 from the EDF regional funds and by BFrs 91 022 071 in ACP contributions — the latter, of course, being those which the Secretariat finds it difficult to collect. On 15 November 1986 the organisation was owed BFrs 83.2 million — 86% of the ACP contributions in a normal budget year. When the Council met, only 23 of the Group were up to date with their payments, creating a very delicate situation for the Group, which expects the Secretariat to be efficient without giving it the means of being so. So, for the first time, it was decided to apply sanctions to reluctant payers as from 31 March 1987. These sanctions include not receiving documents, loss of eligibility for the chairmanship of the Committee of Ambassadors or one of its organs and may even go to suspended membership of the ACP Group.

No report of these proceedings would be complete without mention of the decision to convene the heads of ACP regional organisations in Brussels next year to discuss a realistic programme of inter-ACP cooperation. Lastly, of course, the meeting discussed extending the transitional measures on the accession of Spain and Portugal to the Lomé Convention. ○



Mersie Ejigu chats with Commission Vice-President Lorenzo Natali while Klaus von Helldorf (centre) of Mr Natali's cabinet looks on

riers, regional seminars, trade policy courses and so on.

The discussion which followed reflected the ACP concern with avoiding the preferences they get under Lomé being eroded by the general trade negotiations.

Sanctions and southern Africa

Another big subject, and a political one this time, was debated at the Council. This was the situation in southern Africa and the sanctions against

South Africa. The Ministers, who were together for the first time since Samora Machel's death, lay the responsibility for the Mozambican President's accident at Pretoria's door. After condemning EuroMPs for inviting and receiving UNITA leader Jonas Savimbi and asking for the sanctions the Community had decided on for South Africa to be properly applied, the Council decided to suggest convening a meeting of ACP Foreign Affairs Ministers to devise a series of ACP sanctions against South Africa.

ACP-EEC Socio-economic Partners: 10th Annual Meeting

On 4 and 5 December, representatives of economic and social interest groups from the ACP States and from the EEC held their 10th annual meeting at the initiative of the Joint Assembly at the headquarters of the Economic and Social Committee in Brussels. In addition to a large number of observers from socio-economic organisations, both the ACP and EEC had sent 36 representatives, not only from the various regions concerned but also from the three major socio-economic groups (the employers, the trade unions and specific interest groups, mainly farmers' organisations and cooperatives) to hold a wide-ranging debate on the role and contribution of the socio-economic partners in the implementation of the various chapters of the Lomé III Convention.

Alfons Margot, the current Chairman of the Economic and Social Committee, opened the meeting and reminded participants of their main function: "We are here above all to contribute in a constructive way to the cooperation between our communities and between our respective sectors". Then the ACP and EEC co-Chairmen of the Joint Assembly—who chaired this meeting—Mr Emile Mworoha and Mr Giovanni Bersani, took the floor. Mr Mworoha underlined the "capital role which socio-economic interest groups have to play in the implementation of Lomé III", affirming that it was "an illusion to think that you can reach genuine development by separating its political-economic aspects from its socio-cultural aspects". Mr Bersani for his part reminded participants of the difficult start this institution had had in 1977 at its first meeting in Luxembourg and reviewed its progress since then, based on what he considered had been continued and frank dialogue. He also stressed that "the real task ahead starts today", within the scope of the profoundly hu-

manistic approach of Lomé III. The recognition and institutionalisation of those socio-economic partners' meetings under Lomé III constituted, in his view, a necessary complement to the social dimension of the cooperation agreement.

The current Chairman of the ACP Council of Ministers, Ejigu Mersie, the Ethiopian Minister of Planning, expressed the hope that this meeting would be able to "enhance a stronger ACP-EEC relationship and, in the process, contribute to the improvement of the implementation of the Convention". He also recommended four specific points to be taken into account during the deliberations: the contribution of the non-governmental sector to what is basically an inter-governmental contract; the socio-economic partners have to be "players or actors to give meaning to the rules"; the paramount role of those partners in the field of cultural cooperation; and as "cooperation like charity begins at home", the obvious need for intra-ACP cooperation.

Speaking on behalf of Christopher Patten, the British co-Chairman of the ACP-EEC Council of Ministers, Mrs Virginia Bottomley, his Parliamentary Private Secretary, referred to the "responsibilities the Convention places on the ACP-EEC Council to promote contacts between the economic and social sectors in the Community and in the ACP States", an acknowledgement "of the importance of establishing an effective dialogue between these sectors and of obtaining their contributions to the formulation of development policies". Having recalled a number of major innovations of Lomé III to participants, she did not fail to underline, as one of the prime tasks of this institution, to discuss in depth matters relating to investment in the ACP States.

Dieter Frisch, the Commission's Director-General for Development—having paid tribute to Maurice Foley, now retired, as one of the spiritual founding fathers of the Social Partners as an ACP-EEC institution—stressed that "the Community has every interest in cooperation not remaining a matter solely for governments and ministers, but that all interested parties have a particular role to play". He looked back at the experience of almost one year of Lomé III in action, bringing out the new style of partnership that has developed throughout the programming exercises through frank and open dialogue. After this good start, for him it was now even more important to have an even better launching of the actual implementa-



From left to right: Dieter Frisch, Director-General for Development; Virginia Bottomley, Parliamentary Private Secretary to the UK co-Chairman of the ACP-EEC Council of Ministers; Alfons Margot, Chairman of the Economic and Social Committee; Emile Mworoha and Giovanni Bersani, co-Chairmen of the ACP-EEC Joint Assembly; Ejigu Mersie, Ethiopia's Minister of Planning and co-Chairman of the ACP-EEC Council of Ministers; Roger Louet, Secretary-General of the Economic and Social Committee



The Courier

The three rapporteurs at the 10th Annual Meeting. L. to r., Cheikh Cissokho, Senegal's Minister for the Protection of the Environment; Gérard Egnell, member of the Executive Board of the "Centre Nord-Sud de l'Entreprise", and Jean-Paul Ricordel, Director of Projects of the French NGO "Committee against Hunger"

tion of all those programmes, as "the objective is not just growth or even development, but an improvement in the well-being of man by the end of this Convention, without which we will have failed".

The three rapporteurs of this year's session covered extremely varied subjects. Cheikh Cissokho, the Senegalese Minister for the Protection of the Environment, presented a paper on continental fisheries and the integration of socio-professional interests in Senegalese society; Gérard Egnell, member of the Executive Board of the Centre Nord-Sud de l'Institut de l'Entreprise (North-South Centre of the Enterprise Institute) presented a study carried out by this organisation on the rehabilitation of industries in developing countries, particularly Africa; Jean-Paul Ricordel, Director of Projects of the French NGO, the Committee Against Hunger, spoke on the cooperation between socio-economic interest groups in the field of training.

The choice of subjects was as wide-ranging as the ensuing debate, which in itself reflects the extreme diversity of situations both between the EEC and the ACP States, as within the latter themselves; the different interventions in the debate were a clear sign of the level of representation of all re-

gions and sectors. An increasingly striking feature for those who regularly attend this meeting is the level of partnership—and often real friendship—that has developed over and above those artificial regional and sectoral separations. It was therefore not

A Confederation of Panafrican Employers has recently been created which at present groups together some 21 employers' organisations. The Confederation's headquarters is in Nairobi and its first elected President is Mr Henri Georget (*) (Niger). One of the main functions of the Confederation will be to represent African employers at fora such as the ILO, the UN and the OAU.

(*) See his interview on this issue in Courier no. 84, pages 31 to 33.

surprising to hear European employers' representatives support their ACP fellows when they blamed the Egnell report for putting too much emphasis on ACP responsibility for industrial failures, and they were ready to take part of that responsibility on their own shoulders. Trade unionists on both sides exchanged ideas and called for greater involvement in their

respective home states in the decision-making process which is setting out to implement Lomé III. ACP and EEC farmers' and cooperatives' representatives were almost unanimous in calling for support to strengthen ACP bodies and in soliciting better access to information on what Lomé is all about and on how they can be more involved in it.

All shared a common concern, expressed in the final declaration, that while regretting that not enough consultation of the socio-economic interest groups had taken place during the programming phase of Lomé III, at least they should be far more involved in the work of the steering committees set up in the ACP countries designed to identify and monitor the implementation of programmes and projects on the basis of the overall indicative programmes.

By the end of the meeting many old friendships had been renewed, while many more had been made "across the fences", and a number of smaller mixed ACP-EEC groups went off to discuss future strategies about how their organisations could have a bigger piece of the "Lomé cake", so to speak. After all, contact and dialogue is what this meeting is all about. ○

R.D.B.

LOMÉ III PROGRAMMING

Two more countries have recently signed their Indicative Programmes for Lomé III, Sudan and Liberia, meaning that only three⁽¹⁾ ACP States are yet to complete the programming exercise. In addition to the sums indicated as programmable resources, each of the two countries could also be eligible for additional non-programmable aid such as Stabex transfers, emergency aid or food aid, as well as for financing through the EIB.

Sudan

A delegation from the EEC, headed by Dieter Frisch, Director-General for Development, and including representatives of the European Investment Bank, visited the Republic of Sudan from 1-6 November 1986.

The European Community is held in high regard in The Sudan and their delegation was received at the highest level by the Vice-President of the Council of State, Sayed Idris al Banna, the Speaker of the Constitutional Assembly, Sayed Mohammed Ibrahim Khalil and by the Prime Minister Sayed Sadiq El Mahdi. This is in recognition of the significant and sustained assistance provided to The Sudan throughout the drought period of 1984/85 and subsequently.

The Sudanese Delegation with whom discussions were held was headed by Dr Bashir Omer Fadlalla, Minister of Finance and Economic Planning, and the aim of the meetings was to draw up the Indicative Programme of Community aid for Sudan.

The two delegations conducted a broad overview of the different aspects of cooperation between Sudan and the Community, particularly those connected with the implementation of the Third Lomé Convention. In order to ensure that optimum use was made of the instruments and means provided under the Convention, the two delegations, on the basis of the preparatory work carried out by their representatives, held thoroughgoing exchanges of views on the development priorities and objectives of Sudan.

(1) The Somalia programming mission was in fact taking place as The Courier went to press.

For the attainment of the objectives, the Sudan will be receiving the sum of ECU 145 m (equivalent to £ Sud. 373m) as programmable resources. The sum is composed of ECU 130m in the form of grants and ECU 15m in the form of risk capital, managed by the EIB. In addition the EIB may be able to help finance, from the resources under its management, productive capital projects which meet its criteria and statutory rules and which conform to the Third Lomé Convention.

Following their exchanges of views, the two delegations agreed that the Community's aid would be focused on agriculture and rural development and related transport and communications and institutional support. The basic objectives would be the achievement of food security, the boosting of foreign exchange earnings, drought preparedness, the fight against desertification and the correction of regional imbalances.

The issues of refugee self-sufficiency and returnees will also be addressed.

The two delegations also held an exchange of views on ways of stepping up regional cooperation in the East African region, the Community delegation stating in this context that a sum of ECU 185m had been earmarked for regional operations in Eastern Africa.

On completion of the negotiations between the two delegations, the Indicative Programme of Community aid was signed jointly on behalf of the Republic of the Sudan by Dr Bashir Omer Fadlalla, on behalf of the Commission of the European Communities by Mr Dieter Frisch and by Mr Martin Curwen in respect of matters under the responsibility of the EIB.

In the course of the visit field trips were made to Darfur and Kardofan, which enabled Mr Frisch and his colleagues to see at first hand the impact of innovative longer term rural development projects like Jebel Marra and Nuba Mountains and complementary assistance to the railways, together with activities related to the Rehabilitation and Revival Programme. The overriding concern in the areas visited was to phase out dependence on food handouts and build strong foundations for secure and reliable food supplies while protecting the physical environment against accelerating desertification.

Liberia

An EEC Delegation, headed by Dr Erich Wirsing, Director of West and Central Africa in the Commission and including representatives of the European Investment Bank (EIB) visited the Republic of Liberia from 13-17 October 1986.

Discussions were held with a delegation headed by Liberia's Minister of Planning and Economic Affairs, Mr Paul Jeffy, the purpose of which was to draw up the Indicative Programme of Community aid for the Republic of Liberia, in accordance with the provisions of Lomé III. The two delegations reviewed the various aspects of cooperation between Liberia and the Community, particularly those connected with the implementation of Lomé III. For the attainment of its development objectives, Liberia will be receiving the sum of ECU 44m as programmable resources. This sum is composed of ECU 39m in the form of grants and ECU 5m in the form of special loans. Following their exchanges of views, the two delegations agreed that the Community's aid would be focused on rural development and agricultural production.

The delegations also discussed the various ways of stepping up regional cooperation in the West African sub-region, the Community indicating in this context that a sum of ECU 210m could be earmarked for regional operations.

On completion of the negotiations between the delegations, the Indicative Programme of Community aid was signed jointly on behalf of the Republic of Liberia by Mr Jeffy, on behalf of the Commission of the European Communities by Dr Wirsing, and by Mr Thomas Oursin in respect of matters under the responsibility of the EIB. ◊

Sahel: Lomé III regional cooperation sketched out

Programming the 6th EDF is practically finished as far as the national indicative programmes are concerned, only three countries having still to be covered. Planning for regional cooperation is also well advanced. Lomé III provides ECU 1 billion for this sector, which fully embodies the new approach — greater consultation be-

tween European and ACP partners, establishment of general guidelines together and agreement on genuinely regional sectors of concentration.

Wherever possible, the Commission has had this dialogue with the regional organisations empowered to deal with their member countries' affairs — with SADCC in southern Africa, with Caricom in the Caribbean and SPEC in the Pacific.

In the Sahel area of Western Africa (Burkina Faso, Cape Verde, Gambia, Guinea Bissau, Mali, Mauritania, Niger, Senegal and Chad), however, things were different. In this case, a meeting of National Authorising Officers and a Commission delegation of delegates and economic advisers in these countries led by Erich Wirsing (the Director for West Africa), dealt with regional programming in Praia, the capital of Cape Verde, in late October. The nine ACP countries had said what their individual priorities were for the region when they established their national indicative programmes and so they had to harmonise their views at the meeting. However, this posed no great problems, as it was obvious what the concentration sectors should be.

In a Sahel constantly grappling with drought, the essentially regional campaign against desertification was obviously going to be the main concentration area and around 60% of the ECU 210 million earmarked for regional schemes in Western Africa went to this. Four main sorts of priority schemes were outlined in Praia and first and foremost improving, protecting and managing the forests, which are threatened by fire and an increasing demand for firewood. There will be a drive for more efficient combustion, involving, in particular, spreading better stoves, and people will be encouraged to use other sources of energy — butane paraffin, coal and so on. Forest fire prevention will be organised, as will the protection and regeneration of both forests and pastureland. Urgent schemes — recuperation of all the trees now submerged by the Manantali (Mali) and Kompienga (Burkina Faso) dams so they can be processed and marketed — have already been outlined. Next comes the rational use of both underground and surface water with a view to the self-sufficiency in food which all the countries of this region are striving to attain. These irrigation microprojects

will aim to densify and standardise pumping equipment run on replaceable (wind and solar-photovoltaic) energy.

A third series of schemes will involve protecting and developing the upper, middle and lower catchment basins of the main rivers so as to protect the eco-systems of the Sahel.

The last group of priority projects in the anti-desertification drive is to make the population aware of environmental issues. Various vehicles (posters, tapes, radio and television broadcasts etc) will be used for this and further support will come from educational training schemes (specific school syllabuses) and retraining courses for teachers.

The meeting found another priority, outside the major concentration area — the opening up of the countries in this region, particularly those with no coastline. They also insisted on the need for rapid mobilisation of resources and continuous assessment of this regional programme — without, however, setting up any new monitoring structures.

Another regional programming meeting with the coastal states of western Africa is scheduled for early 1987. ○ A.T.

EDF

The Commission has just taken decisions to finance a number of projects, following a favourable opinion by the EDF Committee (216th meeting) on 20 & 21 October.

Dominica

Promotion of tourism
Sixth EDF
Grant: ECU 620 000

Dominica is one of the poorest of the Caribbean islands and is still primarily an agricultural country, with bananas making up almost 60% of its export earnings. However, it does have exceptional but so far little exploited tourist potential.

This project is to improve both the tourist attractions in the national parks and forests and access to them along nature walks, as well as the country's historical monuments and other curiosities. A specialised promotion and marketing campaign will be

run alongside to get Dominica known abroad as an outstanding tourist spot.

Feeder roads
Sixth EDF
Grant: ECU 3 750 000

This is a project to repair 13 km of road between Canefield and Pont Casse through Springfield Estate, rehabilitate a 4.4 km stretch and build a 3.7 km stretch on the Bataka-Windblow and Geneva-Morpo roads.

This should considerably improve access to around 600 smallholdings and 800 ha high potential land that is already or about to be under (food and industrial) crops. It should also reduce damage to the harvest (particularly bananas) in transit to the market.

The financing decisions taken following the EDF Committee's meeting of 9 and 10 December will be published in The Courier's March-April issue.

Benin, Burkina Faso, Côte D'Ivoire, Ghana, Mali, Niger, Togo, Guinea, Guinea Bissau, Senegal & Sierra Leone

Campaign for the control of river blindness
Fifth EDF
Grant: ECU 6 000 000

This is a contribution to the onchocerciasis control campaign being run in Western Africa. Community financing is combined with that of other funders in a general programme covering 11 countries.

Onchocerciasis—or river blindness—is caused by parasitic worm transmitted to man through the sting of the female Simulium fly. Almost 30 million people, 25 million of them in Western Africa, are affected.

The campaign, in two six-year phases, covered seven countries—Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali, Niger and Togo—and began back in 1974. Phase three of the programme, 1986-91, has a provisional budget of US\$ 133.7 million and deals with four countries on the fringe of the zones covered to date. They are Guinea, Guinea Bissau, Senegal and Sierra Leone.

WHO (the World Health Organisa-

tion) is in charge of running the operations and the World Bank is managing the special fund into which the contributions from the present 19 funders (and they include six EEC countries — Belgium, France, Germany, Italy, Netherlands and the UK) are paid.

Chad

Cotton producers support programme
Fifth EDF
Grant: ECU 5 000 000

This project is part of a general scheme to readjust the cotton sector with parallel financing from the IBRD, the CCCE (France) and bilateral aid from the Netherlands.

It involves setting up an ECU 5 million revolving fund to buy cotton seed from Chadian producers in the Sudan area.

The main result anticipated is the replacement of seasonal credit and an attendant saving of interest payments of about 9.5%. In addition to this the peasant can now be guaranteed a price

for his cotton seed (currently at about CFAF 1000 per kg).

Côte d'Ivoire

Developing of rice-growing in the Centre region
Fifth EDF
Grant: ECU 6 500 000

The idea here is gradually to develop intensive, irrigated rice growing on five plots, totalling 760 ha, in central Côte d'Ivoire. The stress is on boosting output.

ACP and EEC Ambassadors discuss Spanish and Portuguese adhesion to Lomé

The Committee of ACP and EEC Ambassadors met in Brussels on November 10 under the chairmanship of Sir David Hannay, the Permanent Representative of the United Kingdom, which presided the EEC Council until the end of last year. Ambassador Peipul of Papua New Guinea, the current president of the Committee of ACP Ambassadors, acted as spokesman for the ACP. The Commission was represented by Mr Dieter Frisch, its Director-General for Development.

First on the agenda (after a minute's silence had been observed in memory of the late President Machel) was the vexed question of the adhesion of the "new" EEC Member States, Spain and Portugal, to the Lomé Convention. The ACP States are keen to see a certain number of general principles commonly agreed (such as that the new Member States' adhesion to Lomé III should not bring about a worsening of the conditions of ACP products in the enlarged Community) before the Adhesion Protocol is negotiated; the Community prefers to tackle problems that may arise in the course of the negotiations. Until a convergence of views can be reached on the approach to be adopted, it was agreed that the interim measures now operating would be extended, if necessary, to 30 June 1987.

The Committee also discussed matters relating to trade — both in general, in the form of the report now

being drafted on the evolution of ACP-EEC trade which the Committee hoped could be adopted at the ACP-EEC Council to be held in the Spring, and as regarded specific issues (notably the supply of tuna to canning plants in certain ACP States).

On the question of Southern Africa, moved forward from its appointed place on the agenda, Ambassador Peipul asked the Community to take further sanctions against South Africa, suggesting that a joint working group be established to monitor the implementation of the so-called "positive measures" already taken by the Community and its Member States — a suggestion rejected by the EEC Chairman on the grounds that the matters were not within the Committee's competence.

Referring to Lomé III, the ACP Chairman said that joint ACP-EEC institutions also have an obligation to inform European Member States of the Group's position on the matter.

Aspects of the Stabex system came under examination, and in particular the question of replenishing resources in respect of Gabon and Congo. (The Convention stipulates that where ACP States, other than those in the least-developed category, have not fully replenished Stabex funds five years after the granting of transfers, the Council of Ministers can decide either to replenish the claim or to give it up). In this case the Community had not yet finished its examination

of the position, but undertook to deliver its opinion as soon as possible. Requests by Sudan, Uganda and Tanzania for exemption from the "all destinations" rule were rejected: a similar request by Mozambique was still being studied and an answer would be given to Mozambique after the next ACP-EEC Ambassador's meeting in March.

Issues relating to a number of commodities were discussed (notably cocoa and coffee), and the Sugar sub-Committee's report on the reappraisal of the conditions for the application of the guarantee referred to in Article 1 of the Protocol was also examined.

For the Commission, Mr Frisch reported to the Committee on the state of play regarding programming, confirming that the four indicative programmes that had not, by then, been finalised would be signed as soon as possible. (Since the meeting two of the countries, Sudan and Somalia, have signed their programmes, leaving only the programmes for Uganda and Equatorial Guinea to be finalised). The Committee also agreed that the six ACP countries which had not yet ratified the Convention should be invited to do so as quickly as possible.

Finally, after a number of problems had been raised relating to the financing of the Joint ACP-EEC, Assemblies, the CDI and the CTA, the Director-General for Development reported to the Committee on the various actions to be undertaken by the Community to date in the framework of its Plan to combat drought and desertification. Ambassador Peipul, for his part, expressed his hope that the ACP States would be able to take a firm position on the subject in time for the next Council of Ministers, to be held on 14/15 May. ○ M.v.d.V.

The work involves building three earth dams and developing five irrigated rice plots. The plot management structures will be financially independent and organised in such a way as to be able to be taken over later on by farmers in the GVC cooperative groups.

Togo

Village planting schemes

Fifth EDF

Grant: ECU 550 000

The Togolese environment has been deteriorating following excessive cutting of trees for firewood and charcoal for the urban centres.

The aim of this particular project is to put a stop to this by making the villagers aware of what is at stake and getting them to plant fast-growing species so they can meet their own needs and earn some extra income by selling what is left over.

Togo and the French-speaking countries of the region

Lomé School of Hotels and Catering

Fifth and Sixth EDFs

Grant: ECU 3 450 000

The CFH (School of Hotels and Catering), which was started up in 1978, is currently housed in the Le Benin hotel in Lomé. It trains staff for the hotel and tourist trade in Togo and other French-speaking countries of western and central Africa. The idea here is to improve the conditions of training by integrating the hotel and the CFH in a renovated hotel-school.

It will make it possible to finance:

- work on the hotel, built 26 years ago;
- technical assistance and some teaching materials;
- study grants for Togolese trainees.

Liberia

Rural water supplies

Fifth EDF

Grant: ECU 2 500 000

Pollution-linked diseases are common in rural Liberia. They are to blame for a good percentage (20%) of the very high infantile death rate and they cause considerable damage to the economy. Since the health services in the rural areas are particularly poor, it is particularly urgent to improve their water supplies.

The idea of the project is to lay on supplies of unpolluted drinking water and improve the sanitary installations in the four counties of Grand Bassa, River Cess, Sinoe and Grand Kru, all of which are in the coastal region. It was designed to make the local people aware of health and hygiene and encourage personal effort.

Madagascar

Rehabilitation of the electricity network

Fifth EDF

Grant: ECU 2 000 000

On 14 March 1986, hurricane Honorinina hit the east coast of Madagascar doing a great deal of damage, particularly to the town of Toamasina. One of the things to be badly affected was the electricity supply network. JIRAMA, the island's water and electricity board, lost no time in repairing the network with equipment from their stocks—which are now almost entirely depleted as a result.

The aim of this project is to enable JIRAMA to continue and complete the repairs occasioned by hurricane Honorinina and replace its stocks so it can cope with any further crisis of this nature in the region.

Lesotho

Rural development in Mphaki,

Phase II

Sixth EDF

Grant: ECU 3 700 000

Phase two of this scheme is to develop and demonstrate better village management methods, reverse the land deterioration trend and boost productivity of both livestock and food production.

Mphaki is a 146 000 ha highland region in south-eastern Lesotho. Its agricultural potential is low and the major part is poor grassland on which too many cattle graze. The region has 51 000 inhabitants and is fairly representative of the country as a whole.

This project is a response to the request the Government made in March 1986 and within the priority agricultural rural development area of the Lomé III indicative programme. It is in line with the priority targets of this sector, which are to renovate and improve the nation's natural resources, boost agricultural production and develop the livestock sector. ○

EIB

Malawi: ECU 4 m to modernise cement production

The EIB has advanced ECU 4 m towards financing rehabilitation and modernisation of a clinker plant (nodules which are crushed to produce cement) and upgrading of a milling plant in the Republic of Malawi.

The funds are being made available under a two-pronged financing package consisting of a loan of ECU 2.5 m and a conditional loan of ECU 1.5 m.

The two plants in question are located in southern Malawi. The capacity of the clinker plant, located at Changalume, will be increased from 60 000 to 100 000 tonnes. New mobile quarrying equipment will be installed and the more modern of the two kilns is to be restored to full working order whilst the older one will be overhauled and kept as a standby. With this other kiln in normal production, capacity is substantially higher than 100 000 tonnes. Various improvements will also be made to the storage facilities, coal-firing system, instrumentation and handling equipment.

At the other plant, located in Blantyre, the cement packing machines will be upgraded and conveyors are to be installed to assist the loading operations.

Costed at some ECU 6.5 m, these works are the follow-up to feasibility studies part-financed by the EIB from risk capital resources. In 1983, ECU 190 000 went towards a study on modernisation of cement production, which concluded that demand would best be met by rehabilitation of the existing facilities rather than construction of a new plant, and in 1984 a geological survey to confirm that the reserves of limestone and Changalume were sufficient to meet the plant's requirements attracted ECU 400 000.

Bahamas: ECU 8.5 m for water supplies and sewerage

The EIB has lent ECU 8.5 m towards the financing of improvements to the water supply and sewerage systems on New Providence Island in The Commonwealth of The Bahamas, where 60% of the population lives.

The 18-year loan goes to the Water and Sewerage Corporation (WSC) at a

5% rate of interest after deduction of an interest subsidy charged to the European Development Fund. This is the first EIB operation to be mounted in The Commonwealth of The Bahamas, an ACP State and a member of CARICOM, the Caribbean Community and Common Market.

WSC is a public corporation established in 1976 which exists to control and ensure the optimum development and use of water resources, in particular on New Providence and its neighbouring island of Andros. It is also responsible for providing adequate facilities for drainage, the safe disposal of sewage and industrial effluents.

Water supplies in The Commonwealth of The Bahamas are characterised by limited resources, because of natural conditions and heavy growth in demand. The works towards which the EIB is contributing have been costed at ECU 46.6 m. They are aimed at reducing losses due to leakage in the system and at providing a higher level of protection and management of the water table.

The project will not only serve to bring about an appreciable environmental improvement and upgrading of the quality of water supplied but will also have a positive impact on the development of tourism, an activity vital to the local economy. ○

to be the theme of the next SADCC Consultative Conference to be held on February 5 and 6 in Botswana and it was in the context of this gathering that Southern African leaders wished to meet and inform the EEC of developments. The need to increase the financial package for transport in the overall sums destined for Southern African regional cooperation was particularly underlined at the Brussels meeting. Transport accounts for 40% of the ECU 110 m package for SADCC Regional Cooperation agreed on in Harare early this year. The precarious situation of the Southern African states, given their dependence on South Africa, was reiterated by Mr Mmusi while Mr Natali in turn reminded the delegation of the positive action undertaken by the EEC under Lomé III for the benefit of SADCC. ○

Kenyan Tourism Minister in Brussels

The Kenyan Assistant Minister of Tourism and Wildlife, Mr F. M. Awori, paid an official visit to Brussels in mid-November with the double aim of developing the Belgian tourist market for Kenya and exploring areas of possible EEC assistance to the industry under Lomé III.

Tourism, it should be noted, is now the second most important foreign ex-

change earner for Kenya, bringing in, in 1985, some K £ 228 million. Growing at the rate of 18% per annum, nearly half a million people visited Kenya last year. The government's target is one million by the turn of this century. At the moment there are facilities for 650 000 visitors and efforts are being made to increase these to cater for the projected rise in the number of tourists.

Western Europe is the traditional market for Kenya, with British and West German visitors accounting for the bulk of tourists. Kenya at present receives only 4 000 visitors from Belgium annually and, according to the Minister, the aim is to increase this number to 5 000 in a year's time. An exhibition of Kenyan handicraft in Brussels, which brought the Minister to Belgium, is part of Kenyan government's publicity campaign.

Asked about the adverse effects the reported spread of the AIDS in the country could have on the industry, the Minister noted that the Kenyan government was one of the first in the world to declare the outbreak of the disease. There had been, he said, very few cases and almost all concern non-Kenyans. His government, however, was cooperating in research with the World Health Organisation to find a solution to the disease before it gets out of control. ○

VISITS

SADCC Delegation visits the Commission

Attempts at reducing the economic dependence of the Southern African states on South Africa, particularly in respect of private investments, were at the centre of a SADCC delegation visit to industrialised countries, which included meetings in Brussels with Development Commissioner, Lorenzo Natali, Member State representatives, representatives of the European Investment Bank (EIB) and of the Centre for the Development of Industry (CDI). The delegation was led by Mr Peter Mmusi, Vice-President of Botswana and Secretary-General of the Southern Africa Development Coordination Council (SADCC) and Mr Simba Makoni, SADCC Executive Secretary.

Promotion of private investments is

First official visit by Ugandan Head of State



The Development Commissioner, Lorenzo Natali, greeting Museveni on his arrival at the Community's headquarters

President Yoweri Museveni paid an official visit to the European Community's headquarters in Brussels in November as part of a tour of European capitals. It was the first time ever that a Ugandan Head of State had visited the Commission, and the stay was marked by signing by the President of two substantial EDF-funded projects, the Karamoja Development Programme, an integrated rural development scheme, and the Northern Corridor Roads Improvement project, involving three sections of the road linking Rwanda and Uganda. The EDF input for the projects will be ECU 6 m and ECU 24.85 m respectively, the Northern Corridor project being financed, in part, from regional funds.

President Museveni was accompanied on his visit by Mr Mukiibi, Minister of Foreign Affairs.

In addition to holding discussions with the Commissioner for Development, Mr Natali, and with the Commission officials most closely concerned with Uganda's development programme, President Museveni held a press conference in which he vividly illustrated the plight of his country in the wake of its recent civil war. He outlined the steps taken to improve the economic climate to date—including reductions in import dependency—and emphasised the country's enormous agricultural potential, stressing at the same time, however, the massive economic hurdles Uganda still has to face and appealing to the international community for assistance in overcoming them. ◦

South African bishops present Open Letter to Community Institutions

Bishops Napier and Slattery, representatives of the South African Conference of Catholic Bishops (SACCB) visited the European Community's headquarters in November where they held meetings with the Development Commissioner, Lorenzo Natali.

The visit was the first stage of a two-week journey through Europe which took the bishops to a number of its capitals, informing the authorities they encountered of their anxiety at the increasing violence and repression taking place in South Africa.

The bishops expressed their appreciation to Mr Natali of the programme of special measures undertaken by the

Community in Southern Africa, including support to SACCB itself, but emphasised, both to the Commissioner and in an Open Letter to the Community Institutions, that they favoured "selective, effective and progressive sanctions" such that would increase psychological pressure on the champions of apartheid at the same time as limiting as far as possible the ill effects such sanctions would have on South Africa's black populations. The Open Letter commended the efforts of members of the European Parliament to establish a special budget line for compensating SADCC states in the face of South African aggression, hoping that these efforts would continue and, in due course, succeed.

Visits by Commissioner Natali to Africa and the Caribbean

A ten-day journey through West and Central Africa by the Commissioner for Development, Lorenzo Natali, took him on official visits to Burkina Faso, Niger and Congo and culminated, unexpectedly, in Maputo on 28 October where the Commissioner attended the state funeral of Mozambique's late President, Samora Machel.

South Africa figured high among the topics raised by the Presidents in all three capitals visited. The debt question and the relations between their respective countries and the European Community were also discussed.

Burkina Faso

The three-country visit began on 17 October with Commissioner Natali's arrival in Ouagadougou at the start of an official visit at the invitation of President Sankara. His discussions with the President centred on the situation in Africa and in the world at large, as well as on cooperation between Burkina Faso and the European Community.

In addition to his meetings with the ministers concerned on the implementation of the VI EDF (the Indicative Programme for which was signed last November) and the completion of projects undertaken under previous EDFs, Commissioner Natali signed an agreement by which the legal and diplomatic status of the Commission's Delegation in Burkina Faso was defined. He also took the opportunity of



Commissioner Natali visiting the Mankarga project (Burkina Faso)

visiting a number of EEC-financed development projects, notably the Mankarga project where people have been able to settle on land made free of the threat of river blindness and the Ziniare rural development project which is being carried out by the Italian NGO "International Community of Lay Volunteers".

Niger

Before going on to Congo, Mr Natali made a short stop-over in Niger, where he was received by the Head of State, President Kountche, and had a working lunch with the Ministers of Planning, Foreign Affairs and Agriculture.

Discussions centred on the implementation of the 6th EDF, the Indicative Programme for which was signed in November 1985, on policies with regard to cereals and on Sysmin.

The bulk of Niger's Lomé III allocation should be committed next year, most of it going to irrigation projects and programmes.

Congo

Commissioner Natali's final port of call was Brazzaville, which he visited from 21-24 October. Congo's Indicative Programme was signed in January 1986 and the Commissioner's visit enabled its implementation to be

speeded up by allowing the regions of the country in which the Community's aid was to be concentrated to be defined. In discussions with President Sassou Nguesso, speaking in his capacity as President-in-Office of the OAU, the question of EEC sanctions on South Africa was again raised, as was that of the economic situation of the African continent as a whole, which, the President believed, could be given new life as a result of openings made during the UN Special Session on Africa held in July. Debt was also a subject of discussion, the President expressing the hope that, given Africa's economic plight, international financial organisations such as the IMF and the World Bank might be persuaded to soften their conditions. The relations between Congo and the European Community were, he said, excellent.

Jamaica

In mid-November Commissioner Natali again had the opportunity of visiting an ACP State, this time Jamaica, where he held far-ranging discussions with the Prime Minister, Edward Seaga, as well as with the Vice Prime Minister, Hugh Shearer, a former Chariman of the ACP Council.

A matter of particular concern to the Jamaican government was the situation in the bauxite industry where world prices have collapsed and for which Jamaica is seeking assistance through the Sysmin system. The Commissioner was able to see for himself the great importance of the mineral to Jamaica's economy when he visited a plant in Clarendon, close to the capital, Kingston.

Another issue discussed was that of aid to Haiti, Mr Seaga underlining the urgent need for aid to be given rapidly to Haiti to help stabilise the country's fledgling democracy.

The Government expressed its appreciation of Community action in Jamaica and of the advantages offered by the Convention and of its Protocols—the Sugar Protocol in particular.

Vice-President Natali meets new President of the World Bank

Arriving in Washington on 19 November from Miami where the Vice-

President had taken up an invitation to present the Community's actions in the Caribbean and in Central America to the 10th "Miami Conference on the Caribbean", Mr Natali met the new President of the World Bank, Mr Barber Conable, together with senior members of his staff.

The outcome of the meeting was that The European Community and the World Bank would in future coordinate their actions in sub-Saharan Africa.

The meeting provided an occasion for the two to look at the coordinated functioning of EDF and World Bank aid operations—coordination which is all the more necessary in view of the fact that the EDF and the World Bank put similar amounts of aid into Africa (The Community and its Member States at present provide something like 55% of public development aid to black Africa). ◊

TWO NEW DEPUTY DIRECTORS-GENERAL

Two new Deputy Directors-General have been appointed at the Commission's Directorate-General for Development, Mr André Auclert (F) and Mr Anthony Fairclough (UK).

Mr Auclert's nomination comes after 28 years' experience of development cooperation, and of development finances in particular, within the Directorate-General for Development.

After ten years' service as an officer of the French Civil Service in Senegal,



André Auclert

Burkina Faso and Guinea, he entered the Commission in 1958. Beginning in the General Studies Division, he later became Assistant to the then Director of the European Development Fund (EDF), a post which familiarised him with the work of the entire D.G. In 1967 he was promoted as Head of the EDF Finance division and in 1976 became D.G. VIII's Director of Finance, responsible for the financial management of all aid operations financed by the Community, including emergency aid, as well as for the issuing of invitations to tender and for the staff management of the Commission's Delegations in the ACP States, the Mediterranean, Asia and Latin America. In the course of his career he has played a leading role in the negotiations of the Financial Cooperation chapters of the Yaoundé and Lomé Conventions as well as of the Financial Protocols signed between the Community and eight Mediterranean countries.

Mr Auclert took up his new appointment on 17 November. His new responsibilities include coordinating the two geographical Directorates and the related services in charge of programming, identifying, appraising and implementing projects and programmes financed from the Convention's funds in all ACP countries.

Mr Fairclough is a scientist by training but spent much of his career in the British Civil Service dealing with the constitutional and economic evolution of the former British dependent territories. Subsequently, from 1974-78, he was Director of the UK's Central Unit on Environmental Pollution, with responsibilities for coordinating Government action to combat



Anthony Fairclough

pollution, both nationally and internationally). From 1978-81, he was Director of International Transport in the UK Department of Transport.

In 1981 Mr Fairclough moved to Brussels as Director for the Environment with the Commission of the European Communities. He has, since

May 1985, been Acting Director-General in charge of Directorate-General XI of the Commission's services, with responsibilities for the development and implementation of the Community's environment policy and action programmes; for its consumer protection policy; and for coordination in the field of nuclear safety.

Mr Fairclough took up his appointment at the beginning of January 1987.

His responsibilities include coordinating the services dealing with development and trade policy, as well as those responsible for the financing and management of all aid operations. ○

ACP EMBASSIES

The new Ambassadors of The Bahamas, Central African Republic, Dominica, Lesotho, and Tonga have recently presented their credentials to the Presidents of the EEC Council and the Commission of the European Communities.

Bahamas

Richard Clifford Demeritte, The Bahamas' new Ambassador to the EEC, was born in 1939 and studied in

his home country, in London and in the United States, qualifying as an accountant.

In 1980, after a number of years in the Treasury Department, he was appointed Auditor-General, a post he held until his appointment to the Embassy in Brussels.

Mr Demeritte is married and has three children.

Central African Republic

Cyriaque Samba-Panza, CAR's new Ambassador, graduated in law from the University of Kiev before entering

public service in the Ministry of Planning in 1972.

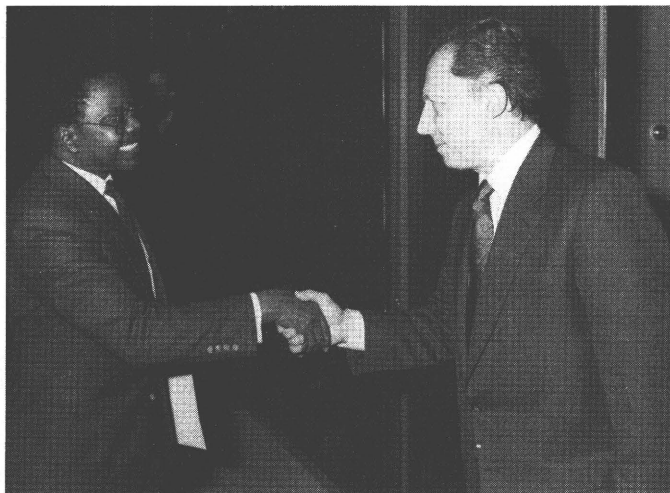
Since 1981 Mr Samba-Panza has acted as Chargé de mission at the Ministry, with special responsibility for Foreign Affairs.

Mr Samba-Panza is married, with eight children.

Dominica

Dominica's first Ambassador to the European Communities, Mr. Charles Savarin, presented his credentials in September.

Mr Savarin, who is 43, comes to



The new Ambassadors of The Bahamas (left) and of Lesotho presenting their credentials to the Commission



Mr Samba-Panza



Mr Savarin



Mr Siasoi Taimani 'Aho

Brussels from London, where he had acted as Minister Councillor at the Dominica High Commission since 1985. Prior to that he had held the office of Minister Without Portfolio at the Prime Minister's Office, and has had long experience as a Trade Unionist, particularly as the leader of Dominica's Civil Service Association.

Mr Savarin is married, with two children.

Lesotho

Lesotho's new Ambassador, Julius Nako Tsoanamatsie, graduated in Economics and Political Sciences, first entering Government service in the Department of Commerce and Industry.

Following four years as Counsellor at the United Nations, he was posted as Lesotho's Ambassador to the Federal Republic of Germany. Since 1982 Mr Tsoanamatsie has held the post of Managing Director of the Lesotho Housing Corporation.

Mr Tsoanamatsie is 41 and is married.

Tonga

Mr Siaosi Taimani 'Aho was first posted to Europe ten years ago when he was appointed First Secretary at the Tonga High Commission in London. Returning home in 1980, he held successive posts as Assistant Secretary at the Ministry of Foreign Affairs, Secretary to the Cabinet and, finally, Secretary for Foreign Affairs.

Mr Siaosi Taimani 'Aho is 47 years old and is married. ○

SUGAR PROTOCOL

Guaranteed purchase price settled

The negotiations the EEC Commission began with the ACP representatives in mid-May on the purchase price the Community guarantees for ACP sugar exports in 1986/87 came to a close on 31 October 1986. The 1.3 million tonnes the ACPs export to the EEC under the Sugar Protocol will be bought at ECU 55.39 per 100 kg of white sugar and ECU 44.92 per 100 kg for raw.

The suggested prices for 1986/87 are in fact identical to those of the previous year and it was the Ministers of the 12 who invited the Commission to

negotiate with the ACPs. The agreement reached on 31 October will be put before the Council to be adopted officially.

The breakdown in quantities between the ACP countries concerned has not changes either. The national quotas are 50 048.8t for Barbados, 40 104.4 for Belize, 10 000 for the

Congo, 164 862.1 for Fiji, 158 935.3 for Guyana, 10 000 for Côte d'Ivoire, 5 000 for Kenya, 10 572.8 for Madagascar, 20 617.8 for Malawi, 489 914.2 for Mauritius, 15 394.4 for St Christopher and Nevis, 117 450.2 for Swaziland, 30 000 for Zimbabwe, 118 300 for Jamaica, 43 500 for Trinidad & Tobago and 10 000 for Tanzania. ○

RELATIONS WITH ETHIOPIA: COMMISSION REPLIES

Press reports have represented the EEC's attitude to Ethiopia in terms that could suggest it is a silent and passive onlooker in the events taking place in this country today. This is certainly not true.

The Community, which has more than 10 years' experience of development cooperation with Ethiopia behind it, has publicly taken up position in the official statements made by various bodies and, in particular, in answering questions from the European Parliament and even in Ethiopia itself on resettlement, villagisation, aid and famine.

And it has not only taken a stand. It has acted on it, intervening at all levels to get across the basic humanitarian considerations that should prevail in whatever the Ethiopian Government does.

It has also discussed—virtually alone—with the Ethiopian authorities about the sort of agricultural policy that will encourage the producers and avoid famine in future. After conclusive negotiations in the Lomé framework, it got Ethiopia to make commitments about agricultural policy (grain prices and marketing) that had never been made with anyone before as a counterpart to Community aid — which will be concentrated on the crucial sector of the rural development of the peasant smallholders.

In a context of this kind, the Commission, which is responsible for implementing the Lomé Conventions, thinks that there is room between interference and passive acceptance for a candid dialogue that is of benefit to the people of all the developing countries. ○

GENERAL INFORMATION

Tin — study group could follow on from International Agreement

The crisis that shook the world tin market last year and paralysed the International Tin Agreement has been serious food for thought for producers and consumers alike. The EEC experts, like their American counterparts, say the Agreement should be replaced by a study group like the one for lead and zinc. This group, a forum for the exchange of information on market trends, should on no account intervene on the world market in the way the present Agreement did. The consumer and producer countries which belong to the Agreement met in November to discuss this idea in detail, but they have until next June, when the 6th Agreement runs out officially, to make up their minds. ○

Rubber: the conference adjourns

The future of the International Rubber Agreement seems seriously threatened since producers and consumers left their Geneva meeting on 17 October unable to agree.

The second session of the negotiating conference for the new International Agreement began on 6 October and ended on fundamental discord. The producers thought the Agreement should aim for guaranteed price stabilisation, while the consumers were more inclined not to interfere with market forces.

The present International Rubber Agreement expires in October 1987. No date has been fixed for further negotiations. ○

EMERGENCY AID

The Commission has just decided to send the following amounts of emergency aid.

Ethiopia: ECU 500 000

This is to handle food aid supply problems in the Tigré region by financing an air bridge between it and Asmara. It will be run by the Ethiopian Catholic Secretariat.

This aid follows a donation for the same purpose last June.

El Salvador: ECU 500 000

The dramatic results of the earthquake on 10 October prompted this second aid scheme, following the ECU 250 000 voted on 14 October. It will be implemented by a number of humanitarian organisations, which have appealed for provisional shelters, basic essentials and more food.

Palestinian refugees in Lebanon: 1370 t cereal

This, which is a response to an urgent request from UNRWA (the UN Relief and Work Agency for Palestinian Refugees), is to meet the most vital needs in the camps.

Vietnam: ECU 435 000

Last September, hurricane Wayne hit Vietnam, with dramatic consequences. There were more than 400 dead, 2500 wounded, 500 000 houses destroyed or damaged and dozens of hectares of rivers devastated.

The Commission has just decided to send emergency aid—ECU 435 000—to the afflicted populations. It goes to a programme to supply clothing and fabric to make clothing, mosquito nets, blankets etc. which is being run by a number of non-governmental organisations (Trocaire, Oxfam Belgium, Secours Populaire Français and Caritas Germanica).

St. Vincent: ECU 45 000

This is to cope with damage wrought by the recent hurricane Danielle, which has destroyed houses, caused landslides and cut power and water supplies.

The aid will cover the St. Vincent Government's immediate outlay on repairing the electricity and water networks. ○

FOOD AID

Following a favourable opinion from the Food Aid Committee, the Commission has just decided to allocate the following products as part of the 1986 programme.

(tonnes)

	Cereals	Milk-powder	Butteroil	Vegetable oil	Beans	Other (1)
Mozambique	40 000			1 000	2 000	
Lesotho	9 999					
Sudan	20 000	600	200	500		
Kenya	11 000					
Sao Tomé & Príncipe	1 250			100		
Guinea Bissau	6 000	300	100			
Honduras		500	300			
NGO	20 000	4 000				1 042
LICROSS		370	40			

(1) tonnes cereal equivalent.

The cost to the budget of this decision is an estimated ECU 35.7 million. This brings the total expenditure on food aid in 1986 to around ECU 327 million.

El Salvador: 250 t cereal & 100 t vegetable oil

The Commission has just decided to send these amounts of emergency food aid to Salvador, which is suffering from the effects of the recent earthquake and has the health of some of its people threatened by famine.

LICROSS will distribute this aid to some 8000 families in total poverty.

Vietnam: 1500 t cereals

The Commission has just decided to send this to the Vietnamese victims of hurricane Wayne. It is in addition to the money already allocated for basic necessities and will be distributed by Trocaire, the non-governmental organisation, in the provinces of Thai Binh and Ha Nam Ninh. ○

SYSMIN

Zaire: ECU 41 million for copper and cobalt

Copper and cobalt are of vital importance to Zaire's economy, contri-

buting almost 20% of GDP, more than 20% of the State's income and two thirds of its export earnings. Gecamine, the state company, alone produces 93% of the nation's cobalt and all its copper.

Although the volume of reserves and the high-grade (4%) ore bode well

for the future, the production apparatus is no longer what it was, having deteriorated over a number of years, culminating in the first Sysmin payment in 1982.

However, there are still a number of handicaps seriously compromising the situation in this sector. First of all, there is the copper price slump and the bad cobalt sales situation, both of which hit Gecamine finances hard, threatening its financial independence. So the company has cut back on its exports, hoping to push up prices on the international market of which it is the biggest supplier.

The considerable investments made in maintenance and modernisation have not been enough. And there has been a tendency to sacrifice long-term productive operations such as prospection and the removal of covering land too.

Transport problems have remained to the fore, in spite of the rehabilitation of the national route (the Kasai and Zaire rivers and the railway either side of the waterway).

Gecamine is planning to re-establish its long-term viability through a five-year (1986-90) rehabilitation and consolidation plan, which was presented to the potential funders at a number of meetings under IBRD auspices in 1985 and 1986.

The programme aims to maintain the present production apparatus, es-

essentially by making adjustment investments—about 58% of the programme is maintenance investments to replace obsolete equipment and 36% is to boost productivity and cut costs. The remaining 6% is to complete an electro-refining plant aimed at diversification. The cost of the programme is ECU 790 m approx., which will be financed by a group of funders and Gecamine itself.

The Commission's Sysmin contribution is ECU 41 m, ECU 30 m of which are for the Gecamine programme and ECU 11 000 000 for Zaïre National Railways. The Gecamine sub-project is for supplies linked

to production and support activities. The Zaïre National Railway sub-project involves replacing 68 km of track and boosting the capacity of the ballast quarries. ◊

CULTURAL SEMINAR

The Foundation for ACP-EEC Cultural Cooperation held an international seminar in Brussels from 25-28 November on the theme "Cultural identity and integral development". An article on the seminar will appear in a future issue of *The Courier*. ◊

EUROPEAN COMMUNITY

Summit in London: neither controversial... nor courageous?

The United Kingdom, which presided all gatherings of European Community Member States for the last six months of 1986, also acted as host to what has become the Community's ritual end-of-presidency meeting of Heads of Government (or State, in the case of France), the European Council. Designed as an opportunity for the launching of major policy initiatives, or for redirecting those in orbit which have gone off course, this particular Council, a two-day session held in London, was widely seen as characterised not so much by the questions to which it *did* address itself as by those to which it did not.

The agenda—suggested by the host

country, but in which the Member States and the Commission can have a say—was an eminently worthy one, including the fight against terrorism, and those against cancer, AIDS and drugs; the problem of abusive immigration and the need for greater social and economic cohesion amongst the Twelve. An agenda clearly designed to inspire confidence in the image of a united, caring Community, moving to combat some of the greatest social problems of the day, and not ones of its own making. What was not on the agenda, though—rightly or wrongly—were some of the problems that *are* of the Community's making, the chief of which is undoubtedly the Common

Agricultural Policy, (which Mrs Thatcher herself would have liked to discuss) whose opponents are numerous, but disparate and whose proponents are less numerous, but organised — and therefore powerful.

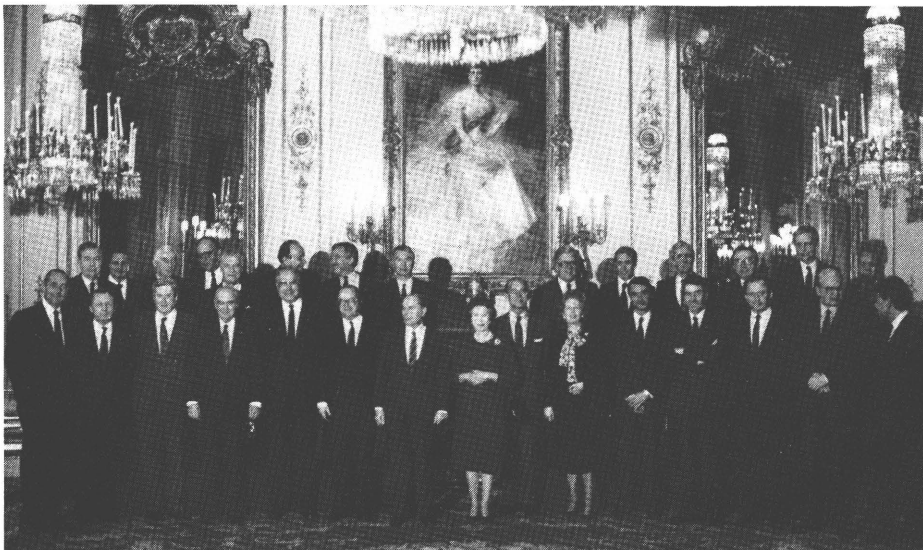
The fact that the Council omitted to decide on certain crucial issues, however, is not to belittle the value of what it did decide on. It reviewed, firstly, the progress made in the Community over the past five years, singling out the convergence of economic and technological policies, the accession of two new member States, the adoption of a Common Fisheries Policy and the agreement on the Single European Act (now all but wholly ratified) as the main achievements. It also looked further at questions of political and economic cooperation, welcoming the "steady acceleration of progress" towards achieving a single European market — a goal which the Commission's President, Jacques Delors, chose as the major goal for the next two years of his Presidency.

Also discussed were means of further intensifying the Member States' fight against terrorism. Common principles were agreed to not only for dealing with terrorists themselves, but for dealing with those who sponsor terrorist acts.

On drugs, the Council endorsed a 7-point Action Programme worked out by their Interior Ministers, noting that agreement had to be reached on a common position before they participated in the 1987 UN conference on Drugs.

Public health issues also received attention, firstly in the form of the Council's agreement to designate 1989 European Cancer Information Year, in which concerted and sustained information campaigns would be run throughout the Member States on the prevention, early warning and treatment of cancer and secondly in the form of heightened concern about the spread of AIDS.

No final decision was taken on the ERASMUS programme (the European Scheme for the Mobility of University Students), the programme designed to enable greater freedom of movement between Europe's universities, but which had been withdrawn by the Commission itself. The Council called for further consideration of the programme, however, with a view to reaching a decision "at an early Council".



The formal "portrait" of the European Heads of State and Government, taken at Buckingham Palace during their December summit

The final weeks of the UK Presidency were marked by a flurry of activity. In addition to the Heads of Government meeting in London, no fewer than nine different Ministerial Councils were held in December in Brussels, with Ministers keen to complete the tasks they had set themselves before the next Member State (Belgium) settled itself into the European Chair.

DEVELOPMENT COUNCIL

Ministers define new food aid policy

Development Ministers of the Community's 12 Member States met in Brussels on 11 November for a Development Cooperation Council chaired by the British Minister for Overseas Development, Mr Christopher Patten. Matters under discussion centred principally on population and development, food aid policy, the progress in Lomé III programming and in the implementation of the Recovery and Rehabilitation Plan for Africa which had been approved at the Council's meeting in November 1985.

On population, and after an introductory statement by the Commissioner for Development, Mr Natali, Ministers discussed in detail the support that the Community might give to population policies and programmes planned or implemented by the developing countries to achieve a better balance between population size and available resources. They stressed particularly the need for population policies and programmes to form an integral part of overall development policies, to be neither coercive nor discriminatory, and to be based on the fundamental right of individuals and couples to choose voluntarily the number and spacing of their children.

A resolution was adopted setting out the general principles and guidelines which will form the basis for Community action, amongst which that "population policies and programmes should be regarded as an integral part of general economic and social development, bearing in mind the need to reach and/or maintain a balance between population, resources, employment and the environment" (*).



Mr Christopher Patten, Britain's Minister for Overseas Development, who chaired the Development Council

Moving onto food aid policy, Ministers examined a proposal from the Commission intended to replace the existing set of guidelines governing Community food aid activities with a new set more in keeping with changing ideas on the subject. In a Resolution in 1983 the Council had recognised that food aid could not be considered as an end in itself or simply as a means of disposing of surpluses from the Common Agricultural Policy but should be integrated, rather, into the community's development policy and contribute in particular to developing countries' food security.

The Commission proposals are designed to integrate food aid more closely into development policy, so providing a better response to the needs of beneficiary countries, as well as to make food aid management generally more efficient. Ministers worked out a common position on the proposed new guidelines, and this will be forwarded to the European Parliament accordingly.

The Council also had the opportunity of reviewing the programming of Community aid in the ACP States, expressing its appreciation to the Commission for the results achieved in applying the new programming approach adopted, asking it at the same time to complete the exercise as quickly as possible. Ministers welcomed in particular the obvious determination of many ACP States to continue with or to embark upon the process of reform and adjustment, and expressed

their satisfaction that most of the states concerned had chosen to focus Community support on a sectoral rural development strategy designed to ensure greater food self-sufficiency. Ministers also recalled the importance of regional cooperation and noted the encouraging initial results recorded in the programming of regional credits. They stressed, however, the need for increased coordination between Member States and the Commission.

This latter was also underlined as being of fundamental importance by Vice-President Natali when he reported in detail to the Council on the state of implementation of the Rehabilitation and Revival Plan for Africa⁽¹⁾, destined to alleviate the plight of those African countries most seriously affected by famine and drought⁽²⁾. Of the ECU 108m made available, ECU 103m had already been committed, he confirmed. Actions undertaken included the provision of seeds, fertilisers and hand tools as well as water supplies, medical assistance, local cereal storage and measures to combat the threat to crop from locusts. Help in overcoming transport difficulties had also figured among Community-funded actions.

Commissioner Natali added that a review of all these actions would be undertaken in early 1987, to assess both their immediate and their long-term impact, as well as to see how they dovetailed with actions to be undertaken under Lomé III. The Council for its part congratulated the Commission on the speed with which the plan had been carried out and praised it for its innovative approach. Ministers also emphasised the value of the frequent coordination meetings which had taken place between the Commission and the Member States, as well as that with other aid donors, noting in particular valuable role played by non-governmental organisations in implementing the programme.

A number of other matters were discussed by Ministers, including the application of the Stabex system to LDCs outside the Lomé Convention, and the guidelines put forward for 1987 governing aid to developing countries in Latin America and Asia.

M.v.d.V.

(1) See article p. 7.

(2) Eleven countries have so far benefited from the Plan: Angola, Botswana, Cape Verde, Chad, Ethiopia, Mali, Mauritania, Mozambique, Niger, Somalia and Sudan.

(*) A dossier on Population and Development will feature in the May-June issue of The Courier.



INDUSTRIAL OPPORTUNITIES

PUBLISHED EVERY TWO MONTHS

No. 53 : JANUARY-FEBRUARY 1987

CDI SIGNS CONVENTION WITH FRANCE

FRENCH COOPERATION MINISTRY TO POOL RESOURCES WITH CDI

CDI and the French Government agreed to a limited pooling of their resources, in a convention signed on the 26th of November by France's Minister for Cooperation Mr. Michel Aurillac and CDI's Director Dr. Isaac Akinrele.

The aim is to provide joint support for the creation, or strengthening, of small and medium-sized industries (SMIs) in ACP countries.

The convention is initially limited to projects in those ACP countries eligible for assistance under the aid and cooperation fund (FAC) administered by the French Ministry of Cooperation. At present, this largely means francophone and lusophone ACP countries, in Africa and the Indian Ocean.

The convention is also limited to projects involving cooperation between ACP entrepreneurs and French SMIs (but SMIs in other EEC member States may eventually be able to benefit).

EQUAL CONTRIBUTIONS

Under the convention CDI and the French Ministry of Cooperation will strengthen their operations by matching each other's contributions to the costs of the following activities (for agreed projects):

- pre-feasibility studies (market studies and the identification of partners);
- feasibility studies for the establishment, expansion or rehabilitation of factories;



France's Minister for Cooperation, Mr. Michel Aurillac (seated left), face to face with CDI Director Dr. Isaac Adedayo Akinrele, at the signing of the new convention in Paris.

- pilot plants for new technologies;
- technical assistance for the start-up, management and maintenance of industrial plants;
- expertise and training, to attain the quality standards required for the successful marketing of products;
- training of local personnel and the organisation of production, in ACP-based joint ventures with French partners;
- marketing of local manufactures.

All the costs of such activities will not, in every case, be defrayed by the contributions of CDI and the French Ministry of Cooperation.

In most instances it is expected that the ACP and French partners will

themselves cover a certain portion of the costs.

The convention will reduce the financial burden for both CDI and the Ministry, while enlarging the overall envelope of assistance, for agreed projects.

Dr. Akinrele undertook to keep the French Ministry of Cooperation informed of any of CDI's industrial operations involving French SMI's in eligible ACP countries.

Mr. Aurillac, on the other hand, agreed that his Ministry's overseas offices would transmit to CDI any information obtained concerning projects under joint study.

The operation of this convention has now to be worked out in detailed

Continued on page 2

Continued from page 1

discussions between CDI and officials of the Ministry.

ACT OF CONSOLIDATION

In proposing the convention, Mr. Aurillac hoped that it would lead his Ministry and CDI to join forces, to strengthen their assistance to ACP countries and to take better advantage of favourable changes in the industrial environment. He briefly described these changes as the "re-organisation by most African countries of their productive sectors and the new direction of Lomé III, with its emphasis on the importance of private initiatives for balanced economic development".

PROJECTS CO-FINANCED WITH BELGIUM'S WALLOON REGION

In June 1986, the Director of CDI signed an agreement with the Minister-President of Belgium's Walloon Region, to provide for joint assistance to projects involving Belgian industrialists in ACP countries. (See issue No. 51 of Industrial Opportunities).

So far under this agreement the following projects have been accepted for assistance:

- Wool charcoal plant (Côte d'Ivoire, joint venture). Feasibility study.
- Anti-rodent products (Madagascar, franchising agreement). Feasibility study and local tests.
- Paint factory (Benin, franchising agreement). Assistance with start-up, training and the transfer of know-how.

The foreign exchange costs of the above interventions will be met by equal contributions from CDI, the Government of the Walloon Region and the Belgian partners. Local costs will be met by the ACP promoters.

A further three projects (in Congo, Côte d'Ivoire and Rwanda) are currently being considered for assistance under the agreement.

PRIVATE CAPITAL FLOW

Dr. Akinrele referred to Lomé III's intention to encourage and promote private investment for the industrial development of ACP countries and to study measures to "induce a more stable and increased flow of private capital to ACP States".

Some ACP States, he said, have responded by recently reviewing their investment codes to make them more attractive to foreign capital.

"Many ACP States", he went on, "now make it possible for companies to repatriate their profits through retaining some portion of their export earnings. Others are even undertaking to privatise State enterprises which they are sometimes willing to sell off to foreign investors. Thus, the horizon is increasingly widening for ACP-EEC investment co-operation".

CDI is helping to widen this horizon by fostering the so-called "new forms of investment" which include not only joint ventures but also "licencing agreements, franchising, management and turnkey contacts, product-in-hand agreements, production sharing and international subcontracting".

CONTACTS WITH FRANCE

Dr. Akinrele pointed out that since the beginning of the Third Lomé Convention (1st march 1985) CDI has taken a number of measures to expand contacts with the industrial milieu in France. He gave the following examples:

- a meeting organised jointly with the Marseille Chamber of Commerce and Industry and the Association pour le Développement de la Coopération Industrielle Internationale (ADECI);
- an information meeting for representatives of some 15 French Chambers, arranged in conjunction with France's Permanent Assembly of Chambers of Commerce and Industry (APCCI).

"We have, during this period", he said, "involved many French companies in the co-financing of feasibility studies, and in providing assistance for start-up, rehabilitation (or expansion) and in-plant training of industrial workers, for small and medium-sized enterprises in ACP countries".

CDI AND FRENCH INDUSTRY 1983-1985

The following tables summarise the activities undertaken by CDI in cooperation with French firms over the three years 1983 to 1985.

Many of the projects benefitted from the facilities offered by the Ministry of Cooperation's aid and cooperation fund (FAC).

IMPLEMENTED PROJECTS

PROJECT TITLE	COUNTRY
<ul style="list-style-type: none"> • Plastic packaging • Tannery • Air conditioners 	Cameroon Cameroon Cameroon and Côte d'Ivoire
<ul style="list-style-type: none"> • Bicycles 	Côte d'Ivoire and Togo
<ul style="list-style-type: none"> • Prefabricated wooden houses • Paint and cleaning brushes • Leather sandals • Mother of pearl of buttons 	Dominica Gabon Mauritania Mauritius and Vanuatu
<ul style="list-style-type: none"> • Electric control panels 	Senegal

FEASIBILITY STUDIES UNDERTAKEN (FOR JOINT VENTURE PROJECTS)

PROJECT TITLE	COUNTRY
<ul style="list-style-type: none"> • Biscuit plant • Wood-core plywood • Yam Flakes * • Alternative energy * • Shoes • Fruit canning • Water pumps • Fruit juice • Alternative energy • Galvanisation plant * • Mango processing • Mechanical workshop • Ceramic tableware • Fertilizer based on coffee husks * • Fruit juice • Biogas power plant 	Burkina Faso Cameroon Côte d'Ivoire Côte d'Ivoire Fiji Guinea Conakry Guinea Conakry Madagascar Madagascar Mali Mali Rwanda Senegal Senegal Swaziland Vanuatu

TRAINING

Over this 3-year period, more than 20 French companies were involved in training ACP technicians for projects ranging from a hand baggage plant to a foundry.

PROMOTION OF PROPOSALS

Over this 3-year period, CDI promoted 46 proposals (submitted by French companies) for industrial productions in ACP countries.

This figure includes proposals prepared by the Association pour le Développement de la Coopération Industrielle Internationale (ADECI), Marseille.

FIRMS REGISTERED

Over 150 French firms that are willing in principle to consider taking an equity participation in ACP-based joint venture projects, have had themselves registered with CDI.

* Adapted technology projects.

AGREEMENT CONTEMPLATED BETWEEN CDI AND PROPARCO *

The French development finance corporation, Proparco, met a CDI delegation in Paris on 26 November, to prepare the ground for a formal agreement to be signed by both institutions.

Proparco and CDI were both founded 10 years ago (1977). They share some common aims and apply some similar criteria to the selection of projects. Up to now both organisations have cooperated informally but feel that they could go much further by the means of a formal agreement which would fix objectives, set budgetary targets for joint projects, establish mutual criteria for feasibility studies and provide for a regular exchange of information on projects presented (to either institution) for assistance.

During the Paris meeting, Mr. François Colas, Director General of Proparco, said that such an agreement "could act as a stimulant", and CDI's Director, Dr. Isaac Akinrele, welcomed the idea of an agreement which could bring Proparco's risk capital to viable ACP projects.

Although CDI cannot itself contribute risk capital to a project, it offers several forms of assistance which Proparco is unable to provide directly from its own funds, such as diagnostic studies, technical assistance, training and feasibility studies.

Although Proparco does have access to French sources for such assistance, Mr. Colas said that he appreciates CDI's "flexibility and its ability to respond more quickly than other organisations".

COMMON TARGETS

Dr. Akinrele recognised that both organisations overlap in a number of areas, except in financing. CDI could therefore look at the possibility of "sharing responsibilities in the pre-financing stages", leaving Proparco the task of "evaluating and preparing projects for financing".

He hoped that both institutions could agree on common targets for joint projects. CDI could fix a budgetary target for the pre-feasibility stages and Proparco, he suggested, could fix a target sum for equity contributions. In reply, Mr. Colas agreed that Proparco would study the possibility of coming to such an arrangement.

Proparco selects 30 to 40 projects a year for in-depth study, from among about 150 requests for assistance. Of these it may decide to help about 16, of which only 10 may eventually be implemented. As it does not have the resources for the in-depth study of 150 projects a year, Proparco is obliged to carefully select and improve project ideas.

Mr. George Cancade, Secretary General of Proparco, said that his institution and CDI should "devise a formal means of contact, to avoid duplicating project evaluations, in cases where the same promoter has asked both institutions separately for assistance".

CRITERIA FOR PROJECTS

Dr. Akinrele pointed out that CDI's process for selecting projects had recently come closer to Proparco's. Until recently CDI was responding to between 400 and 500 ad hoc requests per year, but the current policy is to search out projects and, after carefully examining and selecting them, to plan assistance country by country.

Mr. Colas told the CDI delegation that Proparco, when selecting projects for assistance, primarily looks at:

- the potential for viability;
- the motivation of the partners;
- the attractiveness of the product in relation to its target market;
- the quality of management and organisational ability;
- the value of the project to the country concerned (e.g. will it create profitable jobs, or give added value to local resources?).

Mr. Colas characterised Proparco as a "risk capital institution occupying a pivotal position where projects are made or abandoned".

He added: "We are at the heart of the problem, at the end of a long chain, where the financial package is assembled — we are, therefore, able to apply pressure to obtain reasonable demands".

Dr. Akinrele concluded by saying that, as both institutions have common objectives, he firmly hoped that they could soon sign an agreement which would specify budgetary targets for common projects, as a natural sequel to the agreement signed with France's Minister for Cooperation.

* Proparco (Société de Promotion et de Participation pour la Coopération Economique) is a wholly owned subsidiary of France's Caisse Centrale de Coopération Economique (CCCE).



At the meeting between CDI and Proparco in Paris last November are (left to right): Mr. Georges Cancade (Secretary General, Proparco), Mr. François Colas (Director General, Proparco), Mr. Patrick Keene (CDI), Mr. Paul Chotard (CDI), Dr. I.A. Akinrele (Director, CDI), and Diarmuid Peavoy (CDI).

INDUSTRIAL POTENTIAL SURVEYS OF ACP STATES

In previous issues of "Industrial Opportunities", we published summaries of industrial potential surveys undertaken by CDI in six countries of East, West and Central Africa. In this issue we carry articles summarising similar surveys of two

Southern African countries — Botswana and Zimbabwe.

All ACP countries have now been surveyed. The surveys are a form of assistance to ACP States and include recommendations for each country on how best

to stimulate industrial development.

Each survey also proposes industrial projects — suited to the local economic situation — which may benefit from CDI's assistance.

Zimbabwe: survey paints mixed picture

With manufacturing and processing industries accounting for more than 25% of its Gross Domestic Product (GDP), Zimbabwe's economy is unique in Africa.

Moreover, following on the record levels of industrial growth achieved during 1985 "the general outlook for the Zimbabwe domestic economy is bullish and the manufacturing sector seems set to expand dramatically".

So opens a CDI-commissioned industrial potential survey of the Southern African country, which was completed in April 1986. But despite the glowing terms in which the economy is described in the introductory pages, the picture the survey subsequently paints is mixed.

"There are some significant uncertainties which may cast a shadow over the country's economic performance", it says, citing the low growth rates forecast for Zimbabwe's major export markets, the downward trend in commodity prices and the unpredictability of rainfall patterns — and hence farm production.

POOR INVESTMENT RETURNS

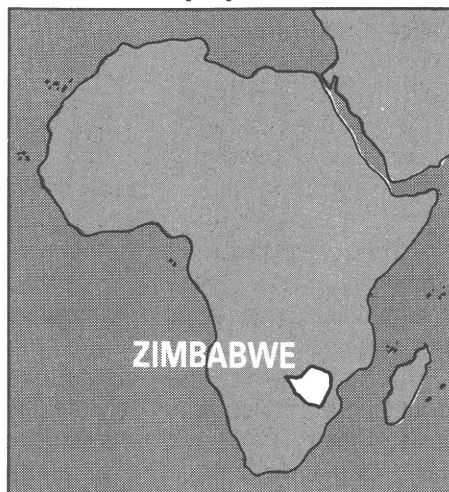
As regards the country's industrial prospects, the survey finds that there has been a relative decline in investment since independence and that given the relatively high interest rate and inflation levels, returns on investment are often less than attractive.

Looking at human resources, the study says that the skills of the labour force constitute an invaluable resource which adds to Zimbabwe's potential for further industrial development.

Against this, however, it points out that wage levels are relatively high, and businessmen maintain that the wide range of employment and wage controls act as "significant disincentives to industrial expansion".

Zimbabwe's manufacturing industry is by and large resource-based, and is involved mainly in import-substitution activities.

It is "characterised by a tendency to monopolistic production conditions, with a few large firms dominating the manufacture of most products and so minimis-



ing competition in the market place". The report goes on to say that the "maintenance of strict import controls reinforces this lack of competition".

RESOURCEFUL MAINTENANCE TEAMS

While the maintenance of industrial capacity is seen as an important condition for future development in this sector and local engineers are "tremendously resourceful in producing solutions to machine breakdowns... chronic foreign exchange shortages have caused severe problems for many firms and the importation of spare parts constitutes one of the most difficult aspects of industrial policy".

As far as Government policy is concerned, the principal aim is to promote employment opportunities and strengthen foreign exchange reserves through the encouragement of exports and the creation of import-substitution industries.

FEW INCENTIVES

While the authorities are "undoubtedly committed to maintaining a thriving private sector in manufacturing", the report contends that "there are very few investment incentives". Moreover, it says that "exchange controls and limits on remittability of dividends, together with restrictions on borrowing by foreign-owned companies, tend to act as disincentives to foreign investment".

Indeed the report identifies "four main constraints on industrial development connected with Government policy": high levels of taxation; severe foreign exchange restrictions; procedures for appraisal and approval; and complex and wide-ranging price and other legislation.

It describes as "highly controversial" the role and extent of foreign ownership of the industrial sector, with frequent Government statements to the effect that domestic ownership must be increased.

Some 48% of the manufacturing sector is foreign-owned, although certain activities—notably foodstuffs, clothing and transport equipment—enjoy a high degree of local ownership.

The transport infrastructure in landlocked Zimbabwe is described as "generally good". But the report points out that as far as international trade is concerned, it has become increasingly dependent in recent years on the South African network, owing to the deteriorating security situation in Mozambique, which has provided its traditional route to the sea. However, "increasing civil unrest in South Africa and the looming prospect of some kind of international economic sanctions against the Pretoria regime present Zimbabwe with an uncertain future".

Manufacturing in Zimbabwe is predominantly domestically oriented and there are very few export-oriented industries. For those that do exist, however, "South Africa is by far the most important market".

Nevertheless, a much greater awareness has developed in Zimbabwe regarding the potential of the regional Black African market—essentially the Preferential Trade Area (PTA) countries. But the report points out that this trade is constrained by a shortage of foreign exchange, and the fact that there are relatively few products which Zimbabwe needs to import from its PTA partners.

CASH SHORTAGE LIMITS TRADE

On the other hand, Zimbabwean products are in strong demand, so that "unless Zimbabwe can import a significantly

increased volume from its PTA partners, the prospects for Zimbabwe exports to the member states are not particularly good".

The survey concludes that "the rela-

tively high level of corporate taxation (over 50%), the limitation the frustrating bureaucratic delays and the operation of wage and price controls in the Zimbabwe economy, all contribute to creating an un-

favourable climate for further investment".

NOTE: For offers of cooperation with industrial concerns and entrepreneurs in Zimbabwe, see page 7.

Botswana: No shortage of investment money

Botswana's diamond mines have made the country rich and its currency (the pula) is in practice freely convertible. Its liberal trade and foreign exchange policy "almost unique in Africa" makes the country attractive to foreign investors, and its government, in addition to pursuing a liberal market-oriented policy in the interests of efficiency, exerts little influence on investments in industry or on commodity markets.

These observations were made in a generally optimistic survey of Botswana's industrial potential, carried out by CDI in early '86.

While admitting that the most profitable sectors, diamonds, beef processing and brewing, are relatively inaccessible to new investors, the survey recommends the favourable investment climate and the potential for diversification and growth in industries allied to the building construction sector which is reported to be booming and in need of market and feasibility analysis.

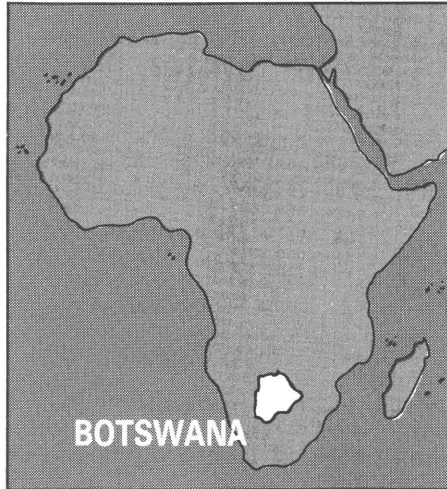
Building materials industries such as cement and brick manufacture for example, present definite opportunities, as do industries capable of making use of raw materials in which Botswana has a comparative advantage.

RESOURCE-LINKED SECTORS

Botswana's economic growth stems from its entry into diamond production in 1971. Diamond mining accounts for 70% of the country's exports but it is not a labour-intensive sector. No locally mined diamonds are processed in the country; and the survey informs would-be investors wondering about the potential for local diamond cutting, that the government is reluctant to issue permits for this activity. Diamond mining, meat processing and beer manufacturing are all partially in the hands of the state, but outside these sectors the government does not seek control.

Other mineral resources found in Botswana are nickel and copper and exploitation of these minerals has been carried on since 1974.

On the agricultural resources side, livestock production thrives and is mainly



channelled into the beef-processing industry. Karakul sheep are raised in the South West and their wool provides opportunity for further exploitation.

Manufacturing in Botswana displays a certain if limited diversification. Textiles are fairly important and are being re-oriented to the European market from strictly regional sales. Manufacturing sub-sectors are growing not only in the construction industry, but also in the local production of inputs for existing mining and manufacturing projects.

Import substitution projects then, in addition to exported-oriented ones, are worthy of examination.

AVAILABLE MARKETS

The domestic market in Botswana offers few prospects of profit because of its small size (population of 1.08 million) and low purchasing power.

External trade on the other hand suffers from no customs restrictions or foreign exchange problems, as the Bank of Botswana assures commercial payments to foreign suppliers.

Imports of raw and semi-finished products are regionally available because of customs-free trade with South Africa, Lesotho, Swaziland and Zimbabwe and exports, equally, are customs-free to the EEC.

Botswana's partners in the Southern Africa Development Coordination Conference (SADCC), encourage the establishment of export projects oriented to the

nine member States; but other partner States face severe foreign exchange restrictions whereas Botswana does not.

Botswana's links with South Africa are of course pointed out in the survey as having a potentially negative effect — freedom from customs duties works both ways!

South African products are directly competitive with the type of import substitutes of which local manufacture is being promoted. However the survey recommends that the South African market be prospected and exploited instead of feared, and indicates that it will remain a powerful market even if political conditions change dramatically.

PRIORITY AREAS

The government of Botswana welcomes foreign investment. The National Development Plan 1985-1991 emphasizes productive job creation in sectors which exploit demand generated by the major existing industries, or which engage in the processing of these industries' products and by-products, or which make use of local raw materials (cattle hides and Karakul wool, for example).

On the basis of these priorities the survey says that projects for the manufacture of the following products are possibly worthy of assistance:

- horn buttons
- knitwear
- clay bricks and tiles
- cement
- crust and vegetable leather
- gelatine capsules for pharmaceuticals

SUBSTANTIAL INCENTIVES

The physical aspects of industrial settlement are catered for to a certain extent by, for example, the provision of industrial sites in the capital (Gaborone) and other towns. Furthermore, the Botswana Development Corporation (BDC) builds turn-key "factory shells" which they then sell or lease. In some cases plant and equipment can even be leased, if industrialists find it too risky to invest themselves.

Continued on page 6

Continued from page 5

Financial incentives include tax reimbursements and net subsidies, under the Financial Assistance Policy (FAP). Labour subsidies, sales subsidies, job creation grants and customs protection are also available. The latter is available for a limited period only and is limited to market-dominating industries.

For small-scale projects assistance may be had with gaining access to credit, input supply, marketing, technical problems, management etc. "Tswelelo" is an internationally assisted body which gives financial help to small industries.

For medium and large sized industries the BDC and the National Development Bank (NDB) provide loans and direct equity participation. "Investment money" according to the survey "is not in short supply".

The government's liberal policy on foreign exchange is regarded as an essential incentive since it provides:

- full remittance abroad of interest and dividend incomes earned by foreigners, subject only to the withholding of income tax at 15%
- no exchange controls or hold-ups in payments of imported goods and services
- annual remittance of at least 50% of the gross earnings of expatriate employees.

Botswana is no tax paradise, however. Heavy income taxation is regarded as a slight disincentive, particularly as far as the settlement of expatriate key staff is concerned.

DISADVANTAGES BALANCED

The shortage of skilled labour in Botswana is described as a "bottleneck for industrial development". Considerable efforts are however being expended to provide vocational and technical education. Unskilled labour is plentiful and costs are "amazingly low".

Botswana depends on the South African ports for its trade with non-African countries. In the event of comprehensive international sanctions against South Africa, exports of copper/nickel and beef would be jeopardized, as well as petrol product imports.

The infrastructure is however good, with 1,762 km of well-maintained tarred roads linked with the Zimbabwean and South African networks. A railway line through the East also exists and the feasibility of constructing a rail link to the West Coast through Namibia is being studied.

PROVISIONAL COUNTRY PROGRAMMES FOR LOMÉ III

Here we list most of the projects in the provisional programmes already agreed for CDI's initial assistance to Botswana and Zimbabwe, under Lomé III. These projects are derived from the industrial potential surveys (and subsequent project verification missions) which have been undertaken in both countries.

BOTSWANA

- **Fresh-water prawn complex.** CDI is to help identify an EEC partner who can contribute equity and know-how for this new project involving a hatchery, ponds and a processing/cold storage facility.
- **Tannery (crust and finished leather).** CDI has identified a potential EEC partner who can provide equity and know-how, for the further development of a large tannery which is currently producing wet-blue leather. Further assistance is being provided to enable the EEC partner to evaluate the project on site.
- **Clay brick manufacturing.** CDI is to identify an EEC technical partner and assist with product testing, for the diversification of a factory currently producing concrete products.
- **Knitwear plant.** CDI hopes to provide marketing assistance for the expansion of a wool spinning plant's knitwear output.
- **Manufacture of abrasives.** CDI hopes to provide implementation assistance for a new project to manufacture coated and bonded abrasives and cutting/grinding discs, for local and regional markets.
- **Button factory.** CDI is to help identify an EEC partner who can contribute equity and know-how for the production of buttons from cow horns, for export markets.
- **Crayons, pencils, fibre pens.** CDI is providing training assistance for the manufacture of these stationery items.

ZIMBABWE

- **Vehicle bodies and spare parts.** CDI is to help identify an EEC technical and joint venture partner to plan and implement the diversification of a vehicle assembly plant, for the manufacture of the above import substitution products.
- **Electrical heating elements.** CDI is to help identify an EEC partner (see page 7).
- **Sewing machines.** CDI is to help identify an EEC partner and to provide training (see page 7).
- **Dolls and toys.** CDI is to help identify an EEC partner (see page 7).
- **Heavy steel springs.** CDI is to provide an expert who will prepare a diagnostic study for the modernisation and expansion of an existing plant. (An import-substitution and export-oriented project).
- **Brass and copper products.** CDI is to provide an expert to prepare and cost a complete modernisation programme for a plant producing metal tubes, rods, sections and strips.
- **Decorative lighting.** CDI is to identify an EEC technical partner (see page 7).
- **Macadamia nut processing.** CDI is to provide technical advice for the expansion of an existing operation.
- **Candle-making.** CDI is to provide technical information and to identify a technical partner for a candle factory.

EXPORTING FROM EAST AFRICA

The conditions for the successful export marketing of ACP manufactures will be defined and discussed at a major meeting to be held in Nairobi from the 17th to the 19th of February 1987.

The meeting is the first of six meetings on industrial cooperation themes which CDI is sponsoring (one for each ACP region) under Lomé III.

The meeting will be attended by export policy makers, manufacturers and experts from 11 east African* countries and the EEC.

All CDI's East African antenna organisations will also participate in the meeting, along with international and regional banking and development institutions.

The meeting will cover such topics as:

- Lomé III rules for exporting manufactures to Europe
- marketing strategies (including design, labelling and packaging) for Europe
- agreements (bi- or multi-lateral) which facilitate regional exports
- the advantages of export processing zones
- export credit and insurance
- international trading procedures and regulations (GATT, the Multi-Fibre Arrangement, etc.)
- CDI's new role in the area of marketing assistance and
- export marketing case studies.

Discussions on the various papers will be led by members of CDI's Joint Governing Board, the Economic Commission for Africa, the ACP Secretariat, the East Africa Development Bank, ACP and EEC industrialists and the Kenya Association of Manufacturers.

Members of the Kenyan Government and the CDI Director and Deputy Director, will address the meeting.

The event will produce recommendations to improve the export marketing of the region's manufactures.

It should also help CDI to appraise export-oriented projects in the future.

* Comoros, Djibouti, Ethiopia, Kenya, Madagascar, Mauritius, Seychelles, Somalia, Sudan, Tanzania and Uganda.

OFFERS FROM ACP SPONSORS EEC INDUSTRIAL PARTNERS WANTED



EEC industrialists are invited to contact CDI, quoting the reference number, in response to any offer outlined in this section.

However, CDI will reply to enquiries only if EEC industrialists give brief descriptions of their current operations and are prepared to provide the kinds of cooperation requested by the ACP sponsors.

Organisations reprinting these offers in their own publications, are asked ALWAYS to include the corresponding CDI reference numbers.

ELECTRICAL HEATING ELEMENTS FOR COOKERS

ZIMBABWE

610.ZIM.2.MEC.

An existing manufacturer of cookers wishes to set up production of spiral radiant ring elements. (Its current requirements for this item are met by imports).

The promoter has a good reputation in Zimbabwe for the production of electrical appliances: radios, TVs, and cookers.

The production capacity should be around 20,000 units a year. About 40% of the output would be exported to neighbouring countries.

An EEC joint venture partner who can contribute to equity and provide know-how and training, is sought.

DECORATIVE LIGHTING

ZIMBABWE

610.ZIM.5.MEC.

An existing manufacturer of lamp bases and fittings for decorative lighting has a 10% share of the local market. (The light fittings in the interior of the Harare Sheraton Conference Centre are a spectacular showpiece for the company's products).

The company wishes to improve its technology, especially in the area of brass pressing. It seeks Italian-type design and technology for the production of modern brass and aluminium light fittings, frames and stands.

A licencing agreement could be considered.

SEWING MACHINES (INDUSTRIAL AND DOMESTIC)

ZIMBABWE

610.ZIM.3.MEC.

A local manufacturer wishes to expand his output of domestic sewing machines and to diversify into the production of industrial sewing machines. (Its current product is manufactured under licence).

This expansion and diversification project already has Government approval.

It is estimated that the production capacity for industrial sewing machines should be about 2,000 units a year.

A technical and licencing partner is required. He should also be in a position to provide training.

DOLLS AND TOYS

ZIMBABWE

610.ZIM.1.PLA.

A local entrepreneur wishes to produce dolls and toys to satisfy 50% of the local market (which is currently supplied by imports).

It is envisaged that the dolls would be manufactured mainly from phosphoric esters and other chemicals. Clothing and accessories would be supplied 100% from local sources.

Educational toys could be produced under licence.

A technical partner who can also help with design is required. A licencing agreement could be considered.

MARKET OUTLETS SOUGHT FOR ACP PRODUCTS

Manufacturers in ACP countries are seeking markets in the EEC or ACP regions for the products listed below. Importers interested in any of these products are invited to contact CDI for further details.

PRODUCT	COUNTRY OF ORIGIN	MARKET(S) SOUGHT
Exotic polynesian food	Western Samoa	EEC markets are sought for canned "Luan", a traditional Polynesian dish made from coconut cream, taro leaves and spices.
Dried whole bananas	Western Samoa	EEC markets are sought for this special health food product.
Intravenous fluids and oral rehydration salts	Zambia	Markets are sought in the member States of Africa's Preferential Trade Area (PTA).
Fresh and processed pork, beef and poultry products	Zambia	Markets are sought in Angola, Mozambique, Congo, Burundi and Gabon.



INDUSTRIAL PROPOSALS FROM EEC FIRMS ACP ENTREPRENEURS, PLEASE REPLY

The proposals outlined below have been put forward by EEC firms interested in setting up production in ACP countries, under joint venture, franchising, or licencing arrangements, with local businessmen.

ACP entrepreneurs interested in any proposal are invited to write to CDI quoting the reference number.

CDI will not be in a position to act upon letters received unless ACP entrepreneurs provide all the information requested in the box below. It would also be useful if they enclosed complementary information, including the latest balance sheet.

Please ALWAYS mention the CDI reference numbers when reproducing these proposals.

All equipment costs are quoted in Ecus (European currency units). The value of the Ecu may easily be ascertained from its relationship to other European currencies. Thus, on 1st December 1986: 1 Ecu = £0.738779, or FF6.80509, or DM2.07736.

ANIMAL-DRAWN AGRICULTURE MACHINERY

DUTCH PROPOSAL 87/1

A Dutch company with experience of manufacturing conditions in West and Southern Africa, wishes to find ACP partners for the production of animal-drawn agricultural machinery such as ox-drawn ploughs, ridgers, harrows, scrapers, ox-drawn carts, seed drills, etc.

The minimum production capacity for each item can vary between 1,000 to 2,000 pieces a year.

The cost of the necessary equipment is estimated to be Ecu 850,000 (FOB).

The Dutch company is willing to consider taking an equity participation in a joint venture and can also supply know-how and equipment.

A UK company wishes to produce both products in ACP countries using local raw materials wherever possible. Some of the raw materials required (minimum annual quantities) are: acrylic acid (80 tonnes), caustic soda (20 tonnes), lime (250 tonnes), sulphur (250 tonnes).

The minimum capacities of production are 200 tonnes a year of **organic dispersants** and 1,000 tonnes a year of **polysulphide**.

The cost (estimated) of equipment is marginal, at about Ecu 25,000. This equipment includes a closed reactor vessel plus associated equipment such as drums and weighing scales.

The UK company is open to licencing agreements or to taking an equity participation in a joint venture. It can offer know-how, training and assistance with marketing.

ORGANIC DISPERSANTS AND POLYSULPHIDE

UK PROPOSAL 87/2

Organic dispersants are used in many industries including emulsion paint manufacturing, the paper industry, sugar processing, mining and water treatment.

Polysulphide is a low toxicity broad spectrum fungicide/pesticide, used to prevent mildew/fungus attacks on many cash crops, besides acting against red spider etc., in coffee, tea, citrus and deciduous crops. Also, when used against mildew on cereals, it can replace dispersible sulphur.

For an ACP country, the added value to be obtained by the local manufacture of these import substituting products is high (100% on the cost price, for polysulphide).

TELEPHONE ASSEMBLY UNITS

GERMAN PROPOSAL 87/3

A long-established West German firm specialised in the production of electronic equipment, wishes to set up assembly operations in ACP countries for 1,000-1,500 telephones and 200 automatic exchanges a year.

The minimum investment required for tools and equipment would be about Ecu 10,000.

The German firm already manufactures through licencing agreements in Africa, the Indian Ocean, South America and the Far East. It has wholly-owned subsidiaries in Singapore and Thailand.

It is now wishes to find partners with whom it may consider manufacturing under joint venture or licencing arrangements, in ACP countries. It can offer technical assistance and training.

Information required of ACP entrepreneurs when replying

- Show why it would be worth-while to manufacture the products in question in your country, e.g. give market data, indicate that raw materials are available locally, etc.
- Describe your present activities plus your industrial and/or commercial experience.
- State how much capital you yourself could contribute.
- State the maximum portion of the equity your country legally allows to an EEC partner.
- Can you obtain finance and if so from where?
- If you need a foreign loan or supplier's credit, can you obtain a local guarantee?
- Is your project a national priority?
- Outline the incentives your country offers to foreign investors.

OPERATIONAL SUMMARY

No. 37 — January 1987

(position as at 8 December 1986)



EEC-financed development schemes

The following information is aimed at showing the state of progress of EEC development schemes prior to their implementation. It is set out as follows:

Geographical breakdown

The summary is divided into three groups of countries, corresponding to the main aspects of Community development policy:

- the ACP countries (Africa, the Caribbean and the Pacific), which signed the multilateral conventions of Lomé I (28 February 1975), Lomé II (31 October 1979) and Lomé III (8 December 1984), plus the OCT (overseas countries and territories) of certain member states of the EEC, which get the same type of aid as the ACP countries;
- the Mediterranean countries (Maghreb and Mashraq), which signed cooperation agreements with the EEC in 1976 and 1977;
- the ALA developing countries of Asia and Latin America, beneficiaries since 1976 of annual aid programmes.

The information within each of these groups is given by recipient country (in alphabetical order).

Note

As the information provided is subject to modification in line with the development aims and priorities of the beneficiary country, or with the conditions laid down by the authorities empowered to take financial decisions, the EEC is in no way bound by this summary, which is for information only.

Information given

The following details will usually be given for each development scheme:

- the title of the project;
- the administrative body responsible for it;
- the estimated sum involved (prior to financing decision) or the amount actually provided (post financing decision);
- a brief description of projects envisaged (construction work, supplies of equipment, technical assistance, etc.);
- any methods of implementation (international invitations to tender, for example);
- the stage the project has reached (identification, appraisal, submission for financing, financing decision, ready for implementation).

Main abbreviations

Resp. Auth.: Responsible Authority
Int. tender: International invitation to tender
Acc. tender: Invitation to tender (accelerated procedure)
Restr. tender: Restricted invitation to tender
TA: Technical assistance
EDF: European Development Fund
mECU: Million European currency units

Correspondence about this operational summary can be sent directly to:

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Directorate-General for Development
Commission of the European Communities
(ARCH.25/1-2)
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B-1049 Brussels

Please cover only one subject at a time.

Sectoral Index

<p style="text-align: center;">AGRICULTURE</p> <p>Irrigation and soil development, infrastructure, improvement</p> <p>Coffee, tea, tobacco, cereals, coconuts, ground-nut, maize, sugar, cotton, palm-nuts, rice, rubber, potatoes, citrus fruit</p> <p>Seed and crop protection, environment</p> <p>Agro-industry</p> <p>Forestry</p>	<p>Burundi, St. Lucia, Cameroun, Chad, Côte d'Ivoire, Gabon, Ghana, Guinea, Equatorial Guinea, Lesotho, Malawi, Mauritius, Niger, Sierra Leone, Somalia, Sudan, Uganda, Zimbabwe, Egypt, Tunisia, Syria, Bangladesh, Indonesia, Nepal, India, Bhutan, Mozambique, Thailand, Pakistan, North Yemen, Philippines, Dominican Republic, Costa Rica, Ecuador, Colombia, Peru, Bolivia, Honduras, Guatemala</p> <p>Côte d'Ivoire, Chad, Equatorial Guinea, Ghana, Jamaica, Malawi, P.N.G., Rwanda, Solomon Islands, Somalia, Suriname, Zimbabwe, CILSS, Tunisia, Bangladesh, Thailand, China (People's Rep.)</p> <p>Botswana, Burundi, Central African Republic, Mali, Rwanda, Somalia, Tanzania, Niger Basin Authority, CILSS, Egypt, Tunisia, Jordan, India, Bangladesh, Nepal, China (People's Rep.), Yemen, Panama, Costa Rica, Honduras, El Salvador, Guatemala</p> <p>Liberia, Rwanda, Solomon Islands, Togo, Zambia, Thailand</p> <p>Burundi, Côte d'Ivoire, Chad, Gabon, Guinea Bissau, Nigeria, Togo, Zaïre, New Caledonia, Niger Basin Authority</p>
<p style="text-align: center;">STOCK FARMING-FISHING-PISCICULTURE</p> <p>Improvement</p> <p>Veterinary projects</p> <p>Processing industry</p>	<p>Antigua and Barbuda, Botswana, Burkina Faso, Comoros, Central African Rep., Djibouti, Ghana, Jamaica, Malawi, Senegal, Sierra Leone, Trinidad and Tobago, Somalia, Zaïre, Congo, Gabon, Sao Tomé & Principe, Equatorial Guinea, Indian Ocean ACP Countries, China (People's Rep.),</p> <p>Kenya, Zambia, Suriname, African Countries, Eastern Africa, ICIPE, Malawi-Zambia-Zimbabwe, Egypt, Mozambique</p> <p>Guinea, Angola</p>
<p style="text-align: center;">RURAL HYDRAULICS</p> <p>Wells, bores, pumps, pipes, small dams</p>	<p>Botswana, Burkina Faso, Ethiopia, Guinea, Mauritania, Niger, Lesotho, Liberia, Senegal, Swaziland, Zimbabwe, Montserrat, Egypt, Tunisia, Syria, Bhutan, China (People's Rep.), India</p>
<p style="text-align: center;">TOWN WATER SUPPLY AND SEWERAGE</p> <p>Water supply, pipes, drinking water</p> <p>Sewerage, waste water, collectors, pumping stations, treatment</p>	<p>Djibouti, Tanzania, Zimbabwe</p> <p>Cyprus</p>
<p style="text-align: center;">SOCIAL CONSTRUCTIONS</p> <p>Houses, schools, hospitals, buildings, laboratories</p>	<p>Belize, Benin, Burundi, Chad, Ethiopia, Solomon Islands, Fiji, Gambia, Guinea, Kenya, Liberia, Malawi, Mali, Mauritania, Niger, Sierra Leone, St Vincent and The Grenadines, Somalia, Suriname, Tanzania, CEAO, Maritime Transport Conference, UDEAC, MRU, Eastern Africa, Egypt, Syria, Jordan, Colombia, Mexico, Nepal</p>
<p style="text-align: center;">TRANSPORT AND COMMUNICATIONS</p> <p>Roads, bridges, airports, railways, ports</p>	<p>Belize, Benin, Burkina Faso, Cameroon, Chad, Equatorial Guinea, Ghana, Grenada, Guyana, Jamaica, Kenya, Liberia, Mozambique, Niger, P.N.G., Somalia, Suriname, Tanzania, Tonga, Uganda, Zambia, Zaïre, Guyana-Suriname, Niger-Nigeria, Equatorial Guinea-Sao Tomé Principe, Eastern African Countries, Indian Ocean ACP Countries, Pakistan, Pacific ACP Countries, Tanzania-Zambia, Burundi-Rwanda-Tanzania-Uganda-Zaïre</p>
<p style="text-align: center;">TELECOMMUNICATIONS</p> <p>Radio, telephone, satellites, hertzian</p>	<p>UAPT, Sierra Leone</p>
<p style="text-align: center;">ENERGY</p> <p>Power stations, dams, electrification</p>	<p>Equatorial Guinea, Ethiopia, Madagascar, Mauritania, P.N.G., Somalia, Suriname, Zaïre, Zambia, Western Samoa, O.M.V.G., French Polynesia</p>
<p style="text-align: center;">NEW AND RENEWABLE ENERGY</p> <p>Solar, wind-mills, biomass, gas, geothermics</p>	<p>Guinea, Senegal, Suriname, Pacific OCT</p>
<p style="text-align: center;">MINING</p> <p>Soil survey, research, geophysical survey,</p> <p>Infrastructure, production, processing plants</p>	<p>Botswana, Nigeria</p> <p>Ghana, Rwanda, Zaïre, Zambia</p>
<p style="text-align: center;">MAPPING</p> <p>Soil-Air</p>	
<p style="text-align: center;">INDUSTRY</p> <p>Plants, productions</p>	<p>Guinea, Malawi</p>
<p style="text-align: center;">TRADE, INDUSTRY, TOURISM, INVESTMENT PROMOTION - MANAGEMENT - MARKETING - S.M.E. TRAINING</p>	<p>Belize, Chad, Dominica, Gabon, Ghana, Guinea, Guinea Bissau, Kenya, Madagascar, Malawi, Mali, Niger, Rwanda, Somalia, Sierra Leone, St. Lucia, Swaziland, Trinidad and Tobago, Tanzania, Togo, Zambia, Zimbabwe, Botswana-Swaziland, Neth. Antilles, Pacific ACP Countries, Algeria, Tunisia, Jordan, Banco Centro-Americano, Andean Pact., China (People's Rep.), Thailand, India, ASEAN, Costa Rica, El Salvador</p>

DESCRIPTION SECTOR CODE

A1	Planning and public administration	A5B	Industrial development banks
A1A	Administrative buildings	A5C	Tourism, hotels and other tourist facilities
A1B	Economic planning and policy	A5D	Export promotion
A1C	Assistance to the normal operations of government not falling under a different category	A5E	Trade, commerce and distribution
A1D	Police and fire protection	A5F	Co-operatives (except agriculture and housing)
A1E	Collection and publication of statistics of all kinds, information and documentation	A5G	Publishing, journalism, cinema, photography
A1F	Economic surveys, pre-investment studies	A5H	Other insurance and banking
A1G	Cartography, mapping, aerial photography	A5I	Archeological conservation, game reserves
A1H	Demography and manpower studies	A6	Education
A2	Development of public utilities	A6A	Primary and secondary education
A2A	Power production and distribution	A6B	University and higher technical institutes
A2Ai	Electricity	A6Bi	Medical
A2B	Water supply	A6C	Teacher training
A2C	Communications	A6Ci	Agricultural training
A2D	Transport and navigation	A6D	Vocational and technical training
A2E	Meteorology	A6E	Educational administration
A2F	Peaceful uses of atomic energy (non-power)	A6F	Pure or general research
A3	Agriculture, fishing and forestry	A6G	Scientific documentation
A3A	Agricultural production	A6H	Research in the field of education or training
A3B	Service to agriculture	A6I	Subsidiary services
A3C	Forestry	A6J	Colloquia, seminars, lectures, etc.
A3D	Fishing and hunting	A7	Health
A3E	Conservation and extension	A7A	Hospitals and clinics
A3F	Agricultural storage	A7B	Maternal and child care
A3G	Agricultural construction	A7C	Family planning and population-related research
A3H	Home economics and nutrition	A7D	Other medical and dental services
A3I	Land and soil surveys	A7E	Public health administration
A4	Industry, mining and constructions	A7F	Medical insurance programmes
A4A	Extractive industries	A8	Social infrastructure and social welfare
A4Ai	Petroleum and natural gas	A8A	Housing, urban and rural
A4B	Manufacturing	A8B	Community development and facilities
A4C	Engineering and construction	A8C	Environmental sanitation
A4D	Cottage industry and handicraft	A8D	Labour
A4E	Productivity, including management, automation, accountancy, business, finance and investment	A8E	Social welfare, social security and other social schemes
A4F	Non-agricultural storage and warehousing	A8F	Environmental protection
A4G	Research in industrial technology	A8G	Flood control
A5	Trade, banking, tourism and other services	A8H	Land settlement
A5A	Agricultural development banks	A8I	Cultural activities
		A9	Multisector
		A9A	River development
		A9B	Regional development projects
		A10	Unspecified



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1049 Brussels
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ACP STATES

★ Denotes new projects

ANGOLA

Rural Water supply. Resp. Auth.: Ministère de l'Industrie et des Ressources Naturelles. HYDROMINA. Parallel cofinancing with UNICEF. EEC contribution 2.250 mECU. Study, T.A. and supply of hand-pumps, tubes, drilling equipment, vehicles. Project in execution.
ALA ANG 8425 A2b

ANTIGUA AND BARBUDA

Livestock development – Phase I. Resp. Auth.: Ministry of Agriculture. 1.9 mECU. Works, supplies, T.A. T.A.: Short-list done. Date financing decision November 86. 4th and 5th EDF.
EDF AB 5003 A3a

BELIZE

Belize City Hospital. Phase I. Estimated cost 7.494 mECU. Work constructions and supply of equipment. 4th and 5th EDF. Project stage: identification.
EDF BEL 4007, 5002 A7a

Hummingbird Highway. Estimated cost 5.6 mECU. Road reconstruction. Study to be done: design plan and bridge and int. tender dossier. Short-list not yet drawn up. Project stage: identification. 6th EDF.
EDF BEL 6001 A2d

★ **Community Development Programme.** Resp. Auth.: Ministry for Social Services. 0.150 mECU. Project preparation study. Short-list done. 6th EDF.
EDF BEL 6002 A8b

BENIN

Upgrading of health service infrastructure in Porto Novo Hospital. Resp. Auth.: Ministère de la Santé Publique. Estimated cost 10 mECU: renovation and construction of the hospital building and equipment. Project on appraisal. Works: Int. tender with prequalification, launched (conditional) in August 84. 4th and 5th EDF.
EDF BEN 5010 A7a

Bohicon-Dassa Road. 1st phase: resurfacing. Estimated total cost 50 mECU. EDF 25 mECU, World Bank 15 mECU, Kuwait + Islamic Bank, 5 mECU, local 5 mECU. Study to be done: int. tender dossiers revision. Short-list drawn up. 1st int. tender foreseen in 1st quarter 87. Project on appraisal. Date foreseen for financing decision January or February 87. 6th EDF.
EDF BEN 6001 A2d

BOTSWANA

Palapye water supply. Resp. Auth.: Ministry for Mineral Resources and Water Affairs. 2.3 mECU. Planning Study: DECON-FLOTO (D). Project on appraisal. Date foreseen for financing decision December 86. 4th and 5th EDF.
EDF BT 5017 A2b

Services to livestock owners in communal areas (SLOCA), Phase II. Resp. Auth.: Ministry of Agriculture. 4.100 mECU. Works by acc. tender, supply of vehicles and equipment by int. tender. T.A. T.A.: B.M.B. (NL). Project in execution. 5th EDF.
EDF BT 5003 A3a

Geophysical exploration of the Ncojane and Nosop sedimentary basins. Resp. Auth.: Ministry of Mineral Resources and Water Affairs. 1.6 mECU. Project in execution. 5th EDF.
EDF BT 5020 A2b

Initial measures for the conservation of the Kalahari ecosystem. T.A. and supply of equipment. Monitoring and protection of the natural reserves. 2 mECU. Project in execution. 6th EDF.
EDF BT 6001 A8f

BURKINA FASO

Drinking water supply in the Yatenga region. Phase II. Resp. Auth.: Ministère de l'Eau. 5 mECU. Boreholes and wells. Supplies. All by int. tenders. T.A.: BURGEAP (F). Project in execution. 5th EDF.
EDF BK 5016 A2b

Improvement of halieutic production in Burkina Faso. Resp. Auth.: Ministère de

l'Environnement et du Tourisme. Estimated total cost 3.850 mECU. EDF 2.850 mECU, local 1 mECU. Infrastructural works, buildings, supply of equipment and vehicles, T.A. and training. Works by direct labour, supplies by int. tender, T.A.: M. Baijot (F). Project in execution. 5th EDF.
EDF BK 5018 A3a

Ouagadougou-Kaya railways. Resp. Auth.: Ministère Promotion Economique. 5.5 mECU. Supply of rails, equipment and ballast. Project on appraisal. 5th EDF.
EDF BK 5019 A2d

BURUNDI

Institut Universitaire de Sciences de l'Education (IUSE). Resp. Auth.: Ministère de l'Education Nationale – 0.7 mECU. Construction and equipping of educational buildings (general teaching classes, laboratories, workshops). Int. tender dossier: TETRA Consultants (Lux). Project on appraisal. 4th EDF.
EDF BU 4124 A6b

Faculty of agronomy. Resp. Auth.: Ministère de l'Education Nationale. Estimated cost 5 mECU. Supervision of works. BRUSA-PASQUE (I). Works: int. tender (conditional) launched in December 85. Project in execution. 5th EDF.
EDF BU 5017 A6b

Social-economic development of the Kirundo Province. Resp. Auth.: Ministère de l'Agriculture et de l'Elevage. 15.5 mECU. Works: spring wells catchment, wells boring, buildings, feeder roads. Supply of agricultural inputs, equipments, vehicles, T.A. and training. Works by acc. tender, supplies by int. tender or direct agreement. T.A. and training by restr. tender. Short-list done. Project in execution. 5th EDF.
EDF BU 5005 A3a

Support to “Département des Eaux et Forêts”. Resp. Auth.: Département des Eaux et Forêts. Estimated cost 3.350 mECU. Reafforestation works, supply of equipment, T.A. and training. Project in execution. 5th EDF.
EDF BU 5020 A3c

CAMEROON

Yaoundé — Ayos Road — Technical study. Resp. Auth.: Ministère des Transports. Estimated cost 0.860 mECU. Technical study for the execution and preparation of the tender dossier. DOXIADIS (GR). Project in execution. 5th EDF.
EDF CM 5019 A2d

Community rural development in the Bafut region. Phase II. Resp. Auth.: Gouverneur de la Province du Nord-Ouest. 1.5 mECU. Rural inputs, draught farming, hydro-agricultural rehabilitation. Works by acc. tender. Supplies by direct agreement. T.A.: A.F.V.P. (F). Project in execution. 5th EDF.
EDF CM 5020 A3a

CENTRAL AFRICAN REPUBLIC

National Livestock Programme. Supply of agricultural inputs, monitoring training, T.A. Feeder roads. EDF part estimated 5.543 mECU. Cofinancing with France, EIB, local, IFAD. Project on appraisal. 6th EDF.
EDF CA 6001 A3a

Conservation programme for the ecosystem in the North. National games and natural reserves. Supervision for protected areas. Monitoring, management. Supply of infrastructures. Estimated total cost 16.9 mECU. EDF 15.6 mECU. Project stage: identification. 6th EDF.
EDF CA 6002 A3a

CHAD

Priority actions programme in the educational field. Resp. Auth.: Ministère du Plan et de la Reconstruction. Estimated cost 5.2 mECU. Works, supplies, scholarships and T.A. T.A.: ADITEC (Lux). Project in execution. 5th EDF.
EDF CD 5003 A6a

Agricultural programme in the Sudan zone. Estimated cost 5.5 mECU. Various actions for: organizing the peasantry, stocking and marketing, utilization of improved seeds and production techniques. T.A.: AGRER (B). Project on appraisal. Date foreseen for financing decision 1st half 87. 5th EDF.
EDF CD 5010 A3b

Rehabilitation of hospital and health sector. Resp. Auth.: Ministère du Travaux Publics, de la Santé et Médecins sans Frontières (MSF-B). Estimated total cost 5.590 mECU. EDF 4.560 mECU, MSF(B) 0.505 mECU, Aviation sans Frontière (F) 0.100 mECU, local 0.425 mECU. Works by direct agreement or direct labour. Supply of medical equipment, supplies, medicines by int. tender. Project in execution. 5th EDF.
EDF CD 5011 A7a

Renovation and equipment of "Lycée Technique Commercial" in N'Djamena. Resp. Auth.: Ministère du Plan et de la Reconstruction. Works and supply of equipment by acc. tender. Project in execution. 5th EDF.
EDF CD 5015 A6d

Road maintenance brigades. Estimated cost 20 mECU. Project stage: identification. 6th EDF.
EDF CD 6001 A2d

Support programme for cotton producers. EDF part estimated 5 mECU. Revolving fund for purchase of seeds. 5th EDF. Project in execution.
EDF CD 5017 A3a

★ **Rural development priority programme in the concentration zone.** Resp. Auth.: Office National de Dév. Rural (ONDR). 10 mECU. Hydro-agricultural works, infrastructures, education, health. Works, supplies and T.A. Project on appraisal. 6th EDF.
EDF CD 6002 A3e

COMOROS

★ **Artisanal fishery.** Supply of equipment, boats, engines, T.A. and training. Project on appraisal. 5th EDF.
EDF COM 5017 A3d

COTE D'IVOIRE

Rural development of the central region. Resp. Auth.: Ministère de l'Agriculture. 10.5 mECU. Development of irrigated rice-growing. Works, supplies and T.A. Project in execution. 5th EDF.
EDF IVC 5021 A3a

Rural oil palm plantations for the 2nd palm plan. Resp. Auth.: Ministère de l'Agriculture. Rural. Total estimated cost 50.370 mECU. EDF 20.850 mECU. Plantation of 22,945 ha in rural areas. Project on appraisal. Date foreseen for financing decision January 87. 6th EDF.
EDF IVC 6001 A3a

★ **Agroforestry research and experimentation in intensive afforestation in the northern savannas.** Resp. Auth.: Centre Technique Forestier Tropical de Côte d'Ivoire (CTFT-CI). 0.475 mECU. Research station, supply of equipment and T.A. Works by direct agreement. Supplies int. tender in 87. Project on appraisal. Date foreseen for financing decision February 87. 5th EDF.
EDF IVC 5020 A3e

DJIBOUTI

Ranch construction. Resp. Auth.: Ministère de l'Agriculture. Studies and Works. Works by int. tender. 1.030 mECU. Int. tender dossier prepared by Dubois (ACP). Project in execution. 5th EDF.
EDF DI 5005 A3a

Djibouti water supply. Estimated cost 0.800 mECU. Watermain in the region of Damerjog Atar. Int tender launched in October 86. Project in execution. 5th EDF.
EDF DI 5001 A2b

DOMINICA

Tourism development and marketing programme. 0.620 mECU. Improvement of different tourist sites and their access. Launching of a marketing campaign in Europe and USA: Short-list not yet drawn up. 6th EDF.
EDF DOM 6002 A5c

EQUATORIAL GUINEA

Rural interventions. Project stage: identification. 5th EDF.
EDF EG A3a

Rural development in the Bata district. Resp. Auth.: Ministère de l'Agriculture, de l'Elevage et du Dév. Rural, Ministère de la Santé. 1.350 mECU. T.A.: B.D.P.A. (F). 5th EDF. Project in execution.
EDF EG 5004 A3a

Malabo's electrification (Phase II). 2.7 mECU. Purchase of generator sets, repairing of the power-station and town mains extension. 2 int. tender launched in June 85. Project on appraisal. Supervision of works: S.Cr.L. (Lux). Date foreseen for financing decision 2nd half 86. 5th EDF.
EDF EG 5003 A2ai

Assistance to the road maintenance service in Rio Muni. 2nd phase. Resp. Auth.: Ministère des Travaux Publics. 1.1 mECU. T.A., training and purchase of road equipment. Project in execution. 5th EDF.
EDF EG 5009 A2d

ETHIOPIA

Construction and equipment of one agricultural research station in Bale-Arsi. Resp. Auth.: Institute of Agricultural Research (I.A.R.). Special hunger programme. 1.5 mECU. Project in execution.
958-ET 5015 A3c

Rural Water Supply. Resp. Auth.: Ethiopian Water Works Construction Authority. 1.9 mECU. Supply of equipments. T.A.: J. Taylor and Son (UK) and GITEC (D). Project in execution. 5th EDF.
EDF ET 5016 A2b

GABON

Continuation of the project Fernan Vaz (II). Estimated total cost 6 mECU. EDF 5 mECU. Improvement and diversification of agricultural production, social actions and feeder roads construction. Project stage: identification. 6th EDF.
EDF GA 6001 A3a

★ **Support to the S.M.E.** Resp. Auth.: Fonds d'Aide et Garantie. 2.1 mECU. Line of credit and T.A. Project on appraisal. 6th EDF.
EDF GA 6003 A4e

★ **Bokué reforestation — Phase II.** Continuation of the existing project and agroforestry experimentation. Supply of equipment and T.A. Project on appraisal. 6th EDF.
EDF GA 6002 A3e

GAMBIA

Brikama College, phase II. Resp. Auth.: Ministry of Works and Communications. 1.925 mECU. Construction and equipment of academic and residential buildings. Works by mutual agreement. Equipment for phase II: int. tender, 2nd half 86 or 1st half 87. 4th EDF.
EDF GM 4005 A6b

GHANA

Second Line of Credit to the National Investment Bank (NIB). Resp. Auth.: Development Service Institute of NIB. 2.9

mECU. T.A. and supply of equipment. T.A.: P.E. Int. (UK). Project in execution. 5th EDF.
EDF GH 5013

B3a

Line of Credit to the Agricultural Development Bank. Resp. Auth.: Agric. Dev. Bank (ADB) 6mECU. Purchase of marine diesel engines, spare parts, fishing nets, and T.A. Int. tender for engines launched in June 86. T.A.: Mac. Allister Elliot (UK). Project in execution. 5th EDF.

EDF GH 5009

A5a

Agricultural Rehabilitation through the Rural Banks Scheme. Phase II. Supply of equipment to small scale farmers and fishermen. T.A. 8.760 mECU. T.A.: ALLIX (GR). Project in execution. 5th EDF.

EDF GH 5004

A5a

Supplementary finance for Twifo Oil Palm Development. Resp. Auth.: Twifo Oil Palm Plantation Ltd. (TOPP). 5.043 mECU. Infrastructure, housing construction by direct labour. Supply of crop inputs, vehicles, tractors and T.A. T.A.: Harrison Fleming (UK). Project in execution. 5th EDF.

EDF GH 5003

A3a

Twifo smallholder Oil Palm Project. Resp. Auth.: TOPP. 3,715 m ECU. Works, supplies and T.A. Int. tender for supplies launched in July 86. T.A.: Harrison Fleming (UK). 5th EDF.

EDF GH 5021— STA

A3a

Takoradi harbour rehabilitation. Resp. Auth.: Ghana Ports Authority. Estimated total cost 16.7 mECU. EDF 9.7 mECU, World Bank 5 mECU, local 2 mECU. Works and supply of equipment. Tender for works in execution. Project on appraisal. Date foreseen for financing decision February 87. 5th EDF.

EDF GH 5028

A2d

Programme for the improvement of the transport infrastructure in the South-Western part. First actions. Estimated total cost 15 mECU. Rehabilitation of the Axim-Axim junction road, construction of a road link (including bridges) to Enchi and studies. Feasibility and design study for Wiawso-Awaso-Mim corridor, short-list drawn up. Project on appraisal. Date foreseen for financing decision January 1987. 6th EDF.

EDF GH 6001

A2d

GRENADA

Eastern Main Road. Phase III. Resp. Auth.: Ministry of Communications and Works. EDF 3.5 mECU. Strengthening the road base by coal mix surface course and improving drainage structures. Works by direct labour. Supply of equipment by int. tender. Project in execution. 6th EDF.

EDF GRD 6001

A2d

GUINEA

Land development in Kankan and Labé regions. Phase II. Resp. Auth.: Ministère de l'Agriculture et des F.A.P.A. Valuation: MacDonald and Partners (UK). Project on appraisal. 5th EDF.

EDF GUI 5030

A3a

New energy research and testing. Resp. Auth.: Ministère de l'Energie et du Kon-

kouré. Study on hand by A.I.D.R. (B). 5th EDF.

EDF GUI 5006

A2a

Assistance to the «Ecole Nationale des Arts et Métiers-ENAM-Conakry». 2.265 mECU. Building renovation and supply of equipment. T.A.: O.R.T. (U.K)Project in execution. 5th EDF.

EDF GUI 5028

A6d

Go into production for the plastic plant "SOGUIPLAST". Resp. Auth.: Guinea Government. 5.1 mECU. T.A.: DCCR INTER G (F). Supply of raw materials (plastics) by int. tender foreseen in 86. All int. tenders will be conditional. Project in execution. 5th EDF.

EDF GUI 5022

A2a

Semi-industrial fishery project "SOGUIPECHE". Resp. Auth.: Ministère du Plan et de la Coopération Internationale. Secrétariat d'Etat à la Pêche. Estimated cost 8 mECU. Rehabilitation and renovation of the existing plants and buildings. Supply of specialized equipment. Int. tender for works and supplies launched in September 86. Project on appraisal. Date foreseen for financing decision January 87. 5th EDF.

EDF GUI

A3d

GUINEA BISSAU

North-East forestry development. Resp. Auth.: Commissariat général au développement rural. Study under way by Atlanta (D). 5th EDF.

EDF GUB 5004

A3c

T.A. to the "Direction Générale du Plan". Resp. Auth.: Direction générale du Plan. 0.910 mECU. To prepare and to implement the national development plan. Training. Project in execution. 5th EDF.

EDF GUB 5010

A3a

T.A. for trade reform measures. 3.5 mECU. Project on appraisal. Date foreseen for financing decision December 86. 6th EDF.

EDF GUB 6001

A4e

GUYANA

★ **Rehabilitation of river ferries.** Resp. Auth.: Transports & Harbours Dept. Estimated total cost 3.100 mECU. EDF 2 mECU, local 1.1 mECU. Provision of spare parts, materials, equipment and T.A. Project on appraisal. 6th EDF.

EDF GUA 6001

A2d

JAMAICA

Citrus fruit production improvement. Resp. Auth.: Ministère de l'Agriculture. Estimated cost 3.5 mECU. Equipment, training and T.A. Credit line. T.A.: VAKAKIS (GR). Project in execution. 5th EDF.

EDF JM 5004

A3a

Coffee development. Resp. Auth.: Ministère de l'Agriculture. Estimated total cost 3.7 mECU. EDF 3.5 mECU. Local 0.2 mECU. Supply of equipment, T.A. and credit line. T.A.: Short-list already drawn up for restr. tender. Int. tender for supplies launched in March 86. Project in execution. 5th EDF.

EDF JM 5005

A3a

Bee-keeping Development Project. Resp. Auth.: Ministry of Agriculture. 1.270 mECU. Supply of vehicles, T.A. and line of credit. T.A.: Short-list done for restr. tender. Project in execution. 4th and 5th EDF.

EDF JM 5013

A3a

Rural road and bridge reconstruction. Resp. Auth.: Ministry of Construction. Estimated cost 7.3 mECU. Rural roads and bridges damaged during heavy flooding during May-June 86. Date financing decision November 86. 6th EDF.

EDF JM 6001

A2d

KENYA

Reinforcement of the medical infrastructure in the district of Machakos. 1.100 mECU. Works and supplies. Date financing decision March 86. 5th EDF.

EDF KE 5022

A7a

★ **Rehabilitation of Kigano-Namyuki Road.** Resp. Auth.: Minister of Transport and Communication. 14 mECU. Works and supervision. Project on appraisal. 5th EDF.

EDF KE 5027

A2d

LESOTHO

"Highlands Water Scheme" Project. Resp. Auth.: Ministry of Water, Energy and Mining. Estimated EDF contribution 9.5 mECU. Final planning study on hydraulics and T.A. to the Lesotho Highlands Development Authority. Project in execution. 6th EDF.

EDF LSO 6001

A2b

Mphaki area development. Phase II. Resp. Auth.: Ministry of Agriculture. 3.7 mECU. Feeder roads, livestock, veterinary and marketing installations, supplies and T.A. Project in execution. 6th EDF.

EDF LSO 6002

A3a

LIBERIA

Rural Water Supply. Resp. Auth.: Ministry of Rural Dev. 2.5 mECU. Int. tender (conditional) for hand pumps launched in July 86. T.A.: GDEOSCIENCE (I). Project in execution. 5th EDF.

EDF LBR 5018

A2b

Monrovia Port. Resp. Auth.: National Port Authority. 1.9 mECU. Management assistance. Project in execution. 5th EDF.

EDF LBR 5019

A2d

Rural health training centre. Estimated cost 2 mECU. Provision of services, supplies and equipment (including drugs), T.A. for management and training. Project on appraisal. Date foreseen for financing decision January or February 87. 5th EDF.

EDF LBR 5020

A7a

MADAGASCAR

Assistance to the Malagasy handicrafts industry. Resp. Auth.: Ministère de l'Industrie. Estimated cost 1 mECU. Supply of raw materials for handicrafts by int. tender. T.A.: APRODI (F). Project in execution. 5th EDF.

EDF MAG 5017

A4d

Electrical networks rehabilitation. 2 mECU. Works and supplies. Date financing decision October 86. 5th EDF. EDF MAG 5026 A2ai

Microhydraulic programme in the village sector: consolidation and extension. Programme to improve the management of water in the village sector on 21 000 ha of small enclosed irrigated rice fields. Works by direct labour. Acquisition of equipment and supplies by int. tender and tech. assistance by restr. tender. Estimated cost 8.35 mECU. Project on appraisal. Date of financing foreseen December 86. 6th EDF. EDF MAG 6001 A2b

MALAWI

Salima Lakeshore Agricultural Development Division (SLADD) Phase IV. Resp. Auth.: Ministry of Agriculture. Estimated cost: 19.1 mECU. EDF 9.5 mECU. Local 9.6 mECU. Works, Supplies and T.A. Project in execution. T.A.: Hunting Technical Service (UK). Int. tender for the supply of 6 steel bridges launched in June 86. 5th EDF. EDF MAI 5001 A3a

Central and northern region fish farming development, training and research. Resp. Auth.: Ministry of Agriculture. Estimated cost: 3 mECU. Works, supplies, T.A. Project on appraisal. Date foreseen for financing decision 1st half 87. 5th EDF. EDF MAI 5019 A3a

Strategic fuel reserve. Resp. Auth.: Office of the President and Cabinet. Contingency Planning Unit. 4.2 mECU. Construction of tanks for diesel, petrol, ethanol. Associated infrastructure and equipment. T.A. Project on appraisal. 5th EDF. EDF MAI 5020 A2a

Small Enterprise Development Organization of Malawi (SEDOM) - Phase II. Resp. Auth.: Sedom secretariat. EDF 4.8 mECU. Works by direct labour. Supply of vehicles and equipment by int. tender in '86. T.A.: GITEC (D). Project in execution. 5th EDF. EDF MAI 5021 A4e

Mwansambo Rural Growth Centre. Resp. Auth.: OPC, Rural Development Division. 0.900 mECU. Works, supplies and T.A. Project in execution. 5th EDF. EDF MAI 5028 A3a

Mpherembe Smallholder Tobacco Project. Resp. Auth.: Ministry of Agriculture. EDF 4.680 mECU. Works and supplies. Project in execution. 6th EDF. EDF MAI 6002 A3a

Smallholder coffee project. Phase II. Resp. Auth.: Ministry of Finance/Smallholder Coffee Authority (S.C.A.). Total cost 9.59 mECU. EDF 4.62 mECU, local 4.97 mECU. T.A. in restr. tender, supplies by int. tender and civil works by loc. tender. Financing decision foreseen December 86. 6th EDF. EDF MAI 6003 A3a

MALI

Strengthening of sanitary infrastructure in the Niore region. Resp. Auth.: Ministère de la Santé et des Affaires Sociales et Ministère des Transports et T.P. 2.570 mECU. Buildings, equipment, training. Architectural

and technical studies: GOUSIER (F). T.A.: Short-list already drawn up. 4th EDF. EDF MLI 4016 A7a

Support to establish businesses and to employ young graduates. EDF 2.8 mECU. Supply of T.A. training and line of credit. Project in execution. 5th EDF. EDF MLI 5021 A4e

Pharmaceutical sector restructuring. 0.880 mECU. Supply of equipment. Date financing decision November 86. 5th EDF. EDF MLI 5022 A7a

MAURITANIA

Extension of Kaédi regional hospital. Resp. Auth.: Ministère de l'Équipement. 0.815 mECU. Construction, equipment and TA for Kaédi hospital (100 beds). Works under way. Medical-technical equipment int. tender, foreseen in the end of 86 or 1st quarter 87. 3rd, 4th and 5th EDF. EDF MAU 5018 A7a

Small dams construction in the Hodhs region. Resp. Auth.: Ministère du Développement rural. Estimated cost 2 mECU. Study under way: Binnie and Partners (UK). Project on appraisal. 5th EDF. EDF MAU 5001 A3a

Aioun El Atrouss hospital. Resp. Auth.: Ministère de l'Équipement. 1.050 mECU. Renovation and supply of equipment for 3 buildings. Works by acc. tender. Supplies by int. tender. Project on appraisal. 5th EDF. EDF MAU 5012 A7a

"Centre de Formation Professionnelle Maritime de Nouadhibou (C.F.P.M.). Resp. Auth.: Ministère de l'Équipement. 2.5 mECU. Construction, supply of equipment and purchase of a wooden trawler, T.A. Project in execution. 5th EDF. EDF MAU 5014 A6d

T.A. and training for hospital equipment maintenance. Resp. Auth.: Ministère de l'Équipement. 0.540 mECU. T.A.: CHE-MA (B). Project in execution. 5th EDF. EDF MAU 5011 A7a

MAURITIUS

Development of Ile Rodrigues. Resp. Auth.: Ministry of Agriculture. 3 mECU. Development centred on agricultural production. Economic and technical study under way. T.A.: Luxconsult (Lux.). 5th EDF. EDF IM 5001 A3a

MOZAMBIQUE

Rural development in the Moamba District. Resp. Auth.: Ministerio da Agricultura. Estimated total cost 9.15 mECU. EEC 7.5 mECU. Supply of equipment, rural inputs and T.A. Project in execution. ALA MOZ 8333 A3a

Fishery development and rehabilitation. Resp. Auth.: Secrétariat d'état pour la pêche. Total estimated cost 8.885 mECU. EEC 7.4 mECU. Supply of equipment and T.A. Project in execution. ALA MOZ 8507 A3d

Nacala Railway Rehabilitation. Resp. Auth.: Government of Mozambique. EDF

part 25 mECU. Cofinancing with France, Portugal, Italy, Canada and Finland. Int. tender (conditional) launched in September 86. Project on appraisal. Date foreseen for financing decision January 87. 6th EDF. EDF MOZ 6001 A2d

Rehabilitation of the Port of Beira. Reconstruction of parts of berths 2 to 5. National and regional project with Zimbabwe, Malawi and Zambia. Estimated total cost 40 mECU. Resp. Auth.: Beira Corridor Authority. Reconstruction of about 390 m of quay including the construction of the associated container-multi purpose terminal area. Int. tender (conditional) foreseen in January 87. Project on appraisal. 6th EDF. MOZ 6003. REG 6401 A2d

NIGER

Air Valley development. Resp. Auth.: Ministère du Dév. Rural. Estimated cost 2.052 mECU. Hydro-agricultural works. Construction and equipping of wells. Equipping and operation of nurseries. T.A. and training. Works and equipment: int. tender. T.A.: VAKAKIS (GR). Project in execution. 5th EDF. EDF NIR 5002 A3a

Training for Cooperatives. Resp. Auth.: Ministère du Dév. Rural. Estimated cost 2.8 mECU. T.A. and supply of equipment. T.A. by restr. tender short-list done. Supplies by int. tender or direct agreement. 5th EDF. EDF NIR 5004 A3b

Repair of traditional wells in the Qualiam Region. Resp. Auth.: Ministère de l'Hydraulique. 3.1 mECU. 100 wells. Works, supervision and training. Supervision of works: M. Botz (F) and M. Motte (B). Project in execution. 5th EDF. EDF NIR 5010 A2b

★ **Ricegrowing in the river valley.** Resp. Auth.: Ministère de l'Agriculture. Cultivation of 1,800 ha, electrification, feeder roads, T.A. for management. Project preparation study: short-list not yet drawn up. Project on appraisal. 6th EDF. EDR NIR 6001 A3a

★ **Small irrigation programme.** Resp. Auth.: Ministère de l'Agriculture. Rehabilitation of the Tarka down valley, irrigation, boreholes and wells. Feeder roads, environmental protection, T.A. Works and supplies. Studies: short-lists not yet drawn up. Project on appraisal. 6th EDF. EDF NIR 6002 A3a

★ **Road maintenance.** Resp. Auth.: Ministère des Travaux Publics. Estimated cost 12.5 mECU. Maintenance works for 160 km and supervision. Project on appraisal. 6th EDF. EDF NIR 6003 A2d

NIGERIA

Kaduna afforestation project. Resp. Auth.: Federal Department of Forestry. 9.4 mECU. Works, supplies and T.A. Project in execution. T.A.: Hedeselkabetdor. 5th EDF. EDF UNI 5001 A3c

Abakaliki Zinc Feasibility Study. Resp. Auth.: NMC (Nigerian Mining Corporation).

1.220 mECU. T.A. by restr. tender after short-list. Supply of equipment by int. tender. Project in execution. 5th EDF.
EDF UNI 5007 A2b

PAPUA NEW GUINEA

Magi highway. Resp. Auth.: Department of Transport. 3.5 mECU. Upgrading and sealing of a road section. Works: int. tender foreseen 1st half '87. 5th EDF.
EDF PNG 5006 A2d

Diesel Power Replacement Programme. Resp. Auth.: Electricity Commission (ELCOM). Estimated cost 4.850 mECU. 4 small hydroelectric power plants with transmission line extensions from existing grids. 1st int. tender (conditional) launched in October 85. Project in execution. 5th EDF.
EDF PNG 5011a A2a

Kimbe-Talasea Road. Resp. Auth.: Departments of Works and Transport. Estimated total cost 9.5 mECU. EDF 7 mECU, local 2.5 mECU. Upgrading of ±35 km of the road. Works and supervision. Project in execution. 5th EDF.
EDF PNG 5013 A2d

RWANDA

Development of the small-scale tin industry. Resp. Auth.: Ministère de l'Industrie, des Mines et de l'Artisanat. 2.840 mECU. Sysmin. Works, supplies, training and T.A. T.A.: Short-list done. Project in execution. 5th EDF.
EDF RW 5016 A4a

Support to the: "Centrale Comptable et Organisation". Resp. Auth.: Présidence de la République. 3.1 mECU. T.A. and training. Project in execution. 5th EDF.
EDF RW 5014 A1b

ST. LUCIA

Roseau agricultural resettlement and diversification project. Phase II. 1.4 mECU. Works, supply of equipment and T.A. Date financing decision December 86. 6th EDF.
EDF SLU 6001 A3a

ST. VINCENT AND THE GRENADINES

Kingstown hospital redevelopment (phase II). 1.7 mECU. Works and supplies. Project on appraisal. 6th EDF.
EDF SVG 6002 A7a

SAO TOMÉ & PRINCIPE

Riberia Peixe rural development. Resp. auth.: Ministère de la Coopération. Development of agricultural output (palm oil) and industrial exploitation. Estimated total cost: 6.79 mECU as follows: EDF 4.00 mECU, EIB 2.00 mECU and local 0.791 mECU. T.A., works, training and supplies. Date financing foreseen December 1986. 6th EDF.
EDF STP 6001 A3a

SENEGAL

New energy research and testing in rural region. Resp. Auth.: Secrétariat d'Etat à la Recherche Scientifique. 1.5 mECU. Creation of pilot unit for solar energy, biomass and wind energy. Studies, T.A. and equipment. Studies: AGIP-AFOR (I). Equipment: int. tender in 87. Project on appraisal. 5th EDF.
EDF SE 5005 A2a

Consolidation of the livestock development programme. Resp. Auth.: SODESP. Estimated cost 1.6 mECU. Study under way by Bessel Ass. (UK). Project on appraisal. 5th EDF.
EDF SE A3a

Artisanal fishery development in the Casamance Region. Resp. Auth.: Secrétariat d'Etat à la Pêche Maritime. EDF 1.6 mECU. Works, supplies and training. Project in execution. 5th EDF.
EDF SE 5024 A3a

SIERRA LEONE

Kambia Fishery Development. Resp. Auth.: Ministry of Agriculture and Forestry. 0.650 mECU. Construction of 2 buildings and a boatyard, supply of boats, motors, vehicles and T.A. T.A.: MacAlister, Elliot and Partners (UK). Project in execution. July 86. 5th EDF.
EDF SL 5019 A3d

Rehabilitation of the Telecommunications Network. Resp. Auth.: Post and Telecommunications Dept. Estimated cost ±9.5 mECU. Study to prepare technical specifications and int. tender dossier: short-list done for restr. tender. Project on appraisal. 5th EDF.
EDF SL 5024 A2c

Port Loko rural development programme. 6 mECU. Infrastructures, T.A., training and supplies. T.A.: Short-list done for restr. tender. Project in execution. 5th EDF.
EDF SL 5006 A3a

Support to the Geological Surveys Department. 1.30 mECU. T.A. and training, supply of equipment. Project in execution. 5th EDF.
EDF SL 5016 A4a

Creation of regional centres for small enterprises. Estimated cost 1.25 mECU. Project stage: identification. 5th EDF.
EDF SL 5017 A4d

Rural health development programme. Estimated cost 1.5 mECU. Buildings, equipment and training. Works by acc. tender already launched. Project in execution. 5th EDF.
EDF SL 5025 A7a

Tourism development project. Estimated cost 0.850 mECU. T.A. for Ministry of Tourism and supply of equipment. Project stage: identification. 5th EDF.
EDF SL 5026 A5c

Bennimix baby food production programme. Estimated total cost 3.6 mECU. EDF 2.8 mECU. Improvement of the nutrition and health status of children by producing from local raw materials low cost, high quality weaning food, which can be afforded by the low-income groups. Project stage: identification. 5th EDF.
EDF SL 5028 A7a

SOLOMON ISLANDS

Coconut industry development project. Resp. Auth.: Ministry of Land and Natural Resources. Study under way by Agrar and Hydrotechnik (D). Project stage: identification. 5th EDF.
EDF SOL 5009 A3a

★ **Rehabilitation programme after cyclone Namu.** Resp. Auth.: Ministry of Economic Planning. 1.722 mECU. Works and supply of equipment. Project on appraisal. Date foreseen for financing decision February 87. 6th EDF.
EDF SOL 6002 A7a

SOMALIA

Bardheera Dam. Resp. Auth.: Bardheera Dam Authority (BDA). 600 mECU. (Estimated) Dam Project 500 mECU. Powerline to Mogadishu 100 mECU. Funding: EDF, Italy, Germany, France, Saudi Arabia, Abu Dhabi, Kuwait Funds, FADES, Isl. Dev. Bank. Local. Power and river regulation for agricultural development. Construction of a concrete gravity dam with hydro-power station, associated infrastructure and electrical transmission lines. The dam will provide water, flood protection and power for up to 223 000 ha of irrigated agriculture in the Juba Valley, and energy to Mogadishu. Civil works: first int. tender launched in 1984. Transmission lines int. tender in 1986. Equipment: powerhouse main equipment and auxiliary equipment, int. tenders in 1987. Gates, valves, intake equipment, int tender in 1988. Int. tender with prequalification launched in February 86 for hydraulic tests. Project in execution. 5th EDF.
EDF SO 5003 A2a

"Aula Magna" Mogadishu National University. Resp. Auth.: Ministry of Public Works. ±2.5 mECU. Project on appraisal. 4th EDF.
EDF SO 4015 A6b

Upgrading of the road Afgoi-Shalambot-Goluen. Resp. Auth.: Ministry of Public Works. Works by int. tender in 87. Supervision of works. Studies: AIC. PROGETTI (I). Project on appraisal. 5th EDF.
EDF SO 5017 A2d

Grapefruit Development Project. Resp. Auth.: Ministry of Agriculture. 3.8 mECU. Works supply of vehicles, equipment and rural inputs. T.A.: Agriconsulting (I) and Istituto Sperimentale per l'Agricoltura (I). Int. tender for vehicles launched in March 86. Project in execution. 5th EDF.
EDF SO 5009 A3a

Food Early Warning System. Resp. Auth.: Ministry of Agriculture. Estimated total cost 4 mECU. EDF ±3.1 mECU. Supply of meteorological and office equipment and T.A.: Transtec (B). Project in execution. 5th EDF.
EDF SO 5015 A8f

North-West agricultural development project. Estimated total cost 36 mECU. EDF: 7.6 mECU, World Bank 14.9 mECU, IFAD 9.9 mECU, local 3.6 mECU. Infrastructural work and supply of equipment and T.A. T.A.: DARUDEC (DK). Project in execution. 5th EDF.
EDF SO 5016 A3a

T.A. to the Ministry of Finance, the Central Bank and the Commercial and Savings Bank. Resp. Auth.: Ministry of Finance. 1.875 mECU. Project in execution. 5th EDF.
EDF SO 5019 A1b

Construction of Juba and Shebelli bridges. Resp. Auth.: Ministry of Public Works. Construction of bridges across the Shebelli and Juba rivers to improve communications. Design and construction by int. tender. Project on appraisal. Date foreseen for financing decision December 86. 5th EDF.
EDF SO 5006 A2d

Development of inshore fisheries in the Mogadishu region. Resp. Auth.: Ministry of Fisheries. Estimated total cost 3.3 mECU, EDF 3.0 mECU, local 0.3 mECU. Upgrading of fisheries infrastructure. Civil works local restr. tender, materials by int. tender/restr. tender or direct agreement. Project on appraisal. Date of financing foreseen December 86. 56th EDF.
EDF SO 5024 A3d

Supply of road maintenance equipment and materials for Afgoi-Gelib road. Resp. Auth.: Ministry of Public Works. Supply of road maintenance equipment and materials by int. tender. Estimated cost 3.00 mECU. Date of financing foreseen December 86. 5th EDF.
EDF SO 5023 A2d

★ **Line of credit for farmers and fishermen.** Resp. Auth.: Somali Development Bank (SDB) 1.650 mECU. Line of credit and T.A. Project on appraisal. Date foreseen for financing decision January 87. 5th EDF.
EDF SO 5025 A3a

SUDAN

Nuba Mountains Rural Development Project. Interim phase. Resp. Auth.: Ministry of Agriculture. 2.200 mECU. Supply of equipment and vehicles by int. tender, T.A. and training. T.A.: Halcrow-ULG (UK). Project in execution. 5th EDF.
EDF SU 5019 A3a

Jebel Marra Rural Development Project - Phase II. Resp. Auth.: Ministry of Agriculture. Estimated total cost: 16 mECU. Civil works, supply of vehicles and equipment by international tender (conditional) and T.A. by restricted tender. Project on appraisal. Date foreseen for financing decision January or February 1987. 6th EDF.
EDF SU 6001 A3a

SURINAME

Rice project at Coronie. Resp. Auth.: Ministerie van Landbouw, Veeteelt, Visserij en Bosbouw. 7.650 mECU. Rice production developments. T.A.: EUROCONSULT (NL). Project in execution. 3rd and 5th EDF.
EDF SUR 5002 A3a

Biomass energy project at Wageningen. Resp. Auth.: Government. Installation of an energy generator on the basis of rice husks. Project stage: identification. 5th EDF.
EDF SUR 5009 A2a

Artificial Insemination Project. Resp. Auth.: Ministry of Agriculture, Fisheries.

0.72 mECU. Building of a new station and provision of equipment and material. Project in execution. 5th EDF.
EDF SUR 5010 A3a

Rehabilitation of the road Burnside-Wageningen. Resp. Auth.: Ministry of Finance and Planning. Estimated total cost 5.5 mECU. Study to be done: technical methods for the implementation of the project: Delft Universteit (NL). Project on appraisal. 4th and 5th EDF.
EDF SUR 5011 A2d

SWAZILAND

Rural hydraulics. Resp. Auth.: Rural Water Supply Board. Estimated cost 2.456 m ECU. Study construction, works supervision. 12 villages. Supply of equipment and material. Study and works supervision: Carl Bro (DK). Project in execution. 5th EDF.
EDF SW 5001 A2b

Smallholders Support Project, Credit and Marketing. Resp. Auth.: Ministry of Agriculture. 3.550 mECU. Works, line of credit, T.A. and training. T.A.: Cooper Lybrand (ACP branch). Project in execution. 5th EDF.
EDF SW 5005 A4e

TANZANIA

Mtwara water supply. Resp. Auth.: Ministry of Water, Energy and Minerals. 5 mECU. Works: drilling of new wells, and constructions. Supply of equipment and T.A. Drilling activities and power supply connections by direct labour. Other works: int. tender in '87. Supplies: int. tender in '86. Supervision of works: G.W.E. (D). Project in execution. 5th EDF.
EDF TA 5003 A2b

Banana improvement and pest control (Phase 1). Resp. Auth.: Ministry of Agriculture. Estimated total cost 3.740 mECU. EDF 3 mECU, local 0.740 mECU. Supply of pesticides, vehicles, equipment by int. tender. T.A.: AGRISTUDIO (I). Project in execution. 5th EDF.
EDF TA 5008 A3a

Ports of Zanzibar and Pemba. Estimated cost 10.17 mECU, T.A. for management, organization, pricing and financial systems, training. Restoration of infrastructure. T.A.: NEDECO (NL). Project stage: identification. 5th EDF.
EDF TA 5024 A2d

Cooperative Rural Development Bank (CRDB) Project. 3.15 mECU. Provision of equipment, training and T.A. Project in execution. 5th EDF.
EDF TA 5026 A3a

Rehabilitation of Zanzibar Hospitals. Phase II. Resp. Auth.: Ministry of Health, Zanzibar. EDF 2.705 mECU. Cofinancing with Italy. Works, supply of equipment and training. Project on appraisal. 5th EDF.
EDF TA 5017 A7a

Agricultural sector support programme. Resp. Auth.: Ministry of Finance and Planning. Estimated total cost 94 mECU. Measures to improve food security, support for coffee production and processing, assistance to co-operative unions, repair and

maintenance of vehicles and tractors, feeder road maintenance and assistance to institutions implementing the programme. Supplies by int. tender/restr. tender or direct agreement. Date financing decision foreseen December 86. 6th EDF.
EDF TA 6001 A3a

TOGO

Enquiry into consumer expenditures. Resp. Auth.: Ministère du Plan, de l'Industrie et de la Réforme Administrative. Estimated total cost 1.3 mECU. EDF 1 mECU, Local 0.3 mECU, T.A. to produce, collect and treat statistical data, training and supply of equipment. T.A.: short-list donc. Project in execution. 5th EDF.
EDF TO 5011 A1e

Rural reforestation. Estimated cost ±0.575 mECU. 1.500 ha plantations and 1.500 ha land protection. Project in execution. 5th EDF.
EDF TO 5014 A3c

Lomé hotel training centre (CFH). National and regional project (French-speaking countries of the sub-region). 3.450 mECU. Works, training and T.A. 5th Reg. Project in execution. 6th EDF.
EDF TO 6001. REG 5147 A6d

TONGA

Supply of a dredger. Resp. Auth.: Ministry of Works. Estimated cost 0.500 mECU. Technical study: EUROCONSULT (NL). Int. tender foreseen 2nd half '86. Project on appraisal. 5th EDF.
EDF TG 5002 A2d

★ **Vava'u Airport Development Project.** Resp. Auth.: Ministry of Civil Aviation. 2.130 mECU. Works, supply of equipment and training. Project on appraisal. 5th and 6th EDF.
EDF TG 5003-6001 A2d

TRINIDAD AND TOBAGO

Training programme, health sector. Resp. Auth.: Ministry of Health and Environment. 1.2 mECU. Training awards, laboratory equipment (sound-meters, chemical chromatographs, spectrometers) by int. tender. Short-term T.A. to coordinate and establish new laboratory. Project in execution. 5th EDF.
EDF TR 5003 A8c

Goat development project. Resp. Auth.: Ministry of Agriculture. 0.750 mECU. Works and supply of equipment. Project in execution. 5th EDF.
EDF TR 5005 A3a

UGANDA

Kampala-Masaka Road. Phase II. Resp. Auth.: Government of Uganda. 9 mECU. Reconstruction of 64 km of the road. Int. tender conditional launched in June 86. Project in execution. 5th EDF.
EDF UG 5003 A2d

Karamoja Development Programme. Phase II. Resp. Auth.: Government of Uganda. EDF 6 mECU. Works and supplies.

Project in execution. 5th EDF.
EDF UG 5001 A3a

Support to emergency relief and rehabilitation programme. Resp. Auth.: Government of Uganda. EDF 5 mECU. Project on appraisal. 5th EDF.
EDF UG 5020 B2

WESTERN SAMOA

Afulilo hydro power project. Estimated total cost 18 mECU. EDF part 7.5 mECU. Construction of a dam, reservoir, penstock, 4 MW power station, 40 km transmission lines, T.A. and training. Cofinancing under discussion with EIB, IDA and Asian Dev. Bank. Project stage: identification. 6th EDF.
EDF WSO 6001 A2a

ZAIRE

Kalemie port rehabilitation. Resp. Auth.: Département des Transports et Communications. 6.5 mECU. 2 Int. tenders (conditional) launched in March 84. Works and supplies. Project on appraisal. Date foreseen for financing decision 1st half 87. Regional project. 5th EDF.
EDF REG 5215 A2d

Butembo-Beni hydro-electrical development. Preliminary study done by Tractionnel (B) on local funds. Detailed economic and technical studies: WLPU (UK). Project on appraisal. 5th EDF.
EDF ZR 5006 A2a

2nd intervention Sysmin. Gécamines Working and SNCZ. EDF part 41 mECU. Supply of mining equipment, machine-tools, engines. Date financing decision November 86. 5th EDF.
EDF ZR-SYS 5001 A4a

★ **Reafforestation of the Bateke plateau.** Resp. Auth.: Département de l'environnement, conservation de la nature et affaires foncières. 6,000 ha de plantations. Int. tender with pre-qualification launched in November 86 (conditional). Project on appraisal. 6th EDF.
EDF ZR 6001 A3a

ZAMBIA

Animal vaccine unit production. Laboratory construction. Supply of equipment and T.A. Estimated cost 3.79 mECU. EDF 3 mECU, local 0.79 mECU. T.A.: Central Diergeneeskundig (NL). 5th EDF.
EDF ZA 5018 A3a

Mkushi electrification. Estimated cost 6.07 mECU. EDF 3.07 mECU. Cofinancing needed. Study on hand: MERTZ-McLENNAN (UK). Project stage: identification. 5th EDF.
EDF ZA 5007 A2a

Rehabilitation of the Zambian Copper & Cobalt Mining Industry. II. Resp. Auth.: Z.C.C.M. Sysmin. 28 mECU, Italy 4.5 mECU. Local 4.9 mECU. EDF part supply of equipment by int. tender. 31 int. tenders launched in 86. Project in execution. 5th EDF.
EDF ZA/SYS/5024 A4a

EEC vehicle repair and transport support programme. Resp. Auth.: ZIMCO. 15

mECU. Part supply for trucks and related transport equipment, T.A. control and maintenance services. Project on appraisal. Date foreseen for financing decision January 87. 5th EDF.
EDF ZA 5025 A2d

Rehabilitation of 3 grain silos. Resp. Auth.: Ministry of Agriculture. NAMBOARD. EDF 7 mECU, Germany F.R. 7 mECU. EDF part works, supplies and work supervision. Project on appraisal. Date foreseen for financing decision January 87. 5th EDF.
EDF ZA 5026 A3f

Zambia Centre for accountancy studies. 3.8 mECU. Training and management. Project on appraisal. 6th EDF.
EDF ZA 6001 A6a

ZAMSTEP. Zambia Mathematics and Science Education Project. 3.5 mECU. Supplies, training and management. Project on appraisal. Date foreseen for financing decision December 86. 6th EDF.
EDF ZA 6002 A6a

ZIMBABWE

Small-holder Coffee and Fruit Development Programme. Resp. Auth.: Ministry of Lands, Resettlement and Rural Development. EDF 4.2 mECU, local 1.65 mECU. T.A.: I.R.F.A. (F). Project in execution. 5th EDF.
EDF ZIM 5006 A3a

Mashonaland East Smallholder Fruit and Vegetable Programme. Resp. Auth.: Agricultural and Rural Development Authority (ARDA). 2.9 mECU. Works, supply of equipment and materials, T.A. and credit line. T.A.: Short-list done for restr. tender. Project in execution. 5th EDF.
EDF ZIM 5012 A3a

Rural water supply in South Matabeleland. Resp. Auth.: Ministry of Energy, Water Resources and Development. Boring, wells, supply of hand pumps (MEWRD). 4.1 mECU. Project in execution. 5th EDF.
EDF ZIM 5005 A2b

Zimbabwe export development programme. Resp. Auth.: Ministry of Trade and Commerce. Export Promotion Dept. Estimated total cost 6.3 mECU. EDF 4.4 mECU. Sector and market development, human resource development and institutional development and T.A. Project in execution. 6th EDF.
EDF ZIM 6001 A4a

Overseas Countries and Territories (OCT)

FRENCH POLYNESIA

★ **Hanavave electric line.** Supply and installation of 8 km of electric lines. M.T. Estimated total cost 0.319 mECU. EDF 0.267 mECU. Project on appraisal. 4th EDF.
EDF POF 4004 A2ai

★ **Tahiti hydro-electric rehabilitation.** Estimated total cost 13.7 mECU. EDF 1.8 mECU, France 2.6 mECU, EIB

4 mECU, local 3.1 mECU, SODEP 2.2 mECU. EDF part supply of pylons, cables and materials. Project on appraisal. 5th EDF.
EDF POF 5005 A2ai

NETHERLANDS ANTILLES

Line of credit to the Aruba Dev. Bank to improve agriculture, livestock and fishery. Resp. Auth.: Departement voor ontwikkelingsamenwerking. Estimated cost 0.3 mECU. Project on appraisal. 4th EDF.
EDF NEA 4003 A5a

Tourism improvement. Curaçao. Phase I. Otrobanda sewerage. Resp. Auth.: Ministry of Public Works. Estimated total cost 5 mECU. EDF 3 mECU, Netherlands 2 mECU. EDF part: sewage, road works, piping. Project on appraisal. 5th EDF.
EDF NEA 5013 A5c

MONTSERRAT

Water Supply Project. Resp. Auth.: Montserrat Water Authority and Ministry of Public Works. 1 mECU. Project planning: SCET Int. (F). Project on appraisal. Date foreseen for financing decision 1st half 87. 4th and 5th EDF.
EDF MON 5001 A2b

PACIFIC OCT

Regional programme rural photovoltaic electrification. Resp. Auth.: SPEC. Estimated total cost 4.365 mECU. EDF 3.184 mECU. T.A.: short-list done for restr. tender. Supplies by int. tender in 85, 86 and 87. Project in execution. 5th EDF.
EDF REG 5715 A2a

Regional Projects

MEMBER COUNTRIES OF CEAO

ESITEX Ségou (Mali). Resp. Auth.: CEAO Secretariat. Management training for textile industry. Complex construction in Ségou. Supply of equipment. Project stage: identification. 5th EDF.
EDF REG 5118 A6d

GUYANA — SURINAME

Guyana — ferry-link. Resp. Auth.: Ministry of Public Works and Ministerie van Openbare Werken. Link ferry on Corentine river. 12.1 mECU. Study under way by C.A. Liburd and Ass. + Sescon Group (ACP). Project in execution. 4th and 5th EDF.
EDF REG 5602 - 4084 A2d

MEMBER COUNTRIES OF M.R.U. (MANO RIVER UNION)

Telecommunication and Postal Training Institute (TPTI) of the MRU. Resp. Auth.: MRU Secretariat in Freetown. Extension, supplies and training. Estimated total cost 8.5 mECU. EDF 2.5 mECU. Project on appraisal. 5th EDF.
EDF REG 5104 A6b

NIGER BASIN AUTHORITY

Protection and reforestation in the "Haut Bassin Versant du fleuve Niger en Guinea". Works, supplies and T.A. Estimated total cost 1.5 mECU. Project stage: identification. 5th EDF.
EDF REG 5112 A8f

EQUATORIAL GUINEA — SAO TOME AND PRINCIPE

Improvement of port facilities to develop trade in the Guinea Gulf. Estimated total cost 2.04 mECU. EDF 0.690 mECU, F.R.G. 1.350 mECU. Works in the port of Bata, T.A. and supply of handling facilities equipment in the port of Sao Tome. Project in execution. 5th EDF.
EDF REG 5222 A2d

ZAIRE — CONGO — GABON — SAO TOME AND PRINCIPE — EQUATORIAL GUINEA — CAMEROON

Fishery development in the Gulf of Guinea. Estimated cost ±5 mECU. T.A. to prepare these projects: Short-list done. Project on appraisal. 5th EDF.
EDF REG 5206 A3d

SENEGAL — MAURITANIA

Establishment of cultivated areas in the Senegal River Valley. Special hunger programme. 2.380 mECU. Project in execution.
958-REG 5140 A3a

MEMBER COUNTRIES OF UDEAC

Sub-Regional Institute for Applied Technology and Planned Economy (ISTA). Resp. Auth.: ISTA Secretariat in Libreville-Gabon. Estimated cost ±6 mECU. Building centre construction and T.A. for 3 actions. Project on appraisal. 5th EDF.
EDF REG 5210 A6b

PACIFIC ACP COUNTRIES

Pacific Regional Tourism Programme. Resp. Auth.: Tourism Council of the South Pacific (TCSP) and SPEC. 3.2 mECU. Study to be done: data base, organization and strategy. Short-list already drawn up. for restr. tender. Project in execution. 5th EDF.
EDF REG 5714 A5c

Pacific Regional Aircommunications. Stage I. Resp. Auth.: SPEC. 4.6 mECU. Buildings, runways and supply of navigational aids. Project in execution. 5th EDF.
EDF REG 5717 A2d

MEMBER COUNTRIES OF CILSS

Provisional survey of natural renewable resources in the Sahel. Resp. Auth.: CILSS Secretariat. Setting up of an observation unit to forecast crop production. Remote sensing by satellite, air survey and ground control. Project in execution. T.A.: Sodeteg - (F). 5th EDF.
EDF REG 5116 A8f

Millet, maize, sorghum and niébé project. Resp. Auth.: CILSS Secretariat. Esti-

mated cost 2 mECU. To provide improved varieties for farmers. Local tests. Purchase of vehicles and equipment and to take charge for local tests control staff. Project stage: identification. 5th EDF.
EDF REG 5116 A3a

MEMBER COUNTRIES OF U.A.P.T.

Satellite telecommunications project. Resp. Auth.: U.A.P.T. Secretariat in Brazzaville. R.P.C. Parametric study under way by national organizations of I, UK, F and D. Project stage: identification. 5th EDF.
EDF REG 5307 A2c

INDIAN OCEAN ACP COUNTRIES

Tuna fishing in the Indian Ocean. EDF 6.3 mECU. Determination of different methods of tuna fishing. Evaluation of resources and T.A. to the countries. Madagascar, Comoros and Mauritius to select models for development. Project on appraisal. Date foreseen for financing decision December 86. 5th EDF.
EDF REG 5564 A3d

Aircraft maintenance centre for Indian ocean countries. Estimated total cost 6.270 mECU. EDF 3.2 mECU. Strengthening of the existing centre in Ivato (Madagascar). Works, supplies and training. Project on appraisal. Date foreseen for financing decision December 86. 5th EDF.
EDF REG 5508 A2d

TANZANIA — ZAMBIA

Tazara Ten Year Development Plan (phase I). Resp. Auth.: Tanzania-Zambia Railway Authority. EDF part 13 mECU. Programme to improve maintenance of track and rolling stock, supply of equipment and T.A. Project on appraisal. Date foreseen for financing decision January 87. 5th EDF.
EDF REG 5026 A2d

EAST AFRICAN COUNTRIES

Statistical training centre for Eastern Africa in Tanzania. Resp. Auth.: Secretariat of the centre. 2.0 mECU. Widening of the capacity. Construction of class-rooms, offices and housing. Project stage: identification. 5th EDF.
EDF REG 5311 A6b

Kabale-Gatuna Road. Resp. Auth.: Uganda Government. Estimated cost 2.5 mECU. Asphalting of the road (21 km) up to the Rwanda border. Int. tender with prequalification launched in June 86. Project on appraisal. 5th EDF.
EDF REG 5329 A2d

Kigali-Gatuna-Corridor North. Resp. Auth.: Government of Rwanda. 8.5 mECU. Section road, 22 km at the border between Rwanda and Uganda. Supervision of works: Rhein-Rhur (D). Project in execution. 5th EDF.
EDF REG 5332 A2d

CAMEROON — COTE D'IVOIRE — GHANA — MAURITIUS — SENEGAL — ZAIRE

Strengthening of scientific and technical capacities in the field of food and nu-

trition in Africa. Resp. Auth.: Association des Universités africaines. AUA. 1.5 mECU. T.A., training, supply of equipment, production and diffusion of scientific information. Project in execution. 5th EDF.
EDF REG 5054 A3a

BURUNDI — RWANDA — TANZANIA — UGANDA — ZAIRE

★ **T.A. to the Central Corridor.** Estimated cost 10 mECU. Building of a rail-road terminal in Isaka, improve the traffic on the TRC and facilitate transit through the Kigoma, Kalemie and Bujumbura ports. Project on appraisal. 5th EDF.
EDF REG 5341 A2d

AFRICAN COUNTRIES

Campaign against rinderpest in African. Resp. Auth.: OUA and IBAR. Estimated total cost for 2 years 50 mECU. Supply of equipment T.A. vaccines and research. T.A.: Dr. Cheneau (F). Project in execution. 4th and 5th EDF.
EDF REG 5007 - 4085 A3a

Fight against onchocercosis in Western Africa. EDF part 6 mECU. Date financing decision October 86. 5th EDF.
EDF REG 5148 A3a

SADCC

Maseru Container Terminal. Resp. Auth.: Government of Lesotho and SADCC. 1.350 mECU. Construction of container terminal and supply of containers, handling equipment. Study required: detailed design of works. Short-list already drawn up. Project on appraisal. 5th EDF.
EDF REG 5421 A2d

Karonga-Ibanda-Uyole Road. Total estimated cost 30 mECU. EDF 25 mECU, Netherlands ±5-8 mECU. Works and supervision by EDF. Project on appraisal. 5th and 6th Reg.
EDF REG 5423-6402 A2d

BOTSWANA — SWAZILAND — ZIMBABWE

Regional Railway Training. Phase II. Estimated cost 2 mECU. T.A.: Sofrerail (F). Project in execution. 5th EDF.
EDF REG 5410 A2d

MALAWI — ZAMBIA — ZIMBABWE

Regional Tsetse and Trypanosomiasis Control Programme. Resp. Auth.: Technical and financing responsibility: Zimbabwe national authorizing officer. 19.150 mECU. Works by direct labour. Vehicles, veterinary products, aerial spraying and equipments by int. tender. T.A. by direct agreement. Project in execution. 5th EDF.
EDF REG 5420 A3a

CARIBBEAN AND ACP COCOA PRODUCERS

Cocoa Research Unit (CRU), Phase II. Resp. Auth.: CRU in Trinidad. 2.624 mECU. Works, supply of equipment and agricultural

inputs, T.A. and training. Project in execution. 5th EDF.
EDF REG 5043

A3a

MEDITERRANEAN COUNTRIES

ALGERIA

Training for heavy industry. Resp. Auth.: Ministère de l'Industrie Lourde(MILD). 3.9 mECU. T.A., training, supply of pedagogical equipment. T.A.: C.R.G.I. (B). Project in execution.
SEM AL 2003

A6d

Training for Ministry of Public Works. Resp. Auth.: Ministère des Travaux Publics. Direction de la Formation. EEC contribution 2.75 mECU. T.A., training, scholarships and supply of pedagogical equipment. Project in execution.
SEM AL 2002

A6d

Support to the «Ministère de l'Enseignement supérieur et de la recherche scientifique» (MESRS). Resp. Auth.: MESRS. 2.2 mECU. Training and supply of scientific equipment and T.A. Project on appraisal.
SEM AL 2004

A4g

CYPRUS

Sanitation in Nicosia. Phase II. Resp. Auth.: Sewage Board of Nicosia and the Department for Water, Geology and Mining. EEC part 2.4 mECU. Increase in capacity of the treatment plant. By local tender and by int. tender. Project in execution.
SEM CY

A2b

EGYPT

Soil improvement programme in Kafr-el-Sheikh Governorate. Resp. Auth.: Executive Authority for Land Improvement Projects (EALIP). Provisional amount 8 mECU. To reclaim an area of 65 000 acres of saline soil, located in Hamoul district of the Kafr-el-Sheikh Governorate. Short-list already drawn up. Project in execution.
SEM EGT 1001

A3e

Egyptian Renewable Energy Development Organization. EREDO. Resp. Auth.: Egyptian Government. EEC contribution 7.7 mECU. Construction and equipment for the centre. Works and supplies: int. tender with prequalification foreseen in 1st half 87. T.A.: GET/KFA (D). Int. tender dossier: Phoebus (I).
SEM EGT 1002

A2a

Training Institute for Egyptian Labour Representatives. "Workers University". EEC contribution 1.970 mECU. T.A. and supply of kitchen, cafeteria and laundry equipment by int. tender. Project in execution.
SEM EGT

A6d

★ **Sinai water resources Study — Phase II.** EEC contribution 3 mECU. Project on appraisal.
SEM EGT

A3e

JORDAN

Faculty of Engineering and Technology, University of Jordan, Phase II. 2 mECU. Supply of equipment, A.T. and training. Int. tender for supplies launched in June 86. Project in execution.
SEM JO 2002

A6a

Sheep improvement project: breeding unit. Estimated total cost 4.018 mECU. EEC 2.1 mECU. Establishment of a breeding unit to provide improved species of the local breed Awassi to farmers. Project on appraisal.
SEM JO 2004

A3a

A.T. to the Royal Scientific Society-Phase II. 2 mECU. Supply of equipment, training, scholarships and seminars. Project on appraisal.
SEM JO 2006

A6a

SYRIA

ISSAT. Institut Supérieur des Sciences Appliquées et de Technologie. Resp. Auth.: State Planning Commission. Estimated total cost 70.3 mECU. EEC part: supply of teaching and training equipment for the institute and T.A.: 8.250 mECU. Date financing decision July 86.
SEM SYR 2002

A6b

Euphrates drainage and irrigation. Resp. Auth.: Ministry of Irrigation. General Organization for land development (GOLD). Estimated total cost 134.9 mECU. EEC 10 mECU, EIB 20 mECU, local 104.9 mECU. Works, supplies and T.A. 2 int. tenders for supplies and works launched in March 86. Project in execution.
SEM SYR 2003

A3a

Rural Water Supply Suweida Region. Resp. Auth.: Ministry of Local Administration and Ministry of Housing and Utilities. EEC 3.8 mECU. Project in execution.
SEM SYR 2001

A2b

TUNISIA

Date-palm plantations study project in Régime Maatoug. Resp. Auth.: Banque Nationale de Dév. Agricole (B.N.D.A.). 1.9 mECU. Feasibility study, drillings and access roads. Works by direct labour. Study: Short-list done. Project in execution.
SEM TUN 2001

A3a

Water resources research and training study. Resp. Auth.: Ministère de l'Agriculture. 1.0 mECU. Supply of soil equipment and data system. T.A. and training. T.A.: Short-list done for restr. tender. Project in execution.
SEM TUN 2004

A2b

Evaluation of soil resources and their liability to desertification in Southern Tunisia. Resp. Auth.: Ministère de l'Agriculture. Estimated cost 1.2 mECU. EEC 0.400 mECU, local 0.800 mECU. T.A. and training. Supply of specialized equipment. T.A.: Short-list done for restr. tender. Project in execution.
SEM TUN 2005

A3c

Management improvement in the public irrigated areas in Tunisia. Resp. Auth.: Ministère de l'Agriculture. EEC contribution 2.5 mECU. Rehabilitation of hydro-electric

equipment, training and T.A. Project in execution.

SEM TUN 2006

A3A

T.A. to the "Unités Coopératives de Production Agricole (U.C.P.A.). Resp. Auth.: B.N.D.A. 1.800 mECU. T.A., training and supply of equipment. Project in execution.

SEM TUN 2007

A3a

A.L.A. developing countries ASIA and LATIN AMERICA

ASEAN

Aquaculture development and coordination programme. 6,77 mECU. Date financing decision. November 86.
ALA ASN 8604

A3d

Industrial standards and quality control programme. 5 mECU. Date financing decision November 86.

ALA ASN 8609

A4a

BANGLADESH

Small-scale irrigation sector project. Resp. Auth.: Bangladesh Water Development Board (BWDB). Estimated total cost 82 mECU. EEC contribution 12 mECU. Cofinancing with ADB (Asian Dev. Bank). Works, supply of equipment and vehicles, T.A. and supervision. Works: acc. tender. Supplies: int. tender, 1st half 87.
ALA BD 8112

A3a

Building of storage for fertilizers. Resp. Auth.: Bangladesh Agricultural Development Corporation (BADC). Cofinancing: EEC and Netherlands. Total cost 4 mECU. EEC 2 mECU Netherlands 2 mECU. EEC part: Works by int. tender. Netherlands part: buildings and T.A.
ALA BD 8201

A3f

Rangpur. Rural Development Programme. Resp. Auth.: Central Coordination Committee. (CCC). Total cost 40 mECU. EEC 25.5 mECU, NL 7 mECU, local 6 mECU. Works by acc. tender. Supplies by int. tender or direct agreement. Project in execution.

ALA BD

A3e

Cotton Development. Phase II. Resp. Auth.: Central Coordination Committee (CCC) and Cotton Development Board (CDB). EEC 4.9 mECU. Supply of T.A. training and equipment. Int. tender for supplies launched in May 86. Project in execution.
ALA BD 8504

A3a

BHUTAN

Water supply. Resp. Auth.: Inter dep. Commission on water and sanitation. Works by direct labour. 4.5 mECU. Supplies int. tender or direct agreement. T.A.: UNICEF. Project in execution.

ALA BHU

A2b

T.A. programme to the Department of Agriculture. Resp. Auth.: Ministry of Agriculture and Forests. 1.1 mECU. Two experts during 3 years. 1 Rural Development Engineer and 1 agro-economist. Short-list already drawn up for restr. tender. Project in execution.

ALA BHU 8513 A3a

BOLIVIA

Flood protection programme. Santa Cruz. EEC 9 mECU, NL 1 mECU. Works, supply of equipment. T.A. for NL. Project in execution.

ALA BO 8510 A8g

★ **Rural self-development programme.** Resp. Auth.: CORDEPO-CORDEOR. 20 mECU. Supply of equipment, materials, line of credit, T.A. Project on appraisal. Date foreseen for financing decision February 87.

ALA BO 8701 A3a

CHINA (PEOPLE'S REP.)

Fruit Cultivating and Preservation Techniques. Estimated total cost 4.350 mECU. EEC 1.600 mECU. Cofinancing with Italy. T.A. and transfer of technology. T.A.: Apples: B.D.P.A. (F). Citrus: Media Coop (I). Project in execution.

ALA CHN 8337 A3a

Flood forecasting and management of Beijing River. Estimated total cost 5.5 mECU. EEC 1.7 mECU T.A. and transfer of technology. Project in execution. TRACTIONNEL (B).

ALA CHN 8338 A8g

Prawn farming development. Estimated cost 0.700 mECU. Supplies and T.A. T.A.: Fish Farming Int. (UK). Project in execution.

ALA CHN 8341 A3d

Hainan Cashew Development. Resp. Auth.: Prefecture of the Autonomous Department of Li and Miao National Minorities. Estimated total cost 2.350 mECU. EEC 0.800 mECU. Supply of equipment and T.A. T.A.: K.I.T. (NL). Project in execution.

ALA CHN 8340 A3a

Gansu Sugar Beet Development. Resp. Auth.: Gansu Province Department of Agriculture. EEC contribution 1 mECU. T.A., training and supply of equipment. Project in execution.

ALA CHN 8517 A3a

Strengthening of soil and water conservation measures in Sichuan Province. 1.5 mECU. Supply of equipment, training and T.A. Project in execution.

ALA CHN 8526 A3a

Improvement of the rubber quality. 0.900 mECU. Supply of equipment, training and T.A. Project in execution.

ALA CHN 8527 A3a

Pilot project to improve production from fish farming. 2.1 mECU. Date foreseen decision November 86.

ALA CHN 8528 A3d

Study of rural water supply and technical strengthening of institutions. Estimated total cost 3,080 mECU, EEC 1.1 mECU and 1.980 mECU locally. Study, T.A. and training in Europe. Date financing foreseen December 86.

ALA CHN 8515 A2b

COSTA RICA

Productive projects programme for refugees in Costa Rica. T.A. and line of credit. 3.6 mECU. Project in execution.

ALA CR 8501 A8b

Integrated rural development of the region of OSA/GOLFITO. Total cost 21.635 mECU. EEC 9.95 mECU. Supply of equipment, infrastructural works, maintenance, lines of credit and T.A. Project in execution.

ALA CR 8506 A3a

COSTA RICA — HONDURAS — NICARAGUA — PANAMA — DOMINICAN REPUBLIC

Latin American qualified nationals reinstatement in 5 Central American countries. Resp. Auth.: CIM (Comité Intergouvernemental pour les migrations). 1.4 mECU. Reinstatement of 75 qualified nationals via CIM. Date foreseen for financing decision 1st half 87.

ALA CIM 8302 A8b

COLOMBIA

Reconstruction Programme. Resp. Auth.: Corporation de Reconstruction de Cauca. Total cost 5.9 mECU. EEC 3.9 mECU. EEC part: supply of materials and T.A. Project in execution.

ALA CO 8403 A8a

Microprojects programme in the pacific coastal. Line of credit, T.A. and training, EEC contribution 4 mECU and supply of equipment. Project in execution.

ALA CO 8516 A3a

DOMINICAN REPUBLIC

Integrated rural development pilot project in Western Cibao. 6 mECU. Special hunger programme. Project in execution.

958-DO 8402 A3a

ECUADOR

Rural development in the region of the Chambo river. Resp. Auth.: Institut Equatorien des Ressources Hydrauliques (INERHI). EEC 9 mECU. T.A. and training, irrigation works, line of credit, supply of equipment. Project in execution.

ALA EC 8508 A3a

EL SALVADOR

Rehabilitation Programme. University of El Salvador. Resp. Auth.: U.E.S. Total estimated cost 5 mECU. EEC 3.3 mECU. Italy 1.7 mECU. EEC part: supply of equipment, T.A. and training for Agronomics and partly for Electrotechnology. Italy part: supplies for Electrotechnology, Physics and Mechanics, T.A. and training. Project in execution.

ALA ES 8519 A6c

GUATEMALA

★ **Support to the smallholder farmers.** 12 mECU. Supply of equipment, line of credit and T.A. Project on appraisal. Date foreseen for financing decision January 87.

ALA GU 8612 A3a

HONDURAS

Rehabilitation and Maintenance of Feeder Roads in Coffee Producing Areas. Resp. Auth.: Instituto Hondureno de Café (IHCAFE). EEC 2.750 mECU. Supply of T.A. and work construction equipment. Project in execution.

ALA HO 8524 A3a

INDIA

Development of Water Control Systems for diversification of crops in Maharashtra. Resp. Auth.: Irrigation Department of the Government of Maharashtra. EEC contribution 15 mECU. Works, supplies, T.A. and training. Project in execution.

ALA IN 8418 A3a

Co-operative rural storage, Bihar. 20.3 mECU. Date financing decision November 86.

ALA IN 8607 A3f

Integrated watershed management in U.P. Project in execution.

ALA IN A3a

INDONESIA

Bali Irrigation Sector Project. Resp. Auth.: Ministry of Public Works. DG for Water Resources Development. EEC 12 mECU. ADB ±37 mECU. Local ±55 mECU. Rehabilitation and expansion of 50 village-level irrigation schemes, establishment of a water-management training centre, and establishment of climatological stations. T.A. Works: acc. tender. Project in execution.

ALA IND 8114 A3a

MEXICO

Hospital construction. EEC 5.2 mECU. 144 beds hospital. Works, supplies and supervision. Project in execution. Int. tender launched in December 86.

ALA 8602 A7a

NEPAL

Nepal Administrative Staff College. NASC. Resp. Auth. NASC Secretariat. Estimated total cost 6.5 mECU. EEC 5 mECU, U.K. 1.5 mECU. Renovation and construction works, supply of equipment and training. Project in execution.

ALA NEP 8407 A6b

Soil and water conservation in Bagmati Watershed. Special hunger programme. 5.5 mECU. T.A.: I.D.C. (D). Project in execution.

958-NEP 8401 A3a

Arjun Kuhola Irrigation Project. 1.536 mECU. Project in execution.

ALA NEP 8521 A3e

NORTH YEMEN

Rural development of Al Mahwir. Estimated cost 6.5 mECU. Project on appraisal. Date foreseen for financing decision 1st half 87.

ALA YDR A3a

PACTO ANDINO MEMBER COUNTRIES

Technical cooperation (industry and economic planning). Resp. Auth.: Junta del Acuerdo de Cartagena, Lima-Peru. Estimated total Cost: 1.7 mECU. EEC 1.1 mECU. To place experts, equipment and T.A. and training at Junta's disposal. Contracts, T.A. and experts by the Junta and the EEC.
ALA JUN 8107 A4a

Andean Programme for technological development (Rural PADT). Resp. Auth.: Junta del Acuerdo de Cartagena, Lima-Peru. Estimated total Cost: 7.560 mECU. EEC 3.927 mECU. Supply of equipment, training and T.A. Vehicles purchase: int. tender. T.A.: Short-lists to be drawn up by the EEC and decision by the Junta.
ALA JUN 8108 A3a

Regional programme for technical cooperation: food strategy. Resp. Auth.: JUNAC. EEC contribution 7 mECU for European T.A. and supply of data-computerized equipment by int. tender. Project in execution.
ALA JUN 8406 B1a

Regional programme for technical cooperation: industry and sub-regional exchanges. Resp. Auth.: JUNAC. EEC Contribution 7 mECU. T.A. and supply of equipment. Project in execution.
ALA JUN 8503 A4a

PAKISTAN

Karachi fishing port. Resp. Auth.: Fishery department of the Sind Province. Estimated cost 12 mECU. New facilities: quay, boat repair yard, fish-shed, dredging. Rehabilitation of existing facilities, equipments and TA. TA: Prof. Dr. Lockner & Partners (D). Works and supplies by int. tender launched in June 86. Prequalification.
ALA PAK 8101 A3d

Irrigation project in Palli and Lehri. Resp. Auth.: Department of Irrigation and Agriculture Baluchistan Provincial Government. Estimate \pm 10 mECU. Works and in-

frastructures. Studies for the execution and supervision of works. Project in execution.
ALA PAK 8422 A3a

Rural Electrification. 10 mECU. Project in execution.
ALA PAK 8522 A2ai

Vocational training. 16 mECU. Project in execution.
ALA PAK 8518 A6d

PANAMA — COSTA RICA — NICARAGUA — HONDURAS — EL SALVADOR — GUATEMALA

Regional programme of technical cooperation for food security. Resp. Auth.: CADESCA (Comité de acción para el desarrollo economico y social de centroamerica - Panama). Total cost 9.07 mECU. EEC 4.82 mECU, France 0.350 mECU, local 3.9 mECU. T.A. training and supply of equipment. Project in execution.
ALA REG 8505 A3a

Regional programme for child survival in Central America. EEC 16.5 mECU, Italy 16 mECU. Supply of T.A., training, equipment, medical equipment and medicines. Project in execution.
ALA REG 8520 A7a

PERU

Support programme to the agro-pastoral microprojects PAMPA-PUNO. EEC 16 mECU. Supply of T.A., equipment and recurrent expenditures. Int. tender launched in July 86. Project in execution.
ALA PE 8601 A3a

PHILIPPINES

Integrated development project of the Aurora region. Resp. Auth.: NACIAD. Total estimated cost 12.6 mECU. EEC 10.8 mECU. Irrigation works, feeder roads, reforestation, supply of equipment and T.A. Project in execution.
ALA PHI 8525 A3a

★ **CORDIERA development programme.** Estimated cost 18 mECU. Project on appraisal.
ALA PHI A3a

THAILAND

Oilseed crop development programme. Resp. Auth.: Ministry of Agriculture — Oilseed Project Steering Committee. Total estimated cost 4.2 mECU. EEC 3.3 mECU. T.A. and supply of equipment. T.A.: Crown Agents (UK).
ALA TH 8203 A3a

Mae Nam Chi River Basin. Water Management Development. Resp. Auth.: Ministry of Agriculture and Cooperatives. Royal Irrigation Department. Estimated total cost 5 mECU. EEC 4 mECU. Supply of equipment, T.A. and training. Int. tender for supplies launched in July 86. Project in execution.
ALA TH 8412 A3a

Strengthening of planning capacities for diversification and rural development. Resp. Auth.: Ministry of Agriculture and Cooperatives. 2 mECU. T.A. for coordination, management, training needs, project identification and planning. T.A. for central and peripheral computer system for rural areas. Training and supply of computerized equipment. Short-list done. Project in execution.
ALA TH 8420 A3a

Rural credit and rubber planting. Resp. Auth.: Ministry of Agriculture and Cooperatives. 35 mECU. Supply of lines of credit, T.A., training, rural inputs, equipment. Project in execution.
ALA TH 8509 A3a

Huai-Mong. Phase II. 7 mECU. Project on appraisal. Date foreseen for financing decision 1st half 87.
ALA TH A3a

YEMEN

Seed production centre. Estimated cost 5.8 mECU. Project in execution.
ALA YAR A3a

INTERNATIONAL CALLS FOR TENDER

All international calls for tender (int. tenders) referred to in this Operational Summary are notified in due time in the Official Journal (O.J.) of the European Communities' «S» supplement. This information is also available by computer link via the "TED" data base.

Subscriptions to the O.J. «S» supplement should be addressed to the «Office for Official Publications of the European Communities», L-2985 Luxembourg, Tel.: 49 00 81, or contact Mr A. Boldrin (see box page IV).

DELEGATIONS OF THE COMMISSION

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Jean GROUX & Philippe MANIN — **Les Communautés Européennes dans l'ordre international** (The European Communities in the International Order). Preface by Gaston Thorn — European Perspectives collection — European Communities Official Publications Office, Luxembourg — 166 pages — FL/FB 200/FF30.—

The European Communities have become an important actor in international affairs. But if they are to accomplish their mission in this field, they need the legal scope to do so and theirs is a new position as far as international law is concerned. They are more than a conventional international organisation because of the powers their Member States have transferred to them. But in many cases they do still come up against the limits traditionally set for international organisations.

This work describes how the Communities now stand in the international order and shows how they have managed to obtain — gradually, although insufficiently as yet — recognition of the place their powers warrant.

Without neglecting the theory behind all this, the authors, who are involved in action within the Community, give us a detailed report on practice in all areas where any exists. In some cases, even—the Community's international representation, its involvement in international agreements and its access to international conferences and organisations—practice is abundant.

The authors also look at problems which will emerge as increasingly important in the future—applying international agreements under Community law, the Communities' international responsibilities and EEC involvement in the international settlement of differences.

○○○

Informal Sector in Africa — ILO Jobs and Skills Programme for Africa. Addis Ababa 1985 — 137 pages — \$ 9.00

Individual persons or small enterprises working outside the recorded economy account for a great number of economic activities in most African countries today. According to various

estimates they constitute nearly one-half of the urban labour force, and contribute up to a third of urban incomes and a considerable part of the urban value added. Their working arrangements vary from one-man firms and firms employing family members as apprentices to a minority who may even hire outside labour.

Their scope ranges over the whole spectrum of economic activities: retail trade, construction, wood and metal working, electrical and mechanical repairing, and transportation. Their mode of production is, by and large, labour-intensive.

These activities, collectively known as the "informal sector", have become the subject of much concentrated research since ILO's employment strategy mission to Kenya in 1972. This volume brings together the findings of 52 such studies on the informal sector in 21 African countries. It discusses, in the synthesis part (Part I), the macro and micro characteristics of the sector, the extent of linkages with the formal sector, the role of government, the problems and constraints facing the sector and the employment potential of the sector. Part II contains a summary of the country studies.

The report cautions that the traditional "safety-valve" role of the informal sector cannot be relied on indefinitely to absorb the stream of urban migrants in African countries and that underemployment may already be increasing in the sector. In the face of this, it recommends a concerted programme of action to raise the productivity of the sector, especially through appropriate training programmes.

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GRET (The International Technological Exchange Group) — Promotion de la petite industrie dans les PVD (Promoting small industries in the developing countries) — Paris 1985 — FF 50 — 106 pages

Some industrial development technology doomed the sector to the sidelines. But small units are not just keeping afloat now: they are becoming increasingly convincing.

The development of material and human resources, technical acculturation, training, the attraction of new forms of involvement and solidarity are not the least of the economic and social virtues in a sector that is all too often the weak sister in planning in the Third World.

This clearly emerges from this account of the third GRET seminar. It contains analyses of projects (11 case studies by professionals from 10 countries) and studies of more general situations, combining to express the role of the small firm, the conditions of its development and its problems and ambiguities in the social mastery of development.

○○○

Sickle Cell Disease: a Guide for Families by Elizabeth ANIONWU and Harun JIBRIL. Collins, London 1986 — £ 1.95

Produced in association with The Sickle Cell Society of Great Britain, this book provides relevant information about the various prevalent forms of sickle cell disease, which afflicts significant proportions of populations in Africa, Asia, the Caribbean and in their associated emigrant groups elsewhere in the world.

<p>THE COURIER AFRICA - CARIBBEAN - PACIFIC — EUROPEAN COMMUNITY</p> <p>PUBLISHER Dieter Frisch</p> <p>Commission of the European Communities</p> <p>200, rue de la Loi 1049-BRUSSELS (Belgium)</p> <p>Tel. 235 11 11 (switchboard) Telex COMEURBRU 21877</p>	<p>EDITOR Marie-Hélène Birindelli</p> <p>DEPUTY EDITOR Lucien Pagni</p> <p>ASSISTANT EDITORS Roger De Backer Amadou Traoré Augustine Oyowe Myfanwy van de Velde Tom Glaser</p> <p>SECRETARIAT: Mary Beatty (235 75 87) Viviane Jacquet (235 27 19)</p> <p>CIRCULATION Margriet Mahy-van der Werf (235 76 39)</p>
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