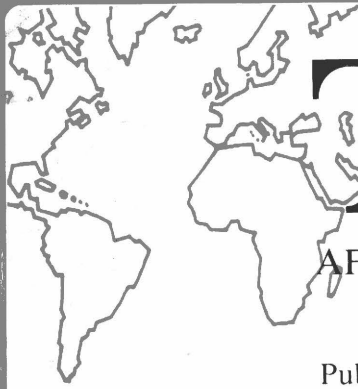


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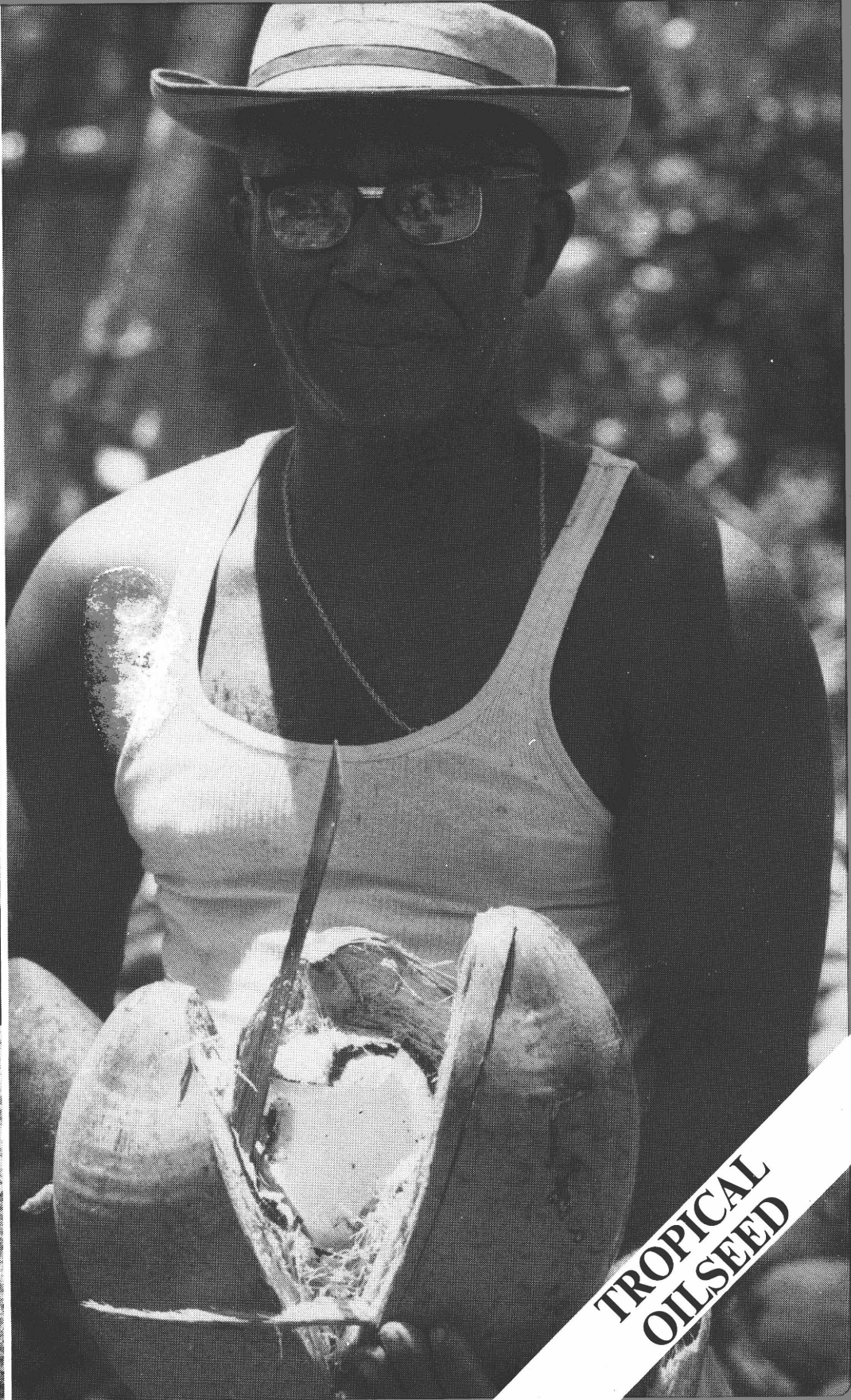
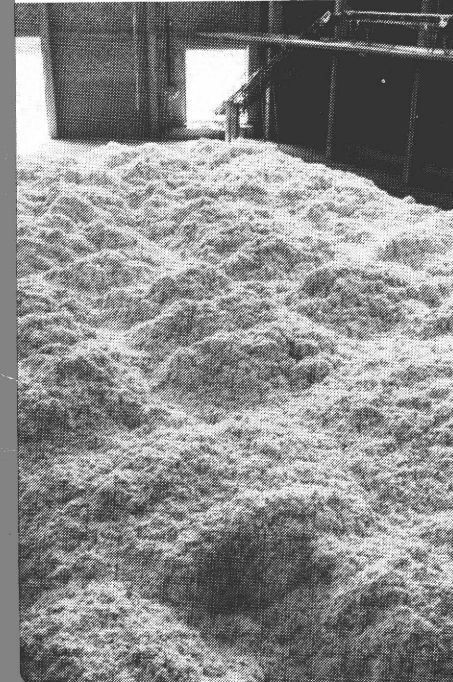
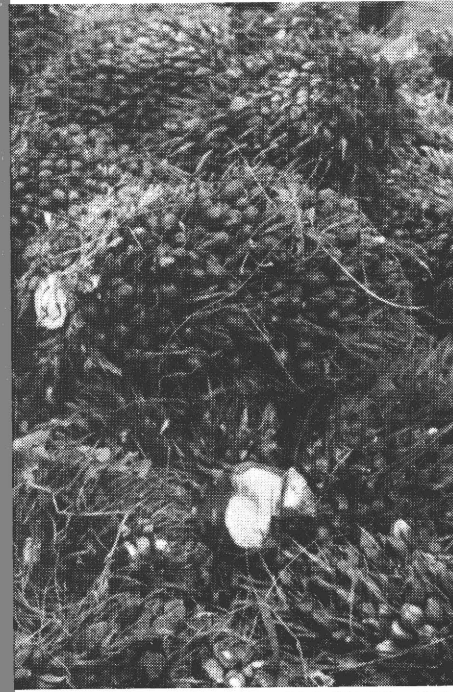
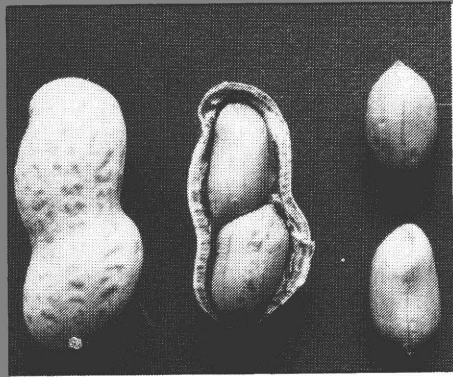


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AFRICA-CARIBBEAN-PACIFIC - EUROPEAN COMMUNITY

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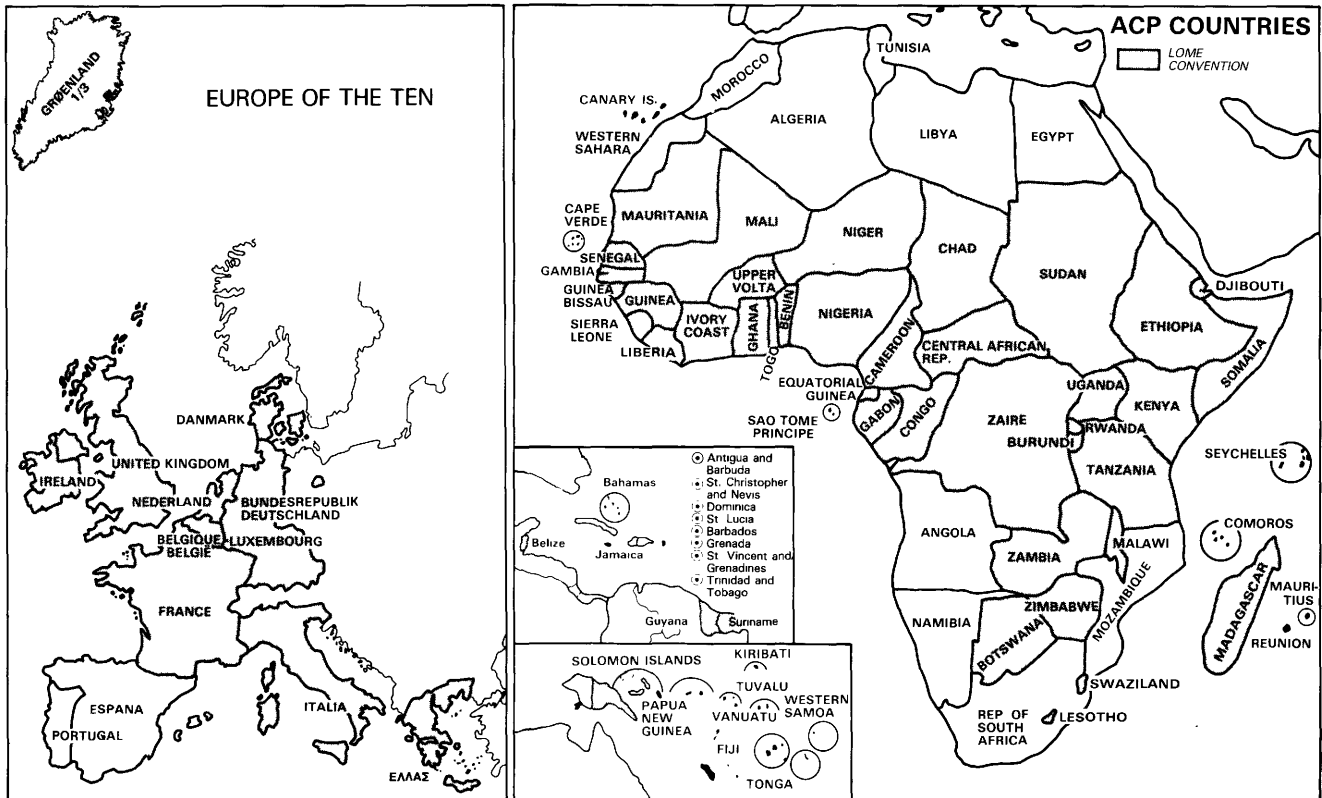
**TROPICAL
OIL SEED**

THE EUROPEAN COMMUNITY

BELGIUM
DENMARK
FRANCE
GERMANY
(Federal Rep.)
GREECE
IRELAND
ITALY
LUXEMBOURG
NETHERLANDS
UNITED KINGDOM

THE 64 ACP STATES

ANTIGUA & BARBUDA	GRENADA	SAO TOME & PRINCIPE
BAHAMAS	GUINEA	SENEGAL
BARBADOS	GUINEA BISSAU	SEYCHELLES
BELIZE	GUYANA	SIERRA LEONE
BENIN	IVORY COAST	SOLOMON ISLANDS
BOTSWANA	JAMAICA	SOMALIA
BURUNDI	KENYA	SUDAN
CAMEROON	KIRIBATI	SURINAME
CAPE VERDE	LESOTHO	SWAZILAND
CENTRAL AFRICAN REPUBLIC	LIBERIA	TANZANIA
CHAD	MADAGASCAR	TOGO
COMOROS	MALAWI	TONGA
CONGO	MALI	TRINIDAD & TOBAGO
DJIBOUTI	MAURITANIA	TUVALU
DOMINICA	MAURITIUS	UGANDA
EQUATORIAL GUINEA	NIGER	UPPER VOLTA
ETHIOPIA	NIGERIA	WESTERN SAMOA
FIJI	PAPUA NEW GUINEA	VANUATU
GABON	RWANDA	ZAIRE
GAMBIA	ST. CHRISTOPHER & NEVIS	ZAMBIA
GHANA	ST. LUCIA	ZIMBABWE
	ST. VINCENT & GRENADINES	



FRANCE

(Overseas departments)

Guadeloupe
Guiana
Martinique
Reunion
St Pierre and Miquelon

(Overseas territories)

Mayotte
New Caledonia and dependencies
French Polynesia
French Southern and Antarctic Territories
Wallis and Futuna Islands

NETHERLANDS

(Overseas countries)

Netherlands Antilles
(Aruba, Bonaire, Curaçao, St Martin, Saba,
St Eustatius)

UNITED KINGDOM

(Overseas countries and territories)

Anguilla
British Antarctic Territory
British Indian Ocean Territory
British Virgin Islands
Cayman Islands
Falkland Islands and dependencies
Montserrat
Pitcairn Island
St Helena and dependencies
Turks and Caicos Islands

This list does not prejudice the status of these countries and territories now or in the future.

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.

Cover: Top (left), groundnuts (Senegal), palm nuts and cottonseed (Ivory Coast); and (right), coconuts being chopped (Suriname) (Photo FAO)

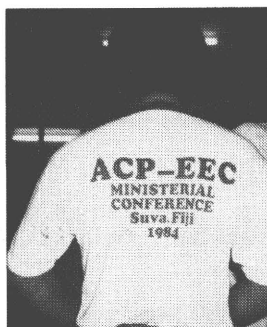
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OPERATIONAL SUMMARY
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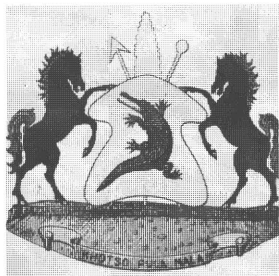
Fiji - Negotiations

The 3rd ministerial meeting in the negotiations for a successor to the Lomé Convention took place in the capital of Fiji, Suva, from 3-5 May. Community and ACP ministers managed to draw closer together in a number of fields, thereby paving the way for considerable progress to be made at the next meeting in Luxembourg.

Pages 3 to 6



ACP - Lesotho

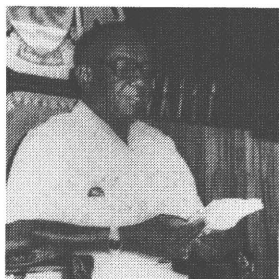


Landlocked Lesotho is struggling to survive in a difficult political and economic climate.

Prime Minister Jonathan, realistic in his appreciation of Lesotho as an enclave, assesses his country's achievements since independence and looks ahead to her prospects at the turn of the century.

Pages 7 to 23

- Sierra Leone



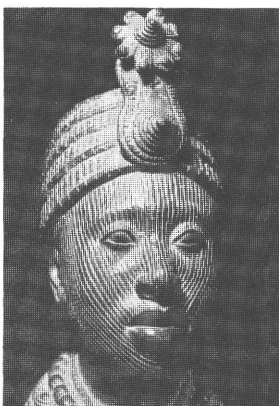
A country rich in mineral resources which the GNP per head does not reflect. Victim of porous frontiers and financial irresponsibility, the country suffers from a serious shortage of foreign exchange and from worsening terms of trade. President Stevens, all too conscious of these problems, is determined to solve them.

Pages 24 to 41

DOSSIER - Tropical oilseeds

Some tropical oilseeds (e.g. soya, cottonseed, sunflower) are richer or as rich in protein as animal protein sources and are an up-and-coming sector in the fight against malnutrition. Economically speaking, the principal ACP oils and fats are destined for export (40% of palm products) and are used in a wide variety of industries. Agricultural research could give a new impetus to ACP oils and fats, to counter the present predominance in the field of the USA and Malaysia.

Pages 52 to 93



CULTURE - THE ARTS

An exhibition on "The Treasures of Ancient Nigeria" is being held at the Grand Palais in Paris until 23 July.

The exhibition, revealing two thousand years of Nigeria's history, is of outstanding interest.

Pages 97 to 99

“Nothing can be created without men, and nothing will last without institutions”

Jean Monnet is not really fashionable any more. The younger generations know little about him and for the general public he is the man of the currently unattainable dream of the United States of Europe. Yet a pragmatic intellectual approach to a great idea can still be useful—as can certain formulae like the above quotation, a statement which will always hold good and which reflects a philosophy of action not unlike that found in two recent works.

The first of these is a timely reminder of the work of Jean Rey, the former President of the Commission and President of the European Movement who died just a year ago. Those who knew him will remember him quoting the Monnet formula and adding that nothing lasting would be achieved without an effort and that this creative effort was, in a way, channelled, ordered and extended by the institutions—although those institutions have to be adapted to the situation at the time.

Jean Rey would no doubt have approved of the Spinelli plan for European Union which François Mitterrand, President of the European Council until the end of June, has said should be the basis for relaunching the idea of the construction of Europe. And here, going beyond national political arguments, the recent direct elections to the European Parliament are the vital link with public opinion.

Another new book provides further food for thought on the Monnet formula quoted at the top of the page, this time with reference to relations between the industrialized countries and the Third World. This is “La main et l’outil” (The Hand and the Tool), by Edgard Pisani, the Community’s development commissioner, and its title encapsulates the idea that we must now change the style of our aid, as nothing can be created without people—even, and perhaps above all, in the Third World. It is not vast projects we should be

concentrating on, but “society, social structures and local life. In a word, the hands that can wield the tools”. So Pisani praises the NGOs, points out the risks of food aid and industrialization designed as a myth and puts priority on rural development and self-sufficiency in food. Development must be self-reliant.

This book contains a lot of sound good sense. The surprising thing is that these facts have not been stated so clearly before. In relations between the ACP States and the Community, the Convention that takes over from Lomé II, currently being negotiated, must put more emphasis on the “hands that can wield the tools”.

There is a sum of experience, expressed, on the last page, in these words: “If I have called for an effort from Europe, I started by calling for an effort from the developing countries. Development will not be encouraged by charitable interventions. It will be encouraged by a rational policy based on rational arguments. The poverty of half of mankind is a collective and lasting loss... I am for the Third World because the Third World is part of the world and its imbalance is a threat to us all.”

The construction of Europe, that extraordinary undertaking that was born of the war, that flourished in the peace that followed and is now blocked by economic crisis, is still the hope of Europe, this little promontory of the Asian continent spoken of by Paul Valéry. Today, everything points to the fact that it is in Europe’s interest—and not only for historical, cultural and human reasons either—to encourage the development of the Third World. A recent ILO report reminds us that there are 35 million unemployed in the countries of the OECD and half a billion in the Third World. That is a problem that no country can hope to solve alone. ◦

ALAIN LACROIX

FIJI: Ministers hold third negotiating conference

Progress report

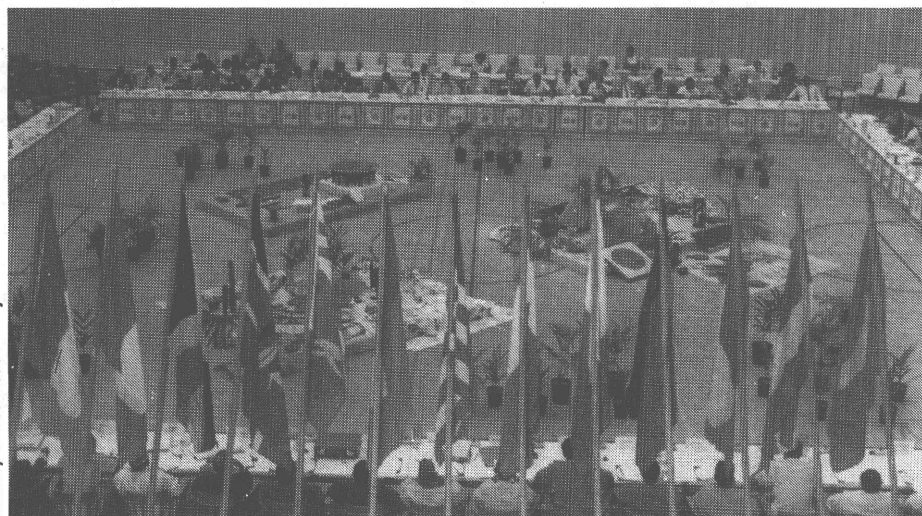
"It is fair to say that we have made progress in many fields. Attitudes have changed. People clearly wanted to discuss the problems and look at the suggestions. They have made proposals in sectors where there was a negative response before and they have expressed a desire to reach agreement as quickly as possible". Those are the very measured terms in which Hugh Shearer, ACP President and Jamaica's Deputy Prime Minister and Foreign Affairs Minister, summed up the ministers' third session of negotiations, held in Suva, the capital of Fiji, from 3-5 May 1984. Development Commissioner Edgard Pisani backed this up later. There certainly had been some progress, he said, and it would, he hoped, make for agreement on es-

the negotiating groups had a common text setting out the points of agreement and disagreement. What was new was that these texts had been approved and enlarged upon by the ministers and had become ministerial guidelines on the basis of which the negotiations could now get down to the business of drafting the wording of the future Convention. The first of these guidelines is to take account of Lomé achievements, that 10-year old system of cooperation which, according to the formula agreed upon in Fiji, has become the "common heritage" of the two partners. The ACPs see this point of agreement as very important in that it guarantees that the future Convention will maintain the provisions they want—as indeed Claude Cheysson

that is already positive. In any case, as one of the African delegates said, we can now count on the ACPs to wave the "acquis" flag whenever Europe proposes altering one of the provisions—say, on the use of Stabex transfers—that they find entirely satisfactory.

Improvements

As well as settling the matter of maintaining what has already been acquired, the Suva meeting also notched up progress in the food aid sector. The Community, which hands out almost ECU 800 million worth of food aid every year, a quarter of it to the ACPs, agreed that multi-annual programmes should be drawn up. As Claude Cheysson said, "each country would then know how much food aid to expect



The conference was held in the Suva gymnasium, which was specially decorated with plants and tapa, the local bark hangings, for the occasion. In the centre was a display of South Pacific arts and crafts

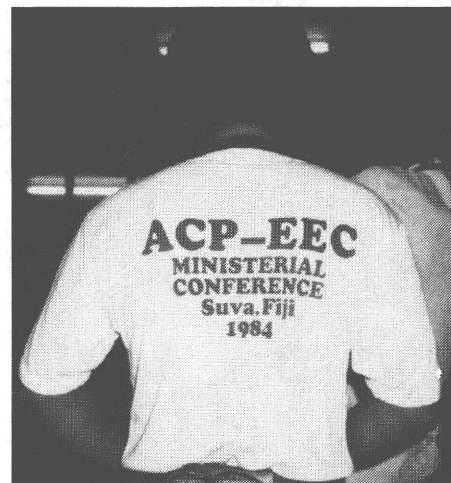
sential points in Brussels and at the next ministerial session in Luxembourg on 19 June. In spite of the failure to reach what he called "extraordinarily substantial" conclusions, the Suva conference had still been important, because, as European Council President Claude Cheysson said, it had shed a lot of light and there was now only one subject on which the various positions had not been clearly defined.

The positions had, in fact, been finalized at the eleventh hour just before the Suva conference and each of

confirms when he says that: "What has been done over the past 10 years is acquired. Whatever is decided in these negotiations will be an addition or an improvement...". Some people may not look upon this as progress, as it was implicit from the beginning of the negotiations that Europe would offer the ACPs an updated Lomé II at the very least, as their privileged relations demand. Others, on the other hand, feel that, if Europe, which is in the midst of an economic crisis, is reasserting its desire to maintain the facilities offered to the ACP Group, then

over a given number of years". Food aid, let us not forget, is a non-Convention instrument but one which plays an important role in food strategies. It was no doubt in the context of these strategies that Suva saw a certain amount of "openness" on the long-standing issue of ACP access to Community surpluses at favourable terms. The EEC will be seeing how it can meet the ACP request without infringing the international trade regulations by which it is bound. The debt problem looked better, too, as the Commu-

(continues p. 6)



The meeting of ACP-EEC ministers was a high spot for the town of Suva and the population grew by 800 overnight



In addition to their conference duties, delegates had special festivities to attend and were able to get an idea of the culture and traditions of Fiji and the South Pacific. Above, dancers from the Cook Islands. Right, fan dancers from the Adi Cakobau school in Fiji. Centre left, Ratu (Prince) Tuakitau Cokanauto preparing to present the Tabua to Hugh Shearer. Right, display of arts and crafts from the South Pacific. Bottom left, Dieter Frisch presiding over the ceremony to inaugurate the EDF-financed Delailasakau-Wainavaga road before the conference began. He is presented with the Tabua, as guest of honour. On his right is Mike Laidler, EEC delegate to Fiji. Left, a traditional Fijian dance

Ministry of Information — Fiji



Ministry of Information — Fiji



Ministry of Information — Fiji





Ministry of Information - Fiji

Ratu Sir Kamisese Mara, Fiji's Prime Minister, chaired the opening session. Hugh Shearer, President of the ACP Council is on the right and Thomas Okelo-Odongo, Secretary-General of the ACP Group, is on the left

Although future relations took up most of their time, European and ACP delegates still discussed ongoing cooperation (9th ordinary session of the ACP-EEC Council of Ministers) and how to improve on it (meeting of the Article 108 Committee), with two series of results—decisions on the one or two points that had been under discussion for a long period and, most important, what were sometimes lively exchanges of view on problems of application of the Convention (sugar price fixing, for example) and questions that might arise if the EEC adopted new regulations.

The decisions included one which Niger had very much wanted, to extend the Stabex system to cow-peas exported to other ACP countries, and one to refuse Stabex coverage of all Fiji's exports. The only possibility of derogation from the principle of covering nothing more than exports to the Community is when traditional trade patterns are directed towards non-Community countries and Fiji does not come into this category, as the change in the destination of its exports is only very recent. The Council also decided to increase the members of the CID's Consultative Council from 16 to 20, with the EEC and the ACP Group appointing two new members each. It also adopted

the Article 108 Committee's resolution on financial and technical cooperation, which deals, in particular, with the principles of co-financing, micro-projects and regional cooperation. The *Courier* will soon be published the resolutions on financial and technical cooperation adopted at Libreville (1982), Brussels (1984) and Suva (1984), as requested in this resolution.

Lastly, a decision on strawberries seems imminent. The ACP Group, which wanted to have the possibility of access for their out-of-season strawberries to Europe, rejected the EEC's proposal, considered as being totally inadequate, of duty being reduced by 60% on a quota of 650 tonnes between 1 November and the end of February. The discussion of wheat by-products was impeded by a lack of statistics. Has the ECU 6 reduction in the import duty on these products had a beneficial effect on sales or not? Before going any further, the Community wants to know about this and the answer can only be obtained from the statistics. The ACPs, who admit they do not have these figures, are calling for all duty to be removed.

Subjects of concern

The force of the statements about sugar price fixing put this topic at the head of the list of questions discussed during the exchange of views. Year after year, the ACP countries deplore the fact that the increases in the guaranteed prices to the European producers are automatically applied to them, without any proper negotiations to take their production and transport costs into account. They have invariably found these increases to be inadequate, yet here is the Community, following its decision to control its own agricultural prices, suggesting freezing sugar prices at the present level in 1984/85. The Community says it cannot offer ACP producers a higher price than its own producers' price—which is in any case higher than the world price. Hence the indignation. Reallocation of quotas, the other bone of contention in the sugar sector, is also a subject on which approaches differ. The ACPs maintain that there are still tonnages of sugar to be allocated to



Claude Cheysson, President of the EEC Council, with (left) Mr J. Lequette, France's Permanent Representative to the Communities, and (right) Mr N. Ersbøll, Secretary-General of the Council

members of the Protocol, but the Community says it cannot go beyond the 1.3 million t ceiling and maintains that there is nothing left after allocation of 2 000 t to the Ivory Coast and 10 000 t to India. All this will no doubt be brought up at the next sugar price negotiating sessions.

The ACP countries also expressed their concern at decisions the EEC is about to take affecting their exports. They include changes in the Community rules on the aflatoxin content of cattlefeed, which will be prejudicial to producers of groundnut meal; a possible new tax on oilseeds and vegetable oils and fats (Papua New Guinea is very worried about this) and possible measures for the rose and carnation market, which would cost Kenya several million dollars a year.

The aflatoxin question is one of public health and there is pressure from public opinion because the mould is carcinogenic. But the ACP countries will in any case be consulted, the EEC promises, before any changes are made to the regulations. There will also be consultation on oils and fats, a sector without immediate prospects for progress, as well as on the import arrangements for roses and carnations on which the Community is far from reaching a clear position. ○

nity promised to back the ACP countries, on a case-by-case basis, in the international organizations where such matters are discussed, and there was progress as far as ACP migrants and students in Europe were concerned, now that, "without prejudice to national powers" in the field, both the Community and the ACP States can bring these questions up before the ACP-EEC Council of Ministers.

Other steps forward include Europe's commitment to finding suitable ways of combating drought and desertification and its decision to keep the ACPs informed of the state of advancement of the Spanish and Portuguese accession, so they can negotiate any adaptation arrangements they feel are necessary if enlargement takes place. The Commission has informed the ACP Ambassadors about the Community enlargement procedure in the past and this contact will be maintained. Consultations will be held whenever a projected Community decision is likely to affect ACP interests. Lastly, agreement was reached on the need to mobilize private investments, to bring in incentive measures for this purpose and to orchestrate the different points of view on the policy dialogue. This dialogue, the Community's idea, was intended to ensure that aid became more effective by better integrating it into the individual countries' development programmes. The ACPs, on the other hand, saw this as an attack on their sovereignty from the very beginning. As they see it, the consultation that takes place when the programmes are drawn up is quite enough to ensure that Community aid is effective, so there is no need, in their view, to alter the present provisions. There are signs of a compromise in the shape of amendments to the article of the Convention dealing with programming, which the EEC will be communicating to the ACP Group.

Stumbling blocks

These developments, improvements and emergent solutions which saved the Suva ministerial conference should not hide the fact that there are still a number of problems for the negotiators to solve. In trade, first of all, where the ACPs want to get free access to the Community market for all their products (98.4% of their exports currently go in duty-free) and the removal of all non-tariff barriers—which, Hugh

Shearer suggested, do more to hinder their development efforts than any written regulation. If they do not get free access, then they want at least the most favourable treatment for their products and they do not wish to be hampered by safeguard clauses, which they are calling to have abolished. However, if these clauses are maintained, the ACPs want them clearly defined, the various stages of implementation specified and any application justified. Lastly, they want to see more flexible rules of origin. All these measures are expected to alter the downward trend in the ACP trade position on the Community market. The EEC proposes to continue with the Lomé II trade arrangements, says it is willing to discuss any specific cases that arise and suggests one or two improvements to the rules of origin. The ACPs thought this was a "rigid" response and President Shearer called it disappointing. He said it was based on the misguided assumption that the ACP countries could create chaos on the Community markets with untimely exports—something they had neither the intention nor the ability to do.

Stabex is another field where progress has still to be made. Although the two partners say they are anxious to keep this export earnings stabilization system that is unique in the world, Claude Cheysson reminded delegates that they still have to reach agreement on the rest—the products covered, extension of access to the system, indexation of rights to transfer, method of calculation of sums transferred, use of these monies and, of course, the amount of financing allocated to this chapter of ACP-EEC cooperation. There was no real discussion of the Stabex fund at Suva, the EEC having kept financial matters until the final stages of negotiations, but the ACPs, who have learnt by their recent experience, insisted that the system have enough means to meet these aims. The main bone of contention was the way the transfers are used. The Community wants them to go to the sectors in which the losses were incurred, so that balance is restored, or to be channelled into diversification programmes when the prospects for the prices of the products in question are poor. So it suggests linking transfer decisions to the way they are to be used—something which will be decided jointly. The ACPs strongly regret this new method and want the

EEC to drop it, as, if there is to be joint approval of the way the transfers are to be spent, in case of disagreement, Shearer said, there would be no transfers, even if the ACP countries concerned were entitled to them. So, clearly, the Stabex system will be the subject of lengthy discussions before and no doubt during the ministerial session scheduled for 28 and 29 June in Luxembourg. Will this meeting be the occasion for the question of the total amount of money to be allocated to the future Convention finally to be brought up? It could be—if negotiations have been completed on all the other points. There was only one exchange of views at Suva on the criteria for determining the volume of aid. Hugh Shearer reminded the meeting of some of them—inflation, broader aims of cooperation and the deterioration of ACP economies—during his closing speech. At the press conference given by the Co-Chairmen, Claude Cheysson answered one question by saying that the amount allocated to Lomé II had to be updated, as guaranteed access meant that "the real value of our aid be at least as much as it was". There again, the discussions will be long and difficult, whenever they take place, particularly bearing in mind that the conclusion of Lomé II was held up for several months because the ACP group thought the funds were inadequate and that the simple idea of using the term "adequate resources" in the aims of financial and technical cooperation gave rise to lengthy discussion at Suva.

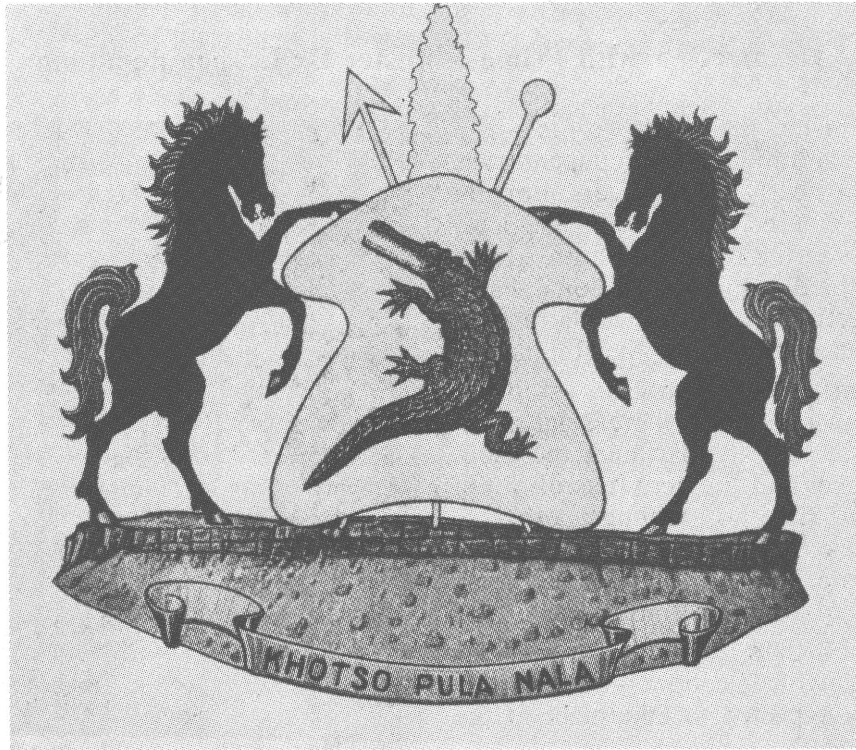
Tabua

Those, then, are the main points of interest of the Suva conference. Could more have been done to advance the negotiations and get better returns on such a long journey? Yes, according to one ACP delegate who was well up on local customs. He suggested that it was Claude Cheysson and not Hugh Shearer who should have received the Tabua, that inestimable whale's tooth and cord gift that the Fijians present to outstanding guests who, if they accept it, automatically agree to grant any requests that are subsequently made. Unfortunately for the ACPs, the Tabua has to be given to the guest of honour and this time it was the Chairman of the session, Hugh Shearer. ◦

AMADOU TRAORE

LESOTHO

**Khotso,
Pula,
Nala:**



**Peace,
Rain,
Prosperity**

For a country of its size, Lesotho has an unfair share of distinctions. It is the only country in the world to be entirely surrounded by another — in this case, by the Republic of South Africa. It is also the only country in the world to have a land surface entirely in excess of 1 400 metres above sea level. Snow-covered mountain slopes and blanket-clad riders are hardly stereotyped images of black Africa, but reminiscent rather of scenes from a Hollywood western, and the chasms created by Lesotho's catastrophic soil erosion only serve to reinforce the dramatic effect.

It is precisely these geographical distinctions that make prosperity in the mountain kingdom such an uphill struggle. The country is encircled by a state on which her economic dependence is almost absolute and by which her political independence cannot but be compromised. By virtue of her own topography, the prospects for developing her agricultural potential—with only 13% of the land cultivable and a further 2% being lost annually through soil erosion—cannot be said

to be good throughout, though there are bright spots here and there. Her industrial base is tiny and valiant efforts to expand it are hampered not only by fierce competition from the economic giant over the border but also—and increasingly so—by South Africa's aggressive promotion of industrial development in the bantustans. The possibilities for exploiting mineral resources do not appear to be great, either: while diamonds might resurface as a foreign exchange earner, the geology of Lesotho is too well known for there to be any great likelihood of hidden mineral wealth of major proportions.

The one unquestionably bright prospect for the country's development lies in the real possibility of commercial exploitation of her water resources. The Highlands Water Project (see article p. 18) seeks to dam the Upper Senqu and Malibatšo valleys, thereby diverting water to an area in the Republic where it is saleable rather than, as is the case at present, allowing it to flow naturally into another area of the Republic where it has no com-

mercial value.

Lesotho, though poor and precariously dependent on a neighbour alternating between benevolent enmity and malevolent friendship, is not, therefore, a country without hope. Despite the effects of the region's recent drought, its people appear well nourished and well dressed. Health care is of a reasonable quality and education standards are unusually high. Above all, Lesotho is an island of personal freedom in a sea of discrimination. Elections, which have not been held since the constitution was suspended in 1970, are now expected to take place at the end of this year. The necessary preparatory legislation has already been enacted, but the prospects for a peaceful electoral campaign and a fair result cannot but have been dimmed by South Africa's efforts to secure the election of a more accommodating neighbour in Maseru than Prime Minister Jonathan. For Lesotho, however, it is vital now, perhaps more than ever, that the elections pass off peacefully, for it is on peace and on rain that the kingdom's prosperity will depend. ◦

“Any government that follows an isolationist policy simply ignores the realities of relations amongst states”

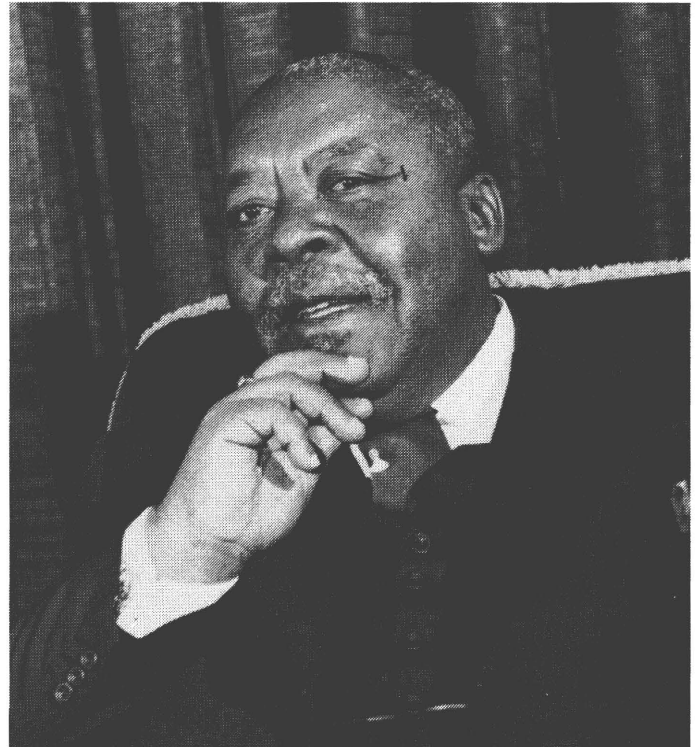
An interview with Prime Minister Dr Leabua Jonathan

Lesotho's Prime Minister, the country's first—and so far only—head of government since independence, has now held office for nearly twenty years. Born in 1914, Chief Jonathan entered politics in 1952 after working for three years in the mines in South Africa. In 1958 he founded the Basutoland National Party (BNP), winning the elections of 1965 on a platform of conciliation rather than conflict with the Republic.

Dubbed, at the time, South Africa's “stooge”, Chief Jonathan has since become increasingly outspoken on a number of issues—apartheid, the independence of the Transkei and the activities of South African agents within Lesotho, amongst others—while a number of black African states, only too ready to criticize at the time, have meanwhile been driven to accommodation of a similar nature.

1984 looks set to be a date to remember in post-independence history, with elections—the first in fourteen years—widely expected to take place at the end of the year.

In an interview with *The Courier*, Prime Minister Jonathan reflects on his country's past achievements and looks ahead to her prospects for the future.



► *Prime Minister, reducing Lesotho's dependence on South Africa has been a lasting and major preoccupation for your government. What measures have been taken in recent years to achieve greater independence and to what extent have those measures been successful?*

— I should like to preface my response to your question with the following observation which is fundamental to my perception of Lesotho's relations with South Africa. Throughout my political life, I have advocated policies that are not formulated in negative terms nor reflect the pursuit of unattainable objectives that are implicit in the phrase reduction of dependence on South Africa. Any Government that in the modern world follows an isolationist policy simply ignores the realities of recent developments in current relations amongst states. This fact is even more essential to a realistic appreciation of Lesotho as an enclave.

The cornerstone of my policies towards South Africa has been, and con-

tinues to be, the creation of a framework for a more *balanced* relationship between the governments and peoples of Lesotho and South Africa. The kind of relationship that I seek is one that recognizes the historical relationship between the peoples of Lesotho and South Africa, that reflects elements of common interest, that is sufficiently elastic to accommodate differences in political perspectives without jeopardizing the broader goals of creating a climate in Southern Africa for social, economic and political justice.

Not dependence but interdependence

To attain this kind of relationship, it is right to say that my Government has been preoccupied with creating as many options as possible in its relationship with South Africa to ensure and emphasize the character of interdependence that is inescapable in relations between and amongst neighbours. It is, of course, true that political factors have had an impact on the need to speed up the process of creat-

ing this kind of relationship, particularly our differences on apartheid and South Africa's bantustan policies. But, essentially, our motive has been to seek a common platform for all the states in Southern Africa for concrete action to assure our peoples of the fullest benefit of the rich potential of Southern Africa. It is in the context of what I have just stated that my Government has examined options open to Lesotho affecting virtually every facet of our national life. I should like to comment rather briefly on some of the principal areas on which we have focussed our attention and which still compel serious consideration. These are food production, employment, energy and water, transport and communication, strategic reserves, financial resources, and commercial developments.

Self-sufficiency in food

Food production is quite easily one of the top items on my Government's agenda. In the early part of this century, Lesotho was quite rightly described

as the food basket of Southern Africa. Circumstances beyond our control conspired to ensure that this reputation was a short-lived one. It is our priority objective to ensure that, barring natural calamities, for example the recent drought, this country is able to produce at least enough foodstuffs for its own needs. This, I believe, is a viable option. We have had problems in the recent past but we also have the capability to translate this option into a reality. This option is far more attractive now more than ever when food supplies have regrettably become a bargaining instrument in diplomatic relations amongst states.

I know that you have met my colleague the Minister of Agriculture and he has no doubt given you a more detailed brief on Agriculture. But let me say this, our strategy on food production is based on two critical elements — the Basic Agricultural Services Programme and the Food Self-Sufficiency Programme. The infrastructure for BASP, as we call it, has just been completed. The Food Self-Sufficiency Programme, on the other hand, is mainly concerned with production. The two programmes have shown, in our experience, that the nation can produce enough food for its own needs. As a result of the evaluation of the Food Self-Sufficiency Programme by FAO (the UN Food and Agricultural Organization), we now intend to merge the two programmes under the umbrella of our Agricultural Development Bank to reap maximum benefits.

.... and initiatives to create jobs

Another item that has featured perennially on Lesotho's political agenda in the past two decades is the question of employment. My Government is committed to a policy of the right of gainful employment for our nationals. This commitment was, at my initiative, given legislative expression in our Human Rights Act of 1983. However, I have to live with the reality that the ceiling on employment opportunities in Lesotho is rather low. My Government's strategy has focussed on the economy's more labour-absorptive sector — agriculture. In this sector the focus and emphasis has been on production of high value crops such as asparagus and horticultural crops. Only lack of technical knowhow and of capital have proved to be the major



Photo FAO

With 40% of the male workforce in the South African mines, women do most of the work on the land

constraints in expediting the satisfactory realization of this strategy.

The industrial and manufacturing sectors are now absorbing a small, but by no means negligible portion of the labour force. I must state, however that in these two sectors we have started from virtually nothing. However, these two sectors—based largely at the Industrial Site in Maseru and in Maputsoe—show every promise of expansion of their labour-absorptive capacities.

It is instructive to note that, whilst agriculture occupies the commanding heights of the labour market with a share of 87% in 1980, the industrial and manufacturing sectors have in-

creased their share of labour from 2% in 1960 to 4% by 1980 and the services sector now absorbs 9% of the labour market. In numerical terms our principal instruments in the commercial and manufacturing sectors, LNDC and BEDCO have already created 8 000 and 1 000 new jobs respectively. LNDC's target is still the creation of an additional 2 000 jobs annually.

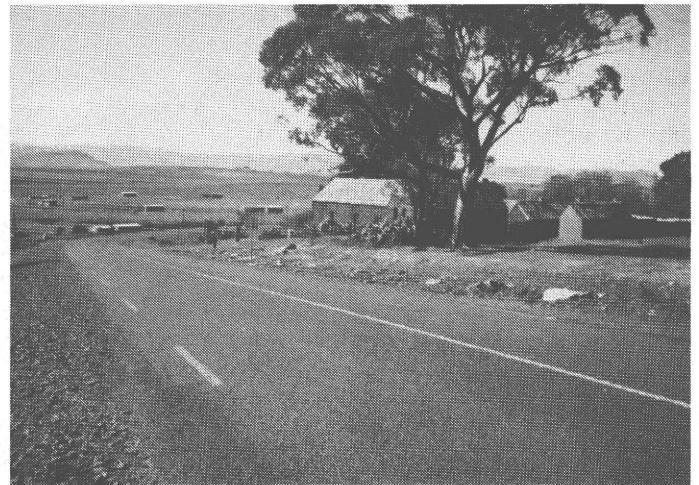
The mining sector, although still growing, will also absorb some labour although the suspension of mining activities at the Letseng-la-Terai diamond area was a setback affecting some 600 or so miners.

I would be less than candid if I did not state that a high proportion of our labour force—about 40% of the male labour force—is still employed in South Africa. This is a basic reality of our relationship with South Africa. In the past there was a school of thought in South Africa that contemplated the repatriation of all Basotho workers. The basis of such thinking was quite simply punitive action against Lesotho, and had little to do with the labour requirements of the South African economy. I must say that such action would ignore the real and valuable contribution of Lesotho workers to the South African economy over the centuries. I have no doubt that wiser counsels prevailed in the past against such actions and in this respect I want to remind you of what I said on a healthy relationship of interdepen-



Photo FAO

Early encouragement in self-sufficiency



Improvements in communications: left, a trainee air traffic controller and right, the Mafeteng-Mohale's Hoek road, part of the network of tarred roads built since independence

dence, between neighbours. In the labour field we have a Labour Agreement with South Africa that defines this interdependence.

Water — Lesotho's "white gold"

As far as energy is concerned, our interdependence with South Africa is spelled out in the Highland Water Project: current arrangements of electricity supply from the South African grid and arrangements to conserve oil products. The Highland Water Project contains elements for mini-hydro power supplies within Lesotho, principally to strategic rural areas. Financing for these schemes has already been secured and preparatory work has already started. Such power is also being supplemented by the development of solar energy in Lesotho. And of course the Highland Water Project has once more highlighted the urgent task of examining irrigation schemes in Lesotho utilizing the excess water resources in the highlands of the country.

For oil supplies we already have arrangements for procuring our own supplies directly from oil-producing countries. Our problems in this area are basically those of refining the oil and transport of the oil product to Lesotho. We are still searching for solutions to these problems.

"Some 4 000 km of roads since independence"

We can say in Lesotho, that we have already achieved a major portion of the objectives of the 1978 — 1988 U.N. Decade on Transport and Communications in Africa. Thanks to Se-

curity Council Resolutions 402 and 407 of 1976 on special assistance to Lesotho, we now have a wide network of roads criss-crossing the country. Roads are still the major transport mode in Lesotho and are a vital infrastructural prerequisite for economic, social and commercial development. We no longer depend, as we did for centuries, on the South African transport infrastructure for movement of goods and persons between points within Lesotho.

As I have already indicated, road transport is the principal transport mode for Lesotho and carries over 90% of all domestic passenger and freight traffic. In quantitative terms we have developed since independence a network of some 4 000 km of roads, including 320 km of tarred roads. My Government is further expanding this network by an additional

980 km of roads. The funding for this expansion has already been procured and most of the additional network is already in use.

As far as transit transport corridors are concerned, the air option has been developed on the basis of air agreements with a number of countries, the establishment of our own airline which also operates on domestic flights and the construction of a new international airport at Thoteng-ea-Moli to facilitate expansion of air services. The new airport should be operational by mid-1985.

Naturally we have not ignored the sea options as a transit corridor and we have participated fully in discussions on the rights of landlocked countries. Within the framework of our relations with South Africa we have concluded a road transport agreement to expedite the movement of our imports and exports and passenger traffic.

We have also completed our project for a B earth satellite station to facilitate direct international telex and telephone communication. This project, coupled with a micro-wave system for internal communication, will also provide a boost to the development of television links within Lesotho and for TV exchanges and arrangements with both European and American countries. The satellite project will be fully operational by the end of this month.

It will be of interest to you to know that we have also established storages for strategic food reserves as a contingency measure to meet unforeseen requirements dictated by circumstances beyond our control. Similarly we are



Dr Jonathan at the official opening of a new post office at Mapholaneng

examining options for strategic oil reserves. Additionally we now have the silos you have seen at the industrial area, and facilities for milling wheat and maize in sufficient quantities to meet our needs.

Revenue and expenditure: diversifying sources and tightening controls

In terms of our financial resources, we still count to a large extent on our share of the Southern African Customs Union revenues. But we are also tapping local resources. In 1983 we introduced a sales tax of 5% in Lesotho and have recently increased it to 6%. We are planning further taxes on luxury goods and have, with effect from

resources, and our potential in agriculture. It is no exaggeration that Lesotho has the highest literacy rate in Africa. The promise of such a highly literate population for development is immense and I see the task of Government as a challenge to harness the energies of the nation for the economic advancement of Lesotho.

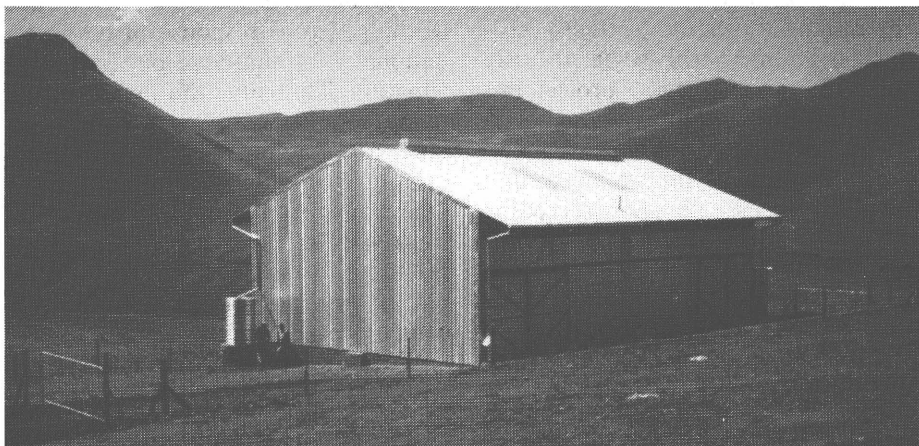
In the context of Southern Africa, Lesotho has the largest supplies of water resources. My promise to the nation that these supplies will finally be proved to be the white gold of Lesotho is true in the context of the Highland Water Project.

As far as domestic energy supplies go, we have had preliminary indications pointing towards possibilities of

— You will by now have appreciated that agriculture dominates the plateau of Lesotho's economy. The growth in this sector achieved since 1977/78 has been seriously affected by the recent drought. Last year we had to resort to some emergency measures to offset the effects of the drought. An analysis of the situation in January and February of this year paints a picture that is not only gloomy but grim. The picture that has emerged points towards a complete crop failure in the most productive areas in the northern parts of Lesotho and decimation of a sizeable portion of our livestock. For grain products, we shall require roughly 150 000 tonnes from external sources. Loss of livestock will further compound planting problems in the spring. There is no doubt that *actual famine* is looming over the horizon and will particularly affect those areas which are currently especially vulnerable because of lack of water supplies.

► *What, in your view, are the principal advantages — present or potential — to Lesotho of its membership of SADCC?*

— During the SADCC conference in Maseru last year, I reiterated our firm commitment to the organization and its objectives. As you know the main thrust of SADCC is to create an environment in Southern Africa for economic and commercial development that assures member states an ability to withstand extraneous political pressures and gives impetus to social and economic development within the countries themselves and, of course, to encourage co-operation on the basis of self-reliance. The amount of external donor support that SADCC



Food store at Ha Seshote, one of a series built to house strategic food resources

this month already imposed a levy on liquor beverages. My Government is continuously improving methods of revenue collection, diversifying sources of funds and applying more stringent and rational controls on public expenditure to ensure that our capability to carry the major burden of our programmes falls on our own shoulders.

In the manufacturing and commercial sectors, our strategy has been to focus on agro-based activities and the development of the commercial sector to offer our people a viable option of acquiring services internally rather than expatriating capital to areas outside Lesotho. We have now established over 36 new enterprises in these sectors since 1967.

► *What do you consider to be your country's principal assets, on which its economic recovery could be based?*

— Our principal assets are our human resources, water, energy, mineral

oil deposits in Lesotho. Further investigations on these will continue. For electricity, our water resources provide a base for the production of hydro-power.

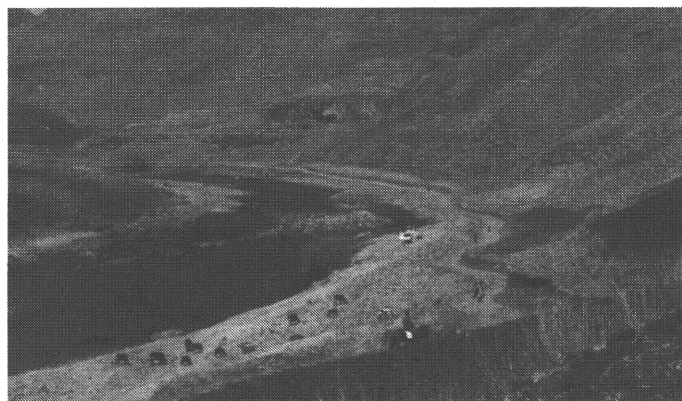
Of course, as you know, the 7th largest gem stone was discovered in Lesotho soon after independence. Diamond mining has in fact taken place since then and is continuing despite the interruption of mining operations at Letseng-la-Terai. Other mineral deposits being exploited include clays and building materials. Furthermore prospecting activities for further diamond deposits are continuing and promising prospects for uranium and mercury mining exist.

I have already dealt at some length with the country's potential in agriculture. Suffice it to say that this sector is also one of our principal assets.

► *To what extent has Lesotho's economy been affected by the recent drought?*



Wheat cultivation at Leribe: this year, however, "the picture points towards a complete crop failure in the most productive areas"



Dam site at Pelaneng: the Highlands Water Project will undoubtedly give a major impetus to Lesotho's economy

has already attracted is sufficient evidence of its successes so far. We in Lesotho, you will be interested to know, are the headquarters of SADCC programmes on soil and land utilization and I am confident that SADCC has every chance of success.

► *Self-reliance in general is a major focus of the third development plan. What has been achieved in the search for self-sufficiency in food?*

— I have already dealt at some length about our twin food production strategy planks — BASP and Food for Self-Sufficiency Programme and it is our intention to combine these programmes under the aegis of our Agricultural Development Bank. I should add that we are also encouraging co-operatives as a further dimension to our strategy for self-reliance in food production.

► *A major part of Lesotho's workforce is at present working in South Africa. What is being done to create jobs locally?*

— I have already identified employment and job creation as some of my major preoccupations. I have also broadly indicated the areas that provide promise for domestic employment and my attitude towards work opportunities in South Africa for some of our workers. The ideal situation is naturally to provide employment for all our nationals within our own borders. The realistic appreciation of this question has to take into account mutual interests underlined by our economic and commercial relationship with South Africa.

► *Great hope is being placed on the potential of the Highlands Water Project to boost the country's economy. When is Lesotho likely to see the first fruits of the scheme?*

— The scheme will no doubt provide major impetus to the Lesotho economy. In terms of capital, it is the largest project planned in the country since independence. It will also provide immense benefits to South Africa. The country will begin to reap some of the fruits of the project this year. However, from discussions with our Ministry of Water, Mining and Energy, I am sure you are aware that technical discussions are proceeding with South Africa, in a spirit of mutual co-operation. I hope that both countries will see the conclusion of these discussions soon and in that spirit of recognition of mutual benefit.

► *Elections have not been held since 1970. Is the situation such that elections can now be held and, if so, when could an announcement be expected as to the date of polling?*

— I recently authorized a statement over Radio Lesotho informing the nation of the legal machinery and arrangements that have already been established for the elections. The elections are coming soon. That is my commitment to the nation. I do not expect any impediment to the progress being achieved to set the stage for providing the nation with an opportunity to elect its own leaders and government at the ballot box. The date of the elections will be notified to the nation at the appropriate time.

► *A major donor's conference is to be held in Maseru in May. In general have you been satisfied with the levels of aid Lesotho has attracted in the past?*

— Transfers of financial and technical assistance to Lesotho have increased substantially since 1976/1979. However, in real terms, the volume of

this donor support has since remained stagnant. This is not to say that we are less appreciative of the support we have received. We know that the giant strides we have made are largely due to the generous response of the international community to our particular situation. That situation prevails even today and the need for further assistance and support unquestionably still exists. We still require substantial donor support to supplement the resources we can marshal from our own resources. I look forward to concrete results from the forthcoming donor conference.

► *The Lomé Convention is now in the process of renegotiation. What improvements or innovations would you like to see in the successor to the present Convention?*

— The assistance to Lesotho from the Community has been substantial and our relationship within the framework of both Lomé I and Lomé II has been fruitful.

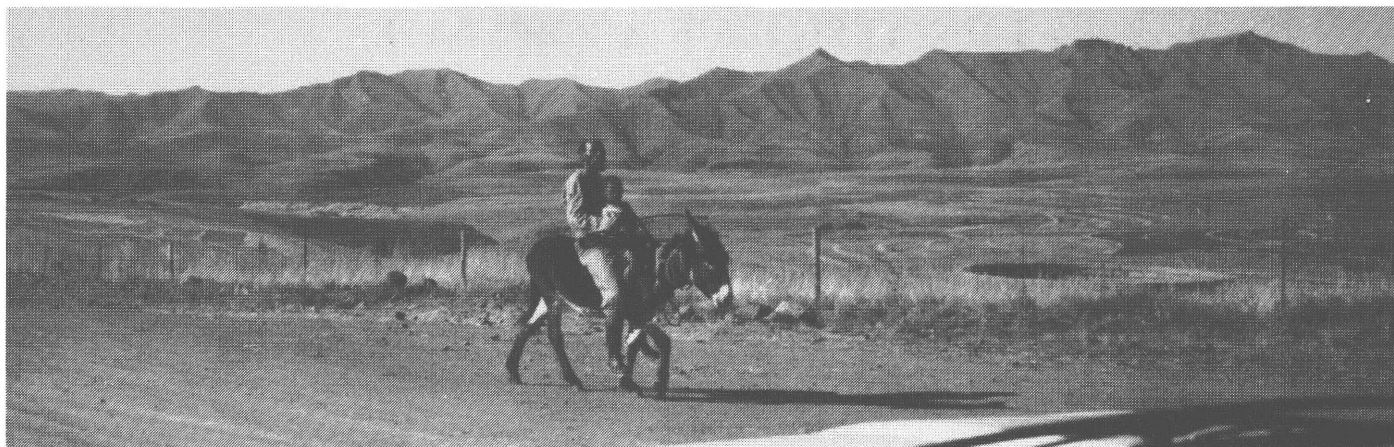
However, we hope that succeeding conventions will provide opportunities for increased volumes of assistance and the improvement of its quality.

Furthermore, I look forward to more open avenues of trade between Lesotho and the Community.

In agriculture, I do hope that the agricultural co-operation provision in Lomé II will, in succeeding conventions, provide for effective implementation for countries such as Lesotho.

Other chapters of the Convention need to be reviewed to give eloquent expression to the dynamic relationship of the EEC and the developing countries. ○

Interview by
MYFANWY VAN DE VELDE



The price of freedom

The supermarkets in Maseru are full to bursting and you would have to think hard before you thought of a commodity you couldn't find. Yet, seen in a hotel, with a briefcase, the first question one is asked is: "World Bank?" Supermarkets full of goods, and hotels full of donors: that is Lesotho. As Minister Sekhonyana put it: "The patient looks very well outside, but has internal haemorrhage".

The illness is by no means of Lesotho's own making, however. This is not a case of a country's having squandered its natural resources—Lesotho has virtually no natural resources. As little as 13% of her land is cultivable and her known mineral resources are negligible. Diamonds, which used to be an important export, have now ceased to be mined. Lesotho's only other assets may be said to be her mountains—the scenery is spectacular—and her muscle-power. If the supermarkets are full, without there being much evidence of wealth being generated within the coun-

The 1984 official government calendar is, at first sight, a somewhat surprising one. It features not, as one might imagine, picturesque scenes of village life in the mountains or of cosmos flowering wild on the lowland plains, but instead Prime Minister Jonathan paying official visits to East Berlin, Sofia, Bucharest or Peking. Perhaps even more intriguing is the image for November: a photo of H. H. Pope John Paul II, a curious companion, one might think, for the various communist or marxist-leninist leaders portrayed elsewhere. The explanation behind the calendar is quite simple however: Lesotho is looking for new friends and it is no coincidence that most of the countries with which she

has recently established diplomatic links are members of the UN Security Council. Surrounded as she is by a state whose politics are deeply offensive to her (many Basotho have, after all, first-hand experience of apartheid), Lesotho considers it best advised to be listened to with sympathy not simply in Washington or London—Lesotho's friends, but also no enemies of South Africa—but in Moscow and Peking as well. The new links with the East, bitterly criticized in Pretoria, of course (and the subject of some discussion within the Kingdom itself), are also proof of Lesotho's independence, the kind of proof that the bantustans (which South Africa is fond of equating with Lesotho) would be quite unable to give. Being called sovereign is one thing: being able to prove sover-

try, it is due largely to outside factors—to Lesotho's membership of the Southern African Customs Union (SACU), the source of two-thirds of government revenue, and to the remittances of the 140 000 or so Basotho working in the Republic, accounting for 40% of GNP. And if the hotels are full of donors and not of businessmen or tourists it is also due to a great extent to what is going on in the Republic in the way of aggressive promotion of industrial development and tourism in the bantustans, which unquestionably hampers Lesotho's own development efforts and prevents foreign aid from playing anything less than a major role in the country's economy. For years, throughout the colonial era, Lesotho was administered, rather than developed, in the assumption that her destiny was "intimately bound up with that of South Africa into which it would in time be incorporated" (1). The assumption was mistaken, of course, and incorporation has been resisted, but the price of freedom has been high.

eighty is quite another. The appearance of the Pope can also be readily explained: an estimated 70% of the Basotho are Christian and the ruling party, the Basotho National Party (BNP), was founded with the support of the Roman Catholic church in order to counter communist influence. The Prime Minister is, in fact, himself a convert. Chief Jonathan's overtures to the East are not, therefore, to be interpreted as a radical swing to the left, but rather as an extension of available international protection in case of need.

If elections are held in Lesotho soon, as promised and as made possible by legislation recently enacted, opposition to the BNP is likely to come as much from the left, in the form of

(1) UN Security Council Report (1977).



E.R. Sekhonyana,
Minister of Foreign Affairs and Minister for Planning, Employment and Economic Affairs

the Basutoland Congress Party (BCP) (which nevertheless has very close links with RSA), as from the right, in the form of the Basotho Democratic Alliance (BDA). The latter has promised, if elected, to close down Eastern bloc embassies.

Small wonder, therefore, that, there is little love lost between the two countries with each resenting the other for harbouring anti-governmental forces. The Prime Minister makes no secret of his support for the African National Congress (the movement dedicated to fighting racism in South Africa), while strongly denying the existence within his country's borders of any ANC military bases.

"Pax Pretoriana", as the recent volte-face in southern African relations has been called, may, however, soon settle on Lesotho, as it has elsewhere. A security arrangement such as the Nkomati agreement is not seen by all, however, as being an entirely appropriate instrument given the circumstances. As Desmond Sixishe, Minister for Information and Broadcasting, says "We are certainly not averse to having a peaceful situation in this part of the world, in fact we were probably the first to start peace initiatives within South Africa. Our Prime Minister was the first African leader to actually meet a South African Prime Minister and he has met all three of them since... all in an attempt to create an atmosphere of peaceful co-existence and good neighbourliness". But non-aggression pacts, the Minister believes, are holds, are military instruments to be signed between countries with a legacy of aggression against each other. "Besides" the Minister says, "What is the point of an elephant and an ant signing a peace

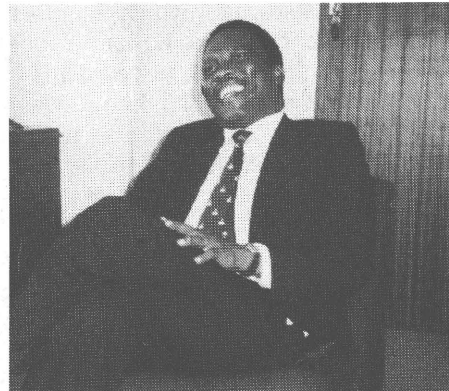


Peete N. Peete,
Minister of Agriculture and Marketing

agreement?" Good neighbourliness has nevertheless proved very difficult to sustain. While Maseru naturally tends to stress elements of economic independence—South Africa's *need* for the tough Basotho goldminers, South Africa's *need* for the Lesotho Highlands Water Project—the Republic is very well aware of the leverage this relationship gives them, and has not shown itself in the past to be so afraid of incurring international displeasure as to refrain from action where thought necessary. The threat of South African pressure on the economy is therefore ever-present and cannot but leave its mark on Lesotho's policy-making. If South Africa chose to exercise that pressure, the effects could be devastating, since Lesotho's economic welfare, both present and future (in the shape of the HWP), depends so greatly on continued cooperation.

The Customs Union — the umbilical cord

Of the potential of the HWP more is said elsewhere. The gains to Lesotho, economic and other, could be enormous, but it will inevitably have the effect of tying the bonds between her economy and that of the Republic even tighter. As it is, the structure of her economy is dominated by such bonds: the extent of the revenues derived from membership of the Customs Union and from migrant workers' remittances have already been mentioned. Revenue from the Customs Union, an association formed in 1910 is apportioned to each of its member countries (Botswana, Lesotho, Swaziland and South Africa) on the basis of their imports and dutiable domestic production in relation to the total for



Desmond Sixishe,
Minister of Information and Broadcasting

the Union. For the BLS countries, a 42% mark-up is added to compensate for the loss of liberty to determine fiscal policy and for the various other disadvantages to small members characteristic of such a union. As a member of the Rand Monetary Area—the rand is at par with the maloti—the use of monetary policy instruments is also limited. On balance, however, the advantages to Lesotho of membership of SACU and the RMA—not least of which the guaranteed payment by the Reserve Bank of South Africa of her financial commitments overseas—far outweigh the limitations they impose.

The second key characteristic of the Kingdom's economy lies in the 40% of GNP accounted for by the remittances of the 140 000 or so Basotho working in South Africa. Revenue from this source quadrupled between 1975-1980 as a result of rising wage levels and increased employment, but increased mechanization and the closure of marginal mines have contributed to a slackening in recruitment in recent years and to a concomitant slackening in growth of revenue. With luck, however, there will be no really significant drop in numbers during the 1980s: because of their experience, Basotho workers cannot easily be replaced and, to date, the cutbacks have tended to hit other nationalities first. Beyond 1990, though, as the present Basotho mine workers retire, the numbers will decline more rapidly and with them, the income they generate.

Minister Sekhonyana, amongst whose portfolios are Planning and Economic Affairs, sees unhealthiness in this situation and believes that the dynamics of the economy should be looked at closely. "An accident of ex-

ternal variables" of which membership of the Customs Union is one, means that the balance of payments is, as he says, "not too bad, about Maloti—10 million". He admits, though that once you start looking at the trade account, the picture becomes "horrific". The structure of the economy must, he stresses, be reformed so that if, one day, the "umbilical cord"—Lesotho's membership of the Customs Union—should be cut, the country would at least survive.

From which sectors could such a reform come? Development objectives in the 1970s centred largely on the provision of infrastructure, with road building high on the list of priorities. Bitumenized road from Maseru to Mafeteng has now been extended, with joint EEC/Dutch finance, to Mhale's Hoek, and further extension of the road to Quthing is at tender stage. Upgrading of the Quthing-Qacha's Nek road, running along the country's southern border, was speeded up following closure of the border with the Transkei.

A further, multi-donor infrastructure project now being implemented, is the building of an international airport on the southern outskirts of Maseru—planned at a time when tourism prospects looked rosy and when the country was dependent on South African Airways for its air links with the outside world. Donor funds were forthcoming, not so much because the economic benefits looked particularly promising—which, indeed, they did not—but because it was seen as an important contribution to building an independent Lesotho. With tourism in decline, and Lesotho Airways, set up

in the late 1970s, now, ironically, more threatened than anything by the airport development, the non-quantifiable objectives of the project are now, unfortunately, to be attained at an extra premium.

Mr Sekhonyana would like to see a change of approach in development planning—not, he says, because the project approach was not a fairly good one, but because it had no economic ethos. The sort of "project" which he would like to see and which would have long-term potential is that whereby, for example, a farmer could be induced to diversify into new crops, such as asparagus, knowing that there would be a 2 to 3-year threshold before any returns were seen on the investment.

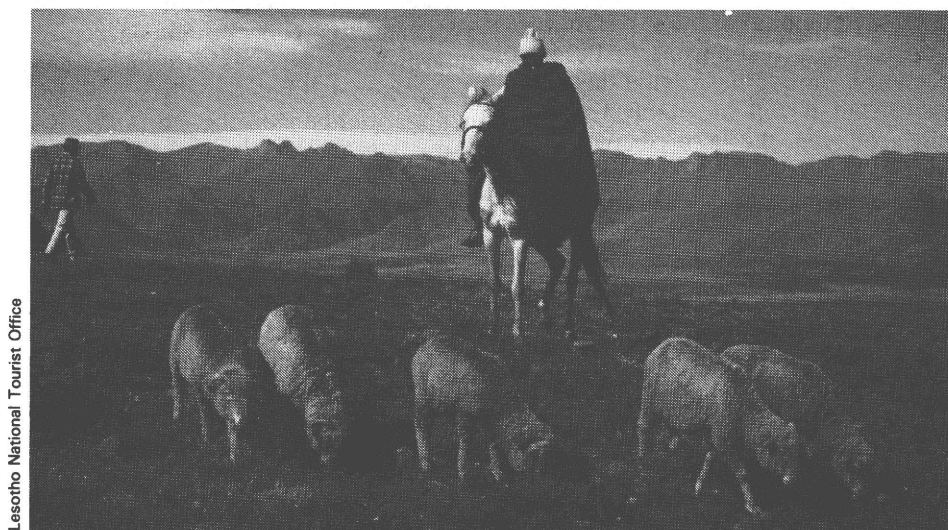
Potential in agriculture

The feeling is fairly general that it is in agriculture that the greatest potential lies—both in terms of improving the trade balance and of increasing domestic employment opportunities. At present the sector accounts for something like half the country's total imports, some 90% of which, Mr Sekhonyana believes, could be substituted.

The geographical and sociological constraints in the sector are nevertheless daunting and include not only the basic lack of arable land but also the system of land tenure which acts as a disincentive to investment in modern agricultural equipment and even to such fundamental practices of good husbandry as fencing. The 1979 Land Act could improve the situation, increasing as it does the security of allottees' tenure to arable land by stating

that usufruct rights are for life. To date, however, no doubt for fear of conflict with the traditional chiefs, the government has shown itself to be extremely cautious in implementing the Act's provisions. (Certain other practices, on the other hand, have been relatively simple to introduce: the formation of cooperatives, for example, has not met with great opposition, Mr Makhele, Minister of Cooperatives and Rural Development believes, largely because agriculture has traditionally been a collective activity to the extent that farming neighbours have long borrowed each other's implements). A major problem, given Lesotho's already severely limited land resources, is the further loss of land through soil erosion. The reason for Lesotho's catastrophic land degradation is to be found largely in overgrazing. Animals, to the Basotho people, are symbols of wealth rather than assets for commercial exploitation. It is by the number of heads possessed that a family's status is judged. Cattle and oxen are therefore herded around, free to graze on any land where crops are not growing. The optimum ratio, give Lesotho's ecological conditions, of head of livestock to hectares of range has been put at 1:4. Estimates are that Lesotho's 2 million or so head of livestock are grazing—or rather disastrously overgrazing—on only 1.9 m hectares of range. To combat soil erosion, the government has launched a two-pronged programme consisting on the one hand of expanding forest plantation along erodable mountain sides and, on the other, of reducing water run-off by the building of small diversion dams along eroded areas. By these measures, together with the attempt to limit the overall number of livestock, it is hoped that further depletion of the country's scarce land resources can be avoided.

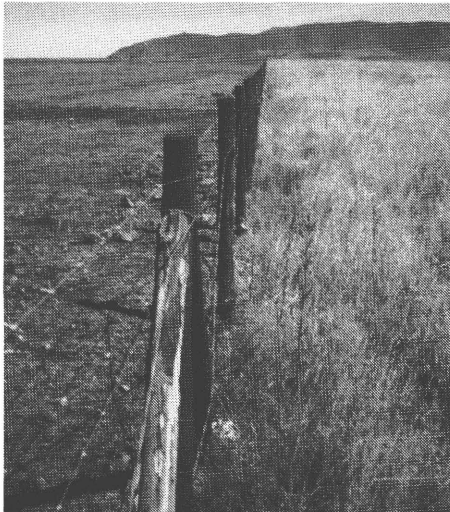
In spite of these constraints, opportunities nonetheless exist, the best of which appear to lie in the expansion of high-value irrigated fruit and vegetable production for high-income markets, and successes already achieved in this direction include the 300% increase in the export of asparagus to the EEC since 1980. Livestock production also appears to have good prospects for growth and a modern abattoir has recently been built on the outskirts of Maseru to facilitate export of meat. Nevertheless, the difficulties of commercializing this sector, with its deep-



A herdsman mounting guard over one of Lesotho's prime exports: mohair

rooted traditional role, will be difficult to overcome. Wool and mohair have now replaced diamonds as the principal exports, although the production and export of certain wool or mohair-based goods, such as the magnificent rugs hand woven at Teyateyaneng, are likely sooner or later to have to face stiff competition from the home-lands.

Self-sufficiency in food has long been a government objective although programmes such as the Basic Agricultural Services Project (BASP) or the



Sharp contrast between land fenced off 4 months earlier and land left free for grazing

Food Self-Sufficiency Programme (FSSP) have not so far met with resounding success. The country continues to rely heavily on food aid, with Lesotho receiving the highest quota per capita of all Africa. Yields of staple crops—maize, wheat and, to a lesser extent, sorghum—are heavily dependent on annual rainfall and, due to Southern Africa's recent drought, Lesotho's maize and wheat yields are expected to amount to less than one third of normal production. The total food grain shortage in 1984 is estimated at some 310 000 tonnes. Peete Peete, Minister of Agriculture, is confident, nonetheless that the chances of attaining self-sufficiency in food are realistic: yields of maize under government-sponsored programmes in 1982/83 were more than double those of crops grown by traditional methods, confirmation that, given the time and the money (but rather more one would imagine than the mere 8% allocated to agriculture in the 1983/84 budget) the potential for self-sufficiency could be realized.

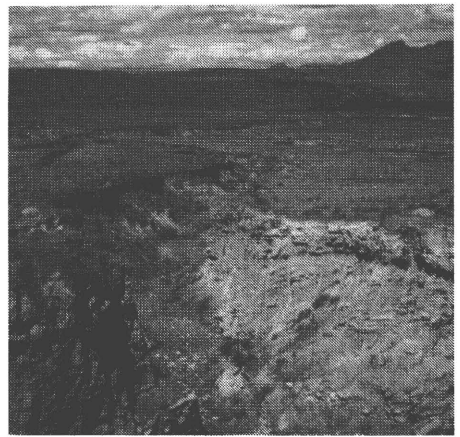
More jobs at home

One who believes that the solution of Lesotho's economy does not lie in agriculture but in a strong industrial base is Mr Pepene Mofolo, Managing Director of the Lesotho National Development Corporation (LNDC). Job creation is high on the list of the LNDC's priorities, and agriculture, Mr Mofolo fears, will not be capable of absorbing anything like the 20 000 school-leavers who come onto the employment market each year, let alone any of the excess labour currently engaged in work over the border, where the opportunities for employment are stagnating. As things stand, of the 20 000 job-seekers (a conservative estimate, Mr Mofolo reckons) local jobs can be found for only 1500 or so.

Capacity to employ is therefore a major consideration in the LNDC's campaign to attract industry. Incentives to potential investors include holidays, training grants and assistance (including possible financial assistance) in establishing their plant in Lesotho. Bilateral treaties signed with a number of states (amongst which Taiwan, the U.S., the U.K. and the Federal Republic of Germany) offer further advantages to their nationals in the form of protection of investments or avoidance of double taxation and some success has, indeed, been achieved in attracting industry, notably from South Africa, Europe and Asia.

Most welcome are companies whose projects will achieve import substitution, preferably in a manner that will not dislocate existing domestic markets. An example of just such a development is the Lesotho Dispensary Association which, starting from a small base, essentially the local market, has now pushed into the export market with contracts to supply pharmaceutical products to the governments of Mozambique, Botswana and Angola.

It's very much an uphill struggle, however, as Mr Mofolo freely admits. There is no way Lesotho can equal, let alone better, the fantastic incentives offered in the bantustans. Tourism, an important employer as well as a major revenue earner appeared to be promising in the 1970s, and new hotels were built to accommodate the expected increased tourist influx. But the sector has since been badly hit by the Sun City development in Bophuthatswana,



Overgrazing: one of the contributory factors to Lesotho's catastrophic land degradation

which will draw away much of Lesotho's South African clientele, and military activity such as the raid on Maseru in December 1982 cannot help but do the industry further harm.

While a certain amount can be offered by way of provision of finance or infrastructure, Lesotho's great attraction, Mr Mofolo feels, lies in her potential for export marketing. Through the country's membership of SACU, Lesotho-made goods have duty-free access to the markets of the Union, and most importantly, to the 28 million consumers in the Republic itself. Further attractions are the concessional rates offered by certain industrial blocs—of which the EEC is undoubtedly the most significant—on the admission of Lesotho-made manufactures.

Another possible trading outlet still in embryo form but for which there are hopes for growth, is the PTA—the Preferential Trade Area, formed by members of the SADC-group. The United States, Canada and Australia, amongst others, have also lifted quotas and waived customs duties for certain items and the LNDC is constantly pressing for further concessions to be granted.

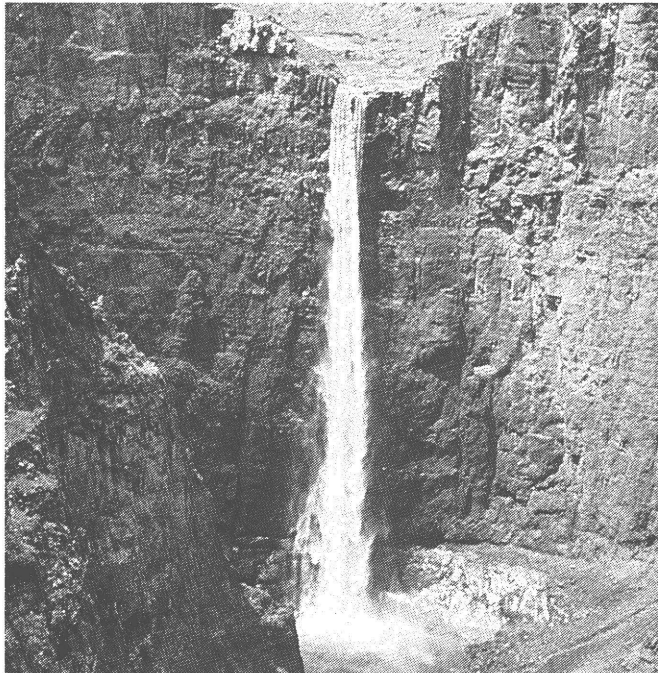
Possibilities exist, therefore, both in agriculture and in industry, though in both the going is hard. But the Basotho are a hardy people: they have had to be to survive the freezing winters in the mountains or to exist on the meagre offerings the barren earth would yield. By courage and tenacity Lesotho came into existence as a nation and those same qualities will, one hopes, not only guarantee her independent survival but lead her on to prosperity. ○ M.v.d.V.

WHITE GOLD

Lesotho's Highlands Water Project

Black gold, green gold, blue gold — and now white gold. Lesotho's Highlands Water Project, a \$1 billion scheme by which the waters of the Senqu (Orange) and Malibamatšo rivers would be diverted and exported to South Africa, has been described as "like finding oil" and, indeed, tapping the country's water resources could have an impact on the economy similar to that of the exploitation black gold elsewhere.

The water's potential has, of course, always



Water: Lesotho's "white gold"

Lesotho's topography, together with her pattern of high seasonal rainfall, result in a flow of water in the rivers of the northern mountain ranges which is surplus both to her present and to her future needs. As things stand, only a small part of the available water in the country—less than 10% of the total approximate surface run off of 150 cubic metres per second—is used to advantage, the remainder flowing, free, to the Republic in an area where it is of no commercial value.

The Highlands Water Project is a much larger and more ambitious descendant of the so-called Oxbow scheme conceived in the early 1950s and designed to supply water from dams at Oxbow and Pelaneng via tunnels to the north and at the same time to generate hydro-electric power. The Oxbow scheme, which was eventually shelved, envisaged the sale of 3 m³/sec of water to South Africa: the Highlands Water Project is at present examining the possibility of delivery at a rate of 70 m³/sec.

The development of a giant water

project only became a viable proposition when it was realized that the growing industrial and domestic requirements of the Witwatersrand-Vereeniging complex would sooner or later outstrip indigenous supply and that other sources would have to be found. Some South African water (about 5 m³/sec) could be obtained after the "break" year, 1994, at a cost comparable with that of Lesotho water, but this would meet the demand only for a further three years or so. Water could also be diverted from other areas of the Republic, such as from the Orange river or from the Upper Tugela Basin, but not only are the distances vastly greater, but, being at lower levels and therefore requiring energy-intensive pumping, the end product would be a great deal more costly. Lesotho water, on the other hand, is closer and, situated as it is at a higher altitude than the Vaal Basin, could flow by gravity.

In 1977 a joint Lesotho/RSA Technical Committee was established to examine the potential of a Lesotho-based scheme and a pre-feasibility study, concluded in 1979, found that

existed; what has not always existed, however, has been a market for it. In 1994, however, the demand for water in South Africa's Vaal Basin will exceed the available supply from present sources. Lesotho's dream of harnessing the national water resource to provide electrical energy (for which the country is now entirely dependent on the Republic) as well as vastly increasing her export revenues through the sale of surplus water may, therefore, become reality before the turn of the century.

the cost advantage of Lesotho water (at a 6% discount rate) as compared with water from a variety of sources within the Republic would be about 90 million Rand/Maloti p.a. Computations were based on a design whereby water would flow to South Africa at a rate of 35.1 m³/sec (the target flow rate at the time based on preliminary hydrological calculations now known to underestimate the true position) through some 102 km of tunnels from a series of reservoirs formed by dams at Oxbow, Pelaneng, Saoi, Polihali and Taung. Following this study, the two governments decided to undertake a detailed, two-stage feasibility study, half of which to be carried out by each party on the basis of a predefined division of responsibilities for implementation and financing. An EEC grant of M 5.6 million, representing the Lesotho government's contribution to the total cost of the study, was agreed upon in March 1982 and in August 1983 a German/British/Irish consortium began work on the study.

Stage I of the study, devoted to reviewing the existing prefeasibility stu-

dy and to seeing whether any fundamental socio-economic or environmental factors could ultimately prevent the scheme going ahead, was completed in February 1984. Stage II, consisting principally of refining designs and costings of the proposed main works, together with studying *inter alia* competitive non-Lesotho schemes, water and energy demands, and water treaty and other legal implications, is expected to be completed in August 1985. The scheme identified in Stage I of the study is proposed for completion in three phases in 1995, 1999 and 2012, and consists of two dams on the Senqu River (Taung and Polihali) and one on the Malibamatšo River (Pelangeng), 102 km of transfer tunnels with power stations at Thaka and Polihali.

Over 2000 variations have been examined already in the search to find the optimum design and there is now no doubt whatsoever that the scheme is feasible, both technically and economically. When the project is fully in operation, at the start of the next century, water revenues alone could triple Lesotho's export revenue. (The revenue would be determined by the tariff per m³ to be defined in a treaty to be signed between South Africa and Lesotho, preferably this year, and based partially on complete capital and recurrent cost recovery and partially on the shared benefit of the difference between the cost of water delivered by the HWP and that by the optimum wholly South African scheme).



Minister Majara

— certain that project funds will be forthcoming

As for electrical energy (an important additional benefit, though the scheme would not be viable on the basis of the energy-generating aspect alone), Lesotho's electricity, supplied entirely by ESCOM via the South African grid, is at present relatively cheap. This, however, may not last and the foreign exchange earnings resulting from locally-generated electricity when the scheme is operational (100 MW in 1995) are likely to be considerable (M 22 m p.a., or more). More importantly, it will bring Lesotho close to near self-sufficiency in electrical energy and thereby reinforce the country's independence.

Further benefits would be improved communications and lower transport costs, improved telecommunications, the possibility of devel-

oping irrigated agriculture and tourism and, of course, the local employment (2000 plus) that would be generated by the building of the main works themselves and the support infrastructure. The environmental impact will, it is hoped, be positive: of the estimated 11 000 hectares which would need to be flooded at the reservoir sites only a tiny proportion is at present under cultivation. The supply of water to the riverside populations would be ensured and the management of the slopes, essential to the preservation of the water's quality, could contribute towards halting the advance of soil erosion.

Who will pay the M 1.5 billion the scheme is likely to cost? Because it is such a good commercial prospect, much of the necessary capital investment will come from commercial banks. The government in Maseru will nevertheless certainly be looking for a maximum in the way of soft loans and Mr Majara, Lesotho's Minister for Water, Energy and Mining has no doubt that the necessary funds will be forthcoming, despite the fact that the co-beneficiary, the receiver of the water, will be South Africa. "Our donor friends seem to be quite happy" Mr Majara says. "They now understand that although the Republic is going to be a beneficiary, it is because of our geographical position... South Africa happens to be the only neighbour to Lesotho. This seems to be clear to all those who want to be realistic and understanding".

The only cloud that could appear on the horizon to threaten the project's success would seem to be politics. Relations between Lesotho and the Republic are volatile and could impede progress. The coming year will be decisive however: major water projects take about ten years to gestate, and 1994 is only ten years away. South Africa must, therefore, decide soon as to whether she wants Lesotho's water or her own, and it can only be hoped, given the enormous benefits to both parties, that the Highlands Water Project be allowed to come to fruition and that Lesotho's water may prove to be gold indeed. ○

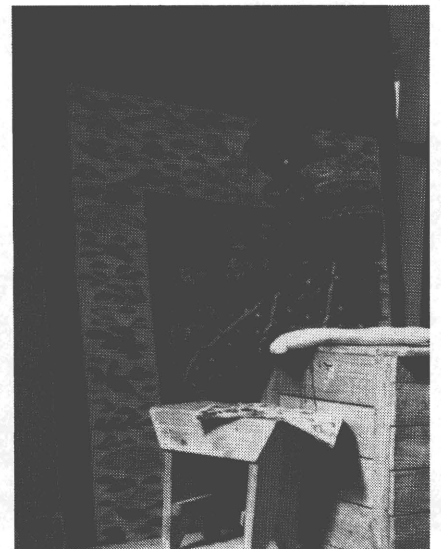
M.v.d.V.



Daunting terrain, maybe, but the commercial prospects are excellent



Wool and mohair are now prime foreign exchange earners for Lesotho, exported either in the form of the raw material or of handicrafts such as mohair tapestries. Opposite, mohair being spun at a workshop in Teyateyaneng which at present employs some 150 weavers and provides work for another 100 or so spinners. Below, examples of the fine end products, nearing completion.



EEC — Lesotho cooperation

On 28 February 1975, representatives of 46 African, Caribbean and Pacific (ACP) states gathered in the capital of Togo, Lomé, to sign the ACP-EEC Convention of Lomé. For Lesotho, as for many other former British colonies or protectorates, the signing of the Convention ushered in an era of cooperation with the European Community as well as with its individual member states. Lesotho has received well over ECU 60 million in Community aid, principally in the form of projects or programmes funded from the EDF, but also in the form of exceptional aid, Stabex transfers or ex-Convention cooperation such as food aid (see Tables 1-3). The following article, supplied by the Commission's Delegation in Lesotho, highlights one area of EEC-Lesotho cooperation in particular, namely that of rural development.

EDF-financed rural programmes

The European Community has, during the first and the second Lomé Conventions supported a number of rural community programmes to improve rural facilities and make a better life possible in the mountain areas of Lesotho.

The most significant projects contained in this rural development scheme are the Rural Clinics Programme, the Village Water Supply Programme, the Primary Schools Improvement Programme and the Rural Post Offices Programme.

Rural Clinics

The project provides for the improvement or construction of Rural Clinics in the mountain areas of Lesotho to assist in improving the primary health care of the population. This first phase of the project, which was approved by the Commission of the European Communities in April 1978, allowed for 14 clinics, with provision of nurses' accommodation where necessary, new or extended waiting and consultation rooms, delivery room, a small dispensary, a store room and some equipment. In some cases, existing facilities were repaired or refurbished. This phase was completed January 1982. The grant from the EDF for the project has a value of ECU 300 000. The second phase of the project is now being completed and consists of a further 6 complete clinics.

The Rural Clinics Programme is also supported by the Danish Government (Danida), which is financing oth-

er clinics under the same overall plan of the Government of Lesotho for improving rural health facilities.

The Danish Government has also provided an expert, attached to the Ministry of Cooperatives and Rural Development, to supervise the implementation of the Danish project and the EDF-project. This expert was mobilized in May 1981. Danish Volunteers are assisting in the clinics construction and have trained local employees of the Ministry to perform most of the construction jobs.

The Clinics Programme has established primary health care facilities in areas of Lesotho where such care hardly existed before. However, it has been attempted not to place a new burden on the Government with regard to nurses' salaries, transport, etc. This has, to a large extent, been achieved: the project has improved facilities and accommodation for nurses and thus attracted good nurses for this essential health job. Most of the nurses keep a horse as their basic means of transport to reach the villages in the surrounding areas.

Village Water Supply

The project had as its objective to provide potable water supply to each of 50 villages or groups of villages throughout rural Lesotho, thus bringing pure unpolluted water into these areas instead of having the villagers fetch water from often very considerable distances and drawing on water courses of poor quality.

The EDF project, which was approved as a grant of ECU 700 000 under the first Lomé Convention in June



Post office at Bataung, one of 18 built with EDF assistance

1978, is a part of an overall Government of Lesotho Development Plan to provide 200 such Village Water Supply Schemes over the coming years. The project is being implemented by the Ministry of Cooperatives and Rural Development with the assistance of supervision by a team of Swiss experts from Helvetes. This Swiss group has also assisted in supervising the implementation of the EDF funded village water supply schemes which have been done by direct labour.

The water originates from springs in the mountains which are, under the project, arrested and then brought by gravity to the villages in the area benefiting from the scheme. The villages receive the water through stand pipes which are placed at central locations. No houses actually get any water installations as the design quantity is only 30 litres of water per day per person. It is expected under the project that substantial self-help is done by the villagers themselves — digging of trenches, laying of pipes under supervision, etc., whereas construction of storage tanks, connection of valves, pipes, stand pipes, etc. are done by tradesmen trained by the Swiss group of experts. The EEC has also provided, under the project, pipes and other building materials, pumps as well as trucks and four-wheel drive vehicles. Some water supplies are based upon boreholes.

Primary Schools

This project provided for the con-

Table 1 — Community aid to Lesotho

In ECU '000

1. The first Lomé Convention (1) (1976-1980) Indicative Programme (of which 99.4% committed at 31.12.83) Exceptional Aid		22 000 1 232
	Total Lomé I	23 232
2. The second Lomé Convention (1) (1981-85) Indicative Programme (of which 83.3% committed at 31.12.83) STABEX (losses from export of mohair) Exceptional Aid EIB (Credit line for small and medium-sized enterprises)		29 000 1 213 (2) 0,075 3 000
	Total Lomé II	33 288
3. Ex-Convention co-operation Food Aid 1978-1983 Special Action CIEC NGO co-financing		5 701 (3) 1 600 350
	Total ex-Convention	7 651
4. Total resource allocation		64 171
<p>(1) Excluding participation in regional projects. (2) For 1980, 1981 and 1982. (3) Exclusive of emergency food aid. Value estimated on basis of world prices obtaining at time of grant. (Monetized value in Lesotho substantially lower).</p>		

**Table 2 — Indicative programme:
Lomé I (4th EDF)**

In ECU '000

1. Agriculture, livestock	
Basic Agricultural Services Programme (BASP)	3 000
Development Mphaki Area (Livestock)	2 000
Phuthiatsana Upper Catchment Area (Livestock)	688
	5 688
2. Rural services	
Village Water Supply	700
Rural Postal services	1 500
Rural Clinics	300
Rural Primary Schools, 1st Project	400
Rural Primary Schools, 2nd Project	307
Microprojects	300
	3 507
3. Communications	
Mafeteng-Tsoloane Road	3 000
Quthing-Qacha's Nek Road	1 000
Maseru International Airport	3 000
	7 000
4. Industrial estates	
Maseru I and The'sane	1 837
5. Technical assistance and training	
Multi-Annual Training Programme and TA programme	3 531
6. Studies and contingencies	437
Total:	22 000

**Table 3 — Indicative programme:
Lomé II (5th EDF)**

In ECU '000

A. Road Communications (Mohale's Hoek-Quthing Road)	14 100
B. Air Transport Services (TA and Training)	2 860
C. Agriculture and Rural Development	3 300
D. Training	1 500
E. Energy, Exploitation of Natural Resources (Lesotho Highlands Water Scheme)	5 700
F. Industrial Infrastructure. Trade Promotion	1 300
G. Reserve	240
Total:	29 000
Additional facilities:	
1. EIB credit line to Lesotho National Development Corporation for on-lending to SME	3 000
2. Exceptional aid in connection with raid on Maseru, December 1982	750
3. Compensation for losses from mohair exports (Stabex)	1 210
4. Food Aid (1980-1982) (Total Monetized value in Lesotho 2 913 930 Maloti)	
5. Participation in following EEC-financed Regional Projects	
Regional Customs Training BLS Project Phase I	(120 000 ECU)
Regional Customs Training BLS Project Phase II	(504 000 ECU)
Regional Post and Telecommunications Training Scheme	(986 500 ECU)
Waterford-Kamhlaba School	(130 000 ECU)
Technical Assistance for the SADCC Secretariat	(2 000 000 ECU)
Container Terminal in Maseru (feasibility study)	(50 000 ECU)
1 ECU (1.1.1984) = 1.0134 Maloti.	

struction and furnishing of 10 two-classroom units to expand primary schools in rural areas of south-western Lesotho (Mohale's Hoek, Quthing and Mafeteng Districts). The project also provided for improvements to the sanitary facilities of the schools. It was approved by the Commission of the European Communities in September 1981 to be financed under Lomé I as a grant of ECU 400 000.

The project was a part of a National Programme to construct, throughout the term of Lesotho's third Five Year Plan, 500 new classrooms for primary schools to reduce the average pupil/classroom ratio from 83:1 to 75:1 in the short term. In the longer term (by the year 2000) this ratio should be lowered to 50:1, but this would mean construction of a total of 7 520 new

January 1984, an additional project under Lomé I funds to finance a further group of 6 schools (12 classrooms and one school laboratory for a secondary school) to benefit from improvement through new classrooms and sanitary facilities. The new project will be financed by a grant of ECU 307 000 from the IVth EDF.

Rural Post Offices

This project was financed by a grant of ECU 1.5 m by the EDF under the first Lomé Convention. The project was concluded in July 1983. Under this project a total of 18 post offices were built in rural areas in Lesotho. In most countries, other than Lesotho, it would be considered an extraordinary development project to erect post offices. However, when considering that

bridges in the rural areas and communal gardens in a number of villages. The footbridge programme is essential because it allows for easy access between rural communities otherwise very isolated. Most footbridges lead across rivers, ravines, etc.

During the drought of 1982/83 it became necessary for the Government to try to expand the Village Water Supply Scheme with a substantial borehole programme in the lower areas of Lesotho. The Government appealed to a number of donors for assistance to such a borehole programme and the EEC agreed to utilize counterpart funds from food aid (wheat) given to Lesotho in 1980, to support the borehole programme. Under this project the counterpart funds (515 350 Maloti) will enable the drill-



Rural clinic at Pontmain: the clinics programme has established primary health care facilities in areas where such care hardly existed before



Mr Tue Rohrsted (second from left, foreground) officially handing over a donation of white sugar to the government of Lesotho, represented here by Minister Sekhonyana (third from left).

classrooms, i.e. more than twice the existing number. All schools selected were among those with the highest ratio, and all chosen schools did not require further teacher employment, thus avoiding further financial outlay for the Government.

The EDF-financed project was executed within 18 months with the assistance of three local contractors and a supplier of locally-produced school furniture.

Other projects under the same overall programme of Primary School Improvement have been supported by British aid and are receiving support from the IBRD. The Government of Lesotho also encourages self-help projects within this programme.

After the successful completion of the project the Commission of the European Communities approved, in

about half of the male workforce of the country finds their employment outside the country, a postal service becomes an essential facility for the rural areas. The post office serves as a means of social contact, exchange of letters and messages between friends and relatives and also as a means of remitting money from the workers to their families.

Thirteen of the post offices were built by direct labour under the supervision of the Ministry of Transport and Communication, the remainder of the 18 were built by local contractors.

In addition to the four main projects mentioned earlier, the EDF has financed two micro-project schemes under the First Lomé Convention. The micro-projects consisted of assistance in the construction of foot-

ing of 350 boreholes for villages in Maseru, Berea, Leribe and Buthe Buthe Districts. It is expected that about 245 of the boreholes will eventually contain and provide water. The United States Government is providing hand pumps for these boreholes.

Counterpart funds from food aid donated to Lesotho in 1978 and 1979 have been utilized for another rural programme. A total of 12 food aid stores have been built, or are under construction, in various isolated, but important strategic locations in the mountain areas of the country to enable proper food storage for the winter in case of a situation where the local harvest has not been sufficient to support food requirements of the area. The counterpart funds being spent for this project amount to approximately 700 000 Maloti. ○

SIERRA LEONE

Land of Iron and Diamonds

Exports and Sophistication

Sierra Leone's name was bestowed upon it by Portuguese navigators in the 15th century who used the vast natural harbour below the lion-shaped hills of the Freetown Peninsula as an entrepot and slave-trading base. Freetown, now the capital of Sierra Leone, has a more obvious derivation—slaves liberated in England were first brought here in 1787 to form a small and sophisticated population for what would, in 1808, become a British Crown Colony. These two themes—of export trade and of sophistication—run like a melody through the history and social composition of the country.

During the years which followed the establishment of the Colony, the spate of liberated slaves increased. Some, of course, were freshly-enslaved from the Congo basin, released from slavers by the patrolling frigates of the Royal Navy and commemorated today in the name of two of Freetown's suburbs, Congo Cross and Angola Town. But, on the whole, the intellectual life of the Colony was dominated by the Creoles, the descendants of the liberated slaves. In 1827, Fourah Bay College was founded primarily to train teachers and catechists and in 1877 it became a constituent college of the University of Durham. The first University on the West Coast, Fourah Bay, turned out the first and many of the subsequent generations of doctors, lawyers, teachers and administrators, not only for Sierra Leone but for the countries that were to become Ghana, Nigeria and the Gambia. Creole doctors now practising in Freetown are often the fourth generation of medical men, and the same goes for academics and for others of the liberal professions.

It is easy to confuse Freetown with Sierra Leone. Its population is close to 400 000 (out of a total population of 3.2 million) and Freetown is the economic and social magnet to which all the young people are drawn. But it was the rest of the country which provided the wealth with which Freetown glittered and of which more than just

traces remain to this day. It is still the rest of the country which supplies the high-value agricultural products that form one of the pillars of Sierra Leone's export economy: coffee, cocoa, ginger, palm oil and rubber. It is the rest of the country which supplies the diamonds, iron ore and bauxite which provides the other pillar. But it is Freetown, with its enticing advertisements, night clubs, overstuffed ministries and the world's highest per capita ownership of Mercedes Benz cars, which uses up so much of the foreign exchange. Exports and sophistication.

The two major tribal groupings in Sierra Leone, are the Mende, from the South, and the Temne, from the North who together make up more than 60% of the population, while the Creoles of Freetown do not even make 5%. But there are two more groups—not perhaps so numerous, but of sufficient importance to be mentioned. The first is the Fulas, whose homes are in Guinea but who come to Sierra Leone to seek jobs and who form a lively trading community. The second is the Lebanese, whose hold on the import trade is considerable and who play a preponderant role in the economic life of the country just as the Creoles dominate the intellectual life. And, since the imports that people in Sierra

Leone seek, from the prestige motor cars to the ingredients for the massively-popular local beer, Star, must be paid for in foreign exchange, the importers and traders, with their worldwide contacts, sit conveniently close to the export pipeline. Exports and sophistication.

On independence in April 1961, Sierra Leone was left with a bi-party legislature, an independent judiciary and a Dominion-style Constitution, as were the other newly independent ex-British colonies along the coast. The Creoles of Freetown, who had long been dominant in the administration, made way gracefully for the new blood and retired to the liberal professions and the other jobs that a sophisticated capital could support. From 1961 to 1971, the Dominion model held good, to be supplanted by a mildly-modified Republican constitution. Until 1978, the two-party model continued until it became evident that the energies of the politicians were diverted towards profitless and increasingly bitter inter-tribal strife, and President Stevens absorbed the opposition SLPP party into his own APC. Whilst political passions—especially when tinged with tribalism—had run high, and whilst almost every election since independence brought forth accusations of ballot-rigging and foul play, it is also no exaggeration to say that Sierra Leone's political and constitutional course has been a relatively calm one. The military intervened only once in politics (in 1967/68) and since then



The old gate near Freetown's harbour, through which slaves passed on their way to freedom



View of Siaka Stevens Street in Sierra Leone's capital, Freetown

have returned to barracks. The country has been spared the political experiments and social upheavals of its neighbours up and down the coast. And, moreover, the changeover to a one-party Presidential system was accomplished in a conciliatory and statesmanlike manner. President Stevens presides over a ministry of all the talents composed of men of considerable independence of action and diversity of view. The country continues to enjoy a relatively free press and a total absence of police-state apparatus. One saddening factor, perhaps, is that public life and public administration do not always attract enough of the most highly-qualified, who seek lucrative posts in Europe or with international organizations. Once again, the juxtaposition is evident: a sophisticated political life, yet an export of some of the best talents of the country.

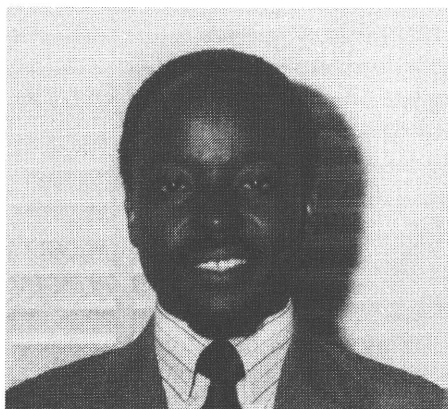
The mining sector—prosperity under threat

In one of the first post-independence issues of stamps, the Sierra Leone Government marketed the world's first self-adhesive designs, all bearing the legend "Sierra Leone—Land of Iron and Diamonds". By 1982 this was, almost, no longer the case. Between 1981 and 1982, diamond exports fell by 53%. The iron ore mines which had closed down in 1975 reopened only in 1982, with the first export shipment for eight years taking place in February 1983. Mining contributes some 15% to the country's GDP and over half the country's foreign exchange earnings, but not necessarily iron and diamonds. Rutile-titanium oxide—which is used in the manufacture of white paint—gold and bauxite are perhaps as important as

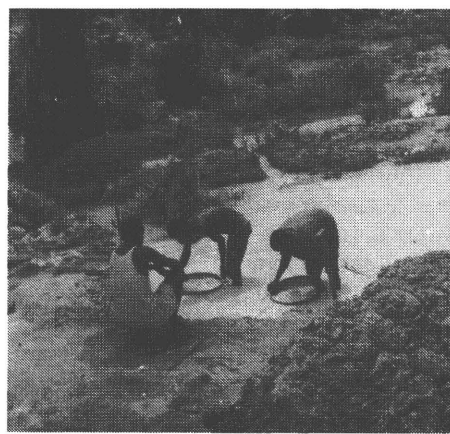
diamonds in the overall national plan, and the Minister of Mines, Mr Hassan Kanu, confirmed the Government's intention to diversify. "We have received reports through the surveys that the Ministry has carried out", he said, "of deposits of platinum, molybdenum and lignite. We don't have any exact figures for them, viability reports which would guarantee a return on investment, but work continues. As far as gold is concerned that is receiving a lot of interest, a lot of excitement from the Ministry of Mines and from the general public".

In any event, the gloom of 1982, in which mineral export values were halved by comparison with the previous year, is being gradually dispelled. More gold and diamonds were exported in the first two months of 1984 than in the whole of the preceding year and while the market for bauxite is shaky, the prospects for gold, iron ore and diamonds are on the way up. The gold export in three months of 1984 was 9 000 ounces, compared with only 4 000 ounces in 1982/83. The opening of two new gold mines is projected in the near future, each employing up to 1 000 people, bringing the total employed in the sector to 12 000.

The mining sector, despite its recent patchy record, the closing of the iron mines for eight years, the drop in export earnings, the gradual running down of the alluvial diamond deposits, is still the mainstay of Sierra Leone's exports, and a major employer of skilled and unskilled labour. It represents at the same time the problems and the opportunities of the country. The major problem, of course, is smuggling. And smuggling is both easy and profitable because of the country's chronic shortage of for-



The Minister of Mines, Mr Hassan G. Kanu



Traditional diamond mining methods at Kono

eign exchange and its location next to a country whose currency is the US dollar, namely Liberia. Foreign currency shortage gives people a motive to smuggle, Liberia's position gives them the opportunity, and diamonds provide the means. President Stevens is fully aware of this (see interview on page 30) and as an ex-miner himself, pointed out that few commodities are as easy to smuggle. The country's fiscal regulations made it perfectly possible to by-pass the foreign exchange restrictions. The existence, until December 1982 of unnumbered licences meant that foreign exchange was available to importers who did not need to join the queue for officially-obtained foreign exchange. Did that mean, then, that the diamond miners were setting up as importers? In most cases, no. Licences were issued by the Ministry of Mines to people who wished to dig for diamonds. But the miners needed more than just the formal permit. They required credit for tools, food, travel. They needed the equipment and the organization. This is where the importers stepped in. They provided the logistics for the mining operations and created the bonds which made the miners turn to them for disposal of the diamonds. The bankers already had their sophisticated commercial networks and could judge by how much they could overbid the Ministry's official purchase price. Then they disposed of the diamonds for foreign currency which they used to import goods. When questioned about their ability to pay for imports despite the existence of a two-year wait in the official foreign-exchange pipeline, the importers would explain that the foreign suppliers had given them credit. It fooled nobody, but the goods kept coming in.

And the official reserves of foreign currency, to pay for things like fuel oil and petrol, grew scarcer and scarcer. Inability to pay for essential imports, and a highly over-valued currency, discouraged external investment so that even the heavy equipment in the mining industry could only be replaced by foreign aid or by jumping the foreign exchange queue. Nowadays the mines are given a retention percentage in foreign exchange and are kept operational by these means.

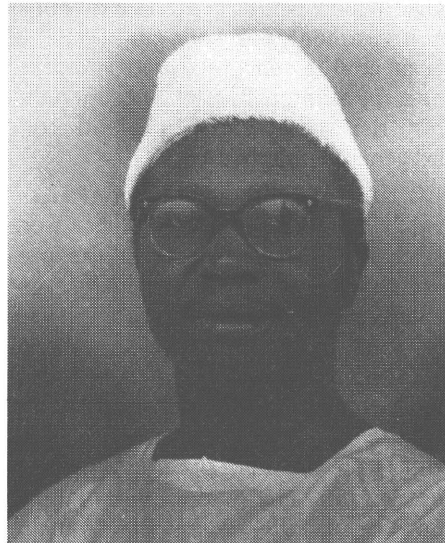
What has been true for diamonds, which are still the leading mineral export and likely to remain so for the foreseeable future, is also true of gold. By halting the Bank of Sierra Leone's purchasing and exporting monopoly, the Ministry of Mines has made it more attractive to go through the system, and this is reflected in the dramatic increase of gold exports in 1984. It is also true that the gradual switch from alluvial (open-cast) diamond mining to kimberlite (deep)mining will increase the measure of physical control that official channels will have over the disposal of diamonds.

And as far as iron, bauxite and rutile are concerned, smuggling is not a problem. Here, the problem is one of attracting foreign investors and maintaining world markets for the products. And once again, it is the financial and fiscal framework which will determine whether or not investments are attractive, and how the hard-earned foreign exchange will be spent.

Debt, devaluation and discipline — financial policy

The land of iron and diamonds had a most successful first decade of independence. GDP grew by nearly 5% annually and foreign exchange earnings were adequate to finance imports and provide public revenues. The oil price shocks of 1973 and 1979, the falling world prices for iron ore and diamonds, and the depletion of alluvial diamond deposits caused a sharp turnaround in this situation. The Leone, the national unit of currency was not devalued for a very long time (until July 1983, in fact) and the Government was forced to print or borrow Leones in order to meet the many tasks which it was obliged to assume. As in a great many developing countries, the Government is the principal employer of white-collar labour, and is

also responsible for the maintenance of a sophisticated (though now in parts endangered) infrastructure. An unrealistic value to the Leone gave impetus to smugglers; smuggling reduced central government receipts; reduced receipts meant foreign exchange starvation, and foreign exchange starvation gave a fresh impetus to smuggling.



Mr Salia Jusu-Sheriff,
Minister of Finance

When President Stevens says in his interview with *The Courier* that the country's problems are not in large measure of its own making, he is echoing a great many leaders and economists in developing countries. The price of energy (on which, in the form of oil, the country depends entirely) doubled in one year (1978/79) and the industrial and mining sectors account for over 60% of the nation's energy use. The needs of the government to pay its many employees, to maintain and develop the extensive infrastructure, and so on, meant that shortfalls had to be met by borrowing. And borrowing by the government meant that there was little enough left over for the private investor to put into productive long-term investment. Short-term satisfaction of demand for imported goods at a high profit seemed a better investment for surplus Leones than investment in projects that might take years to turn a profit.

But even if the world proved a harsh and cruel place after 1973, the Government reacted too slowly. As long as lenders and donors appeared willing to lend or to donate, there was no pressure to improve the machinery whereby revenue was collected, nor to evaluate and monitor the way revenue

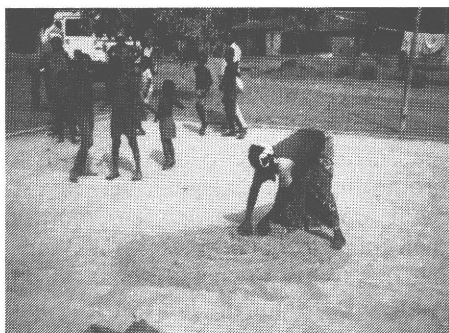
was disbursed. Ministers and senior officials were involved in scandals, "Vouchergate" being the most notorious one, in which payments were regularly made for services never rendered or projects never undertaken. Government payrolls contained the names of people who had no jobs, even some who had died, but who continued to receive salaries. The OAU Summit, which was held in Freetown in October 1980, was an occasion for very heavy expenditure on infrastructure which has not yet proved profitable.

It must be stated that this light-hearted attitude to financial probity, was by no means confined to the Government. Indeed, the Government was more often the victim of the citizens' insouciance. Smuggling has already been mentioned as the most severe evidence of national indiscipline but the experience of the National Development Bank is another illustration. "Success breeds success", the Finance Minister Mr Salia Jusu-Sheriff explained, "and the reverse is also certainly true in the case of the NDB". The Bank, which is Government-owned, was set up in 1968 to provide the backing for viable investment in industry, commerce and agriculture. Unfortunately, there is a tendency in Sierra Leone to regard Government loans as grants and not to bother overmuch about repayment. This was frequently the case with the NDB, though it was not until 1978—and a good many unfortunate experiences later—that a "follow-up" department was set up. But there was always a lack of staff, an unwillingness to pursue recovery through legal channels and, most important, a lack of trained staff to monitor and evaluate projects before money was committed. One of the problems from which the Bank suffered was that of scale — although designed to help small and medium-sized enterprises, the Bank was noteworthy for the size of the schemes it backed. Some failed, while in the case of others it was felt by many that external backers could have done the job just as well. Good money, in the end, went after bad.

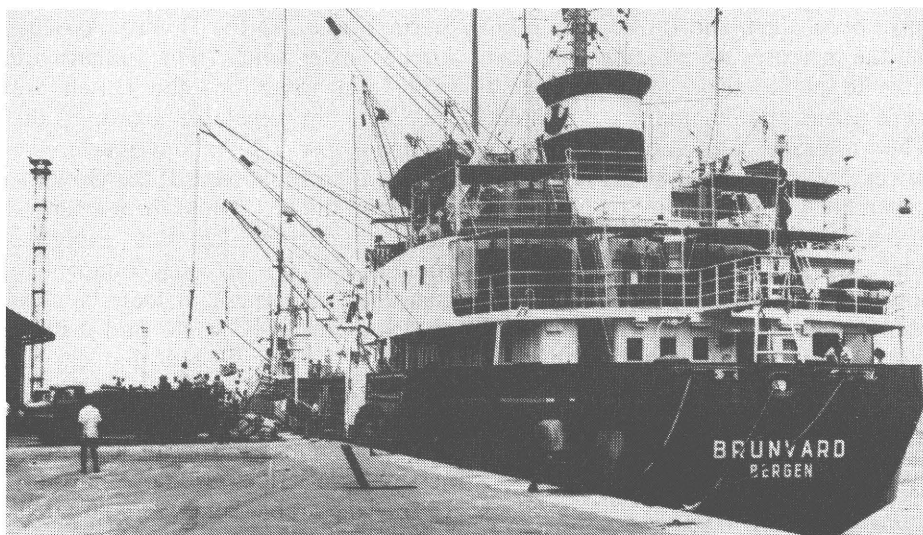
The end result, of course, both for the Government and for the country as a whole, has been the bitter pill which countries all over the world have been forced to swallow—a visit from the IMF, a loan to overcome the most immediate problems and a string

of harsh conditions to fulfil. Many Sierra Leoneans feel resentment that they have been singled out by the IMF as "bad boys" and point, with no small justification, to countries up and down the West African coast whose debt, inflation, bankruptcy and general economic hopelessness, they claim, are far worse than their own. But the more far-sighted Sierra Leoneans, among whom one can certainly count Mr Jusu-Shariff, are not all that displeased. "The Government has become much more aware of the need to evaluate and monitor projects effectively. In the past there was a tendency to approve the projects but not to monitor them but in future they will be submitted to the sort of scrutiny that other Government expenditure receives. Anyone who comes and insists on sound principles and prudent investment will find a sympathetic listener with me". Mr Jusu-Shariff is, in any case, a minimalist as far as Government involvement is concerned. "My own view", he explained, "is that private enterprise—including finance—should earn the money, and that Government has a task in distribution of the profit for whatever social priorities it has in mind".

But Mr Jusu-Shariff is aware of the need to control expenditure and to tighten controls all round. To reduce the impact of smuggling he has devalued the Leone to a more realistic level, he has stopped the unnumbered licence system, he has imposed a surcharge on imports obtained with unofficial foreign exchange, he is raising prices of almost all export commodities and a chill wind is now blowing in government departments to increase revenues and decrease expenditure. Something of the lighthearted and sophisticated Sierra Leonean attitude to financial management will have to go before the country returns to growth, financial stability and prosperity.



"Villages seem composed of women, the elderly and the young"



A country dependent on its exports: a cargo vessel being loaded at Freetown's Queen Elizabeth II Quay

Agriculture — a land with no people

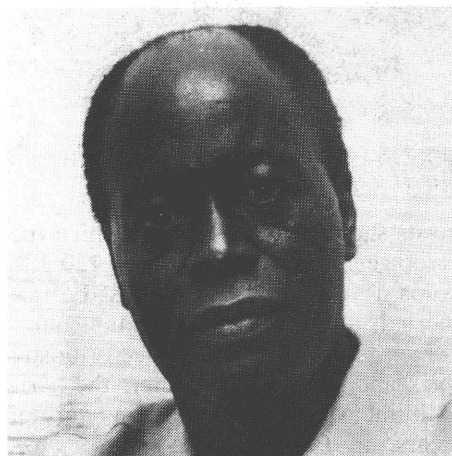
In Sierra Leone, agriculture accounts for 65% of employment and to say that the country is a land with no people may seem a little perverse—but it is so nevertheless. What is not so obvious from the statistic is that farm labour of the right sort—young adult men—is scarce. In part, this has to do with social attitudes, as the Deputy Minister for Agriculture explained. "Young boys who leave home to go for further education feel that to return to the village is a sign of failure. Farmers are looked down upon here. It's an attitudinal problem that we will have to change by changing the educational system. We have the grammar-school system at the moment. That means that the successful scholar looks to become a doctor, lawyer, D.C. (District Commissioner) or Parliamentary Secretary. He doesn't think in terms of agriculture, or returning to his village". As one passes through the rural districts of Sierra Leone, this is amply borne out—villages seem composed of women, the elderly and the young, while the streets of Freetown are full of young men all hoping to make some sort of living amid the bright lights and the consumer products.

Yet Sierra Leone, like most developing countries, lives by its agriculture, and when the yields are low, the bright lights of the capital can dim, because scarce foreign exchange is used to buy in food that the farmer can't or won't produce. Until the late 1970s Sierra Leone was self-sufficient

in its staple product, rice, of which the average Sierra Leonean eats 120-130 kilos a year. Now, 20% must be imported, along with 90% of the maize which is used for animal feed (mostly pigs and chickens). Further, the agricultural sector provides, in normal years, up to 30% of the country's export earnings, in the form of cocoa, coffee, ginger and palm oil. So, when the farmer feels neglected, the country suffers.

The first major cause of neglect has been the price paid to producers. For years, the Government regarded the bulk of the population as subsistence farmers, whose surplus could buy the necessities of life. Prices for food crops were pitched deliberately low so that the urban population could afford them. But this was small comfort to the farmers whose surplus bought fewer and fewer necessities as inflation and foreign exchange shortages did their work. Moreover, the farmer didn't need to sell his produce in Sierra Leone. The country's membership of the Mano River Union (with Liberia and Guinea) meant that the frontiers were porous and rice could be sold for dollars to Liberia or in a more profitable barter trade in Guinea. When the IMF team visited Sierra Leone to prepare for the recent loan, they proposed raising the producer price of certain crops. The Government has done so—maize up from below 300 Leone/ton two years ago to over 1 000 Leone/ton now, paddy rice up by 50% to 18 Leone/bushel. But these increases must be carefully judged—at what point does imported food become cheaper? Increases there

have been, then, and in the 1983 budget the increases were matched by pay rises to public sector employees and by a rise in the income tax threshold. The message was obvious—higher prices for farmers, higher wages or lower taxes for those in employment and a squeeze on the urban population who just hung around, hoping for something to turn up. The Governments message to the urban unemployed was clear: Go back to the villages.



Mr Dri Sheha Kanu,
Minister of Development

But prices are not enough to attract people back to their villages. The work is back-breakingly hard, too. "Getting people to return to the land" said the Deputy Agriculture Minister, "is only feasible if the inputs exist. Without the inputs we can never convince people that agriculture is something noble, something profitable and something that has to be done". The inputs can come and do come in the form of aid—there is a successful German seed multiplication programme, there was a Japanese donation of fishing gear and outboard motors, there are the Integrated Agricultural Development Programmes (two of which are EDF-financed). But, deep down, the Sierra Leone Government would really like European participation and investment and not just aid. Ministers point out that rural re-population is most successful where extensive land-clearing has taken place—the Agriculture Minister's home town of Makali was repopulated after a major Chinese scheme—and government experts are disappointed that so little effort has been made to attract European expertise. They seem to know what Europeans are best at and they appreciate European hesitation about investing in

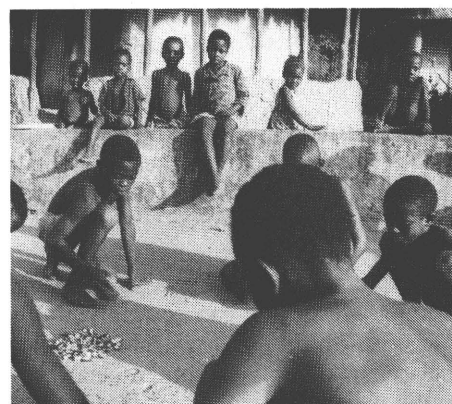
Sierra Leone. As the Deputy Agriculture Minister said, "The Italians are experts at irrigation; the Dutch are specialists in vegetable growing; the French know a lot about maize—we need it for animal feed. If the Government and the EEC could form a sort of canopy under which this expertise could be drawn to our country—to guarantee repayment of loans and so on, I am sure they would find it most profitable". He stressed that capital had always been the limiting factor, that, and ignorance of the opportunities. How many European agro-business or agro-industries know that only 13% of the arable land was cultivated, for example?

If pricing and promotion are two major problems which can be overcome, there is a third. And this is central to all development in Sierra Leone—infrastructure.

Infrastructure and development

Mr Kanu, Minister of Development, is a forthright man. When asked about the road system in Sierra Leone he said: "Only recently I travelled on the road from Monrovia to Freetown and I was literally horrified by the condition of the road—especially on the Sierra Leone side of the border". He recognizes the essential link between infrastructure and development. What would be the use of offering glittering financial concessions to European agro-industries, if their products could barely reach the ports? How can young men be attracted back to the land if no amenities and no facilities existed or, at the worst, there was no chance for a quick trip to the capital? What chances are there to diversify if the ideas, capital and planning of the developed part, cannot reach the rest of the country? Mr Kanu explained that the expansion of the infrastructure after independence had caused a decline in its quality. Four thousand miles of road in 1961 had grown to nine thousand; schools and health centres had multiplied, but everywhere the scarcity of resources has led to the inevitable degradation of the end-product. The maintenance of roads and bridges, the upgrading of health centres and the expansion of teacher training programmes are all major priorities.

Another priority is training. It has already been noted that Sierra Leone



"The scarcity of resources has led to the inevitable degradation of the end-product"

has one of the most extended and sophisticated professional classes in the region. But the problem of retaining these people is now such that more and more training must be done at home. The National Power Authority, the Road Transport Corporation and the Telecommunications Board are all in the process of setting up training centres for regional or purely national consumption—and not only for the professional levels, but for the middle levels as well.

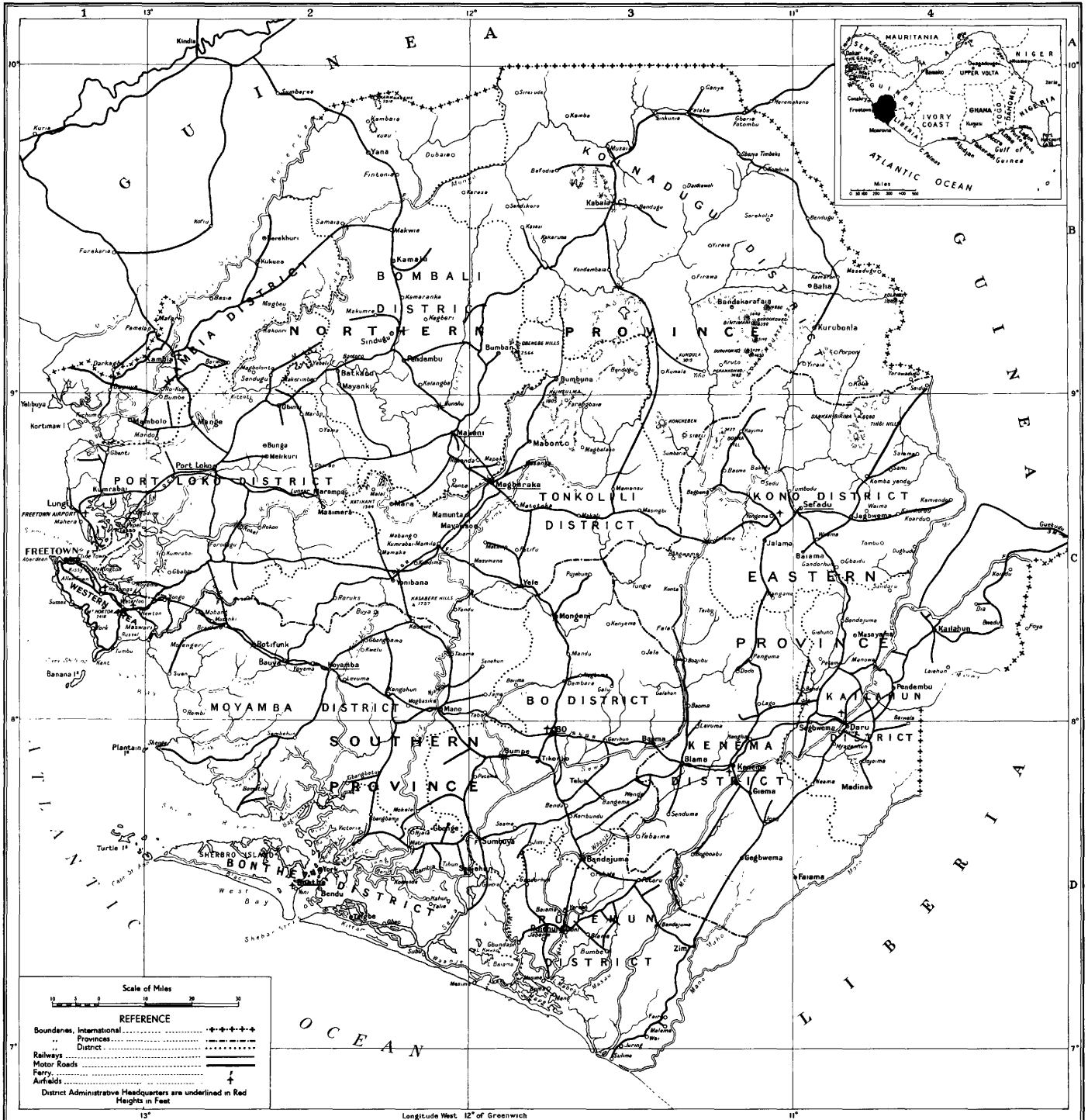
As to the main development priorities, Mr Kanu reaffirmed the country's commitment to food self-sufficiency and to the reduction of its dependence on imports by encouraging small-scale industries which depended on local raw materials. He cited palm oil processing, soap manufacture, rice milling and the generation of energy from biomass as examples. Export earnings can be boosted by new agricultural development, sugar cane, rubber and pentadesma, for example; by new products from the mines, molybdenum, platinum and lignite. There is also scope for the expansion of the country's young tourist industry.

But the short-term problems remain to be overcome. If the Government can tackle the problems caused by smuggling, by poor control of public spending and by insufficient project evaluation and monitoring, the way will be cleared. And, if having succeeded there, the Government turns to promoting and safeguarding investment opportunities in the country, then there seems no reason for doubting the ability of Sierra Leone to become once again the land of iron and diamonds and rice and palm oil and a whole host of other things as well. ○

TOM GLASER

Sierra Leone — Country Profile

SIERRA LEONE



D.O.S. 981
Edition 7, D.O.S.
Published by Directorate of Overseas Surveys
for the Sierra Leone Government

Agents for the sale of this map are: Edward Stanford Ltd. 13/14 (Long Acre) London, W.C.2. Price 1/- net.
Copies can also be obtained from Surveys and Lands Division, Department of Works, Transport and Communications, Freetown, Sierra Leone

Compiled and drawn by Directorate of Overseas Surveys
8/68/639/GA

Area: 72 000 km²

Head of State: President Siaka Probyn Stevens

Population: 3.4 million (1980)

Capital: Freetown

Other urban centres: Koidu, Bo, Kenema, Makeni

GDP (1980/81): \$US 1338 million

GNP per capita (1980): \$US 270

Employment (1980): Agriculture 65 %
Industry (including mining) 19 %

Currency: Leone (\$US 1 = Le 2.50)

Exports (1981 in millions of leone):
Diamonds 78.8; Bauxite 10.4; Rutile 16.9; All agricultural products 36.3

Domestic manufacturing: Cigarettes,

beer, footwear, furniture, nails, confectionery, soap, canned fruit juice, etc.

Budget 1983/84 (projected in millions of leone):

Total revenue: 327.9
of which 74.4 foreign aid

Total expenditure: 537.9

Forecast deficit: 210.0

“We have no control over prices at which our commodities are exported”

An interview with President Siaka Stevens

Since coming to power in 1968, first as Prime Minister, then in 1971 as the country's first Head of State, President Siaka Stevens of Sierra Leone has done much to merit the title 'Father of his country'. A former trade union leader, he is leader of the All People's Congress party, which is now the only party in the country. But the transition from a two-party state to the present system was achieved without bloodshed, without raising intertribal tensions and with consummate statesmanship and moderation. As a result, there is considerable freedom of opinion and a lively free press in the country, the jails hold no political opponents and the President himself is not surrounded by an armed praetorian guard, which, as he himself points out, is a rarity in the region. He has chosen his Ministers from both the APC and the now-disbanded SLPP parties.

The other side of this political sophistication, however, is a certain insouciance in financial matters — Sierra Leone has been victim for some time now of an acute foreign exchange shortage, brought about by the propensity of the population to continue their traditional high level of importing in spite of falling world prices for diamonds, coffee, cocoa and ginger, which are the country's principal exports.

President Stevens, known affectionately to Sierra Leoneans as “The Old Man” or “the Pa” showed himself aware of these problems during the following interview which was recorded live by the Sierra Leone Broadcasting Service.

► *Mr President, Sierra Leone has now received two tranches of IMF loans in its bid for economic recovery. How bitter has the pill been in terms of economic conditions attached and had Sierra Leone no alternatives?*

— Yes, we have indeed received the two tranches of IMF loans out of a promised total of something like \$ 50 million. These two tranches have been practically spent before they were received. The pill has been very bitter indeed. In some cases, it nearly cost us our political life but for good manoeuvring. Even now, as I am speaking to you, I gather that there is political chaos in some parts of the West Indies because of IMF conditionalities. We have had no alternative but to manage as best as possible; and I like to think that a considerable part of the economic difficulties that we are now suffering from are not of our making. Of course, I am not saying that we are without blame. I realise that there is a lot we can do to help ourselves and indeed we are trying to do so. But after all is said and done it

must be remembered that we have no control over the prices at which our prime products like coffee, cocoa, ginger, diamonds etc. are disposed of. We have no control over the prices at which our commodities are exported. When you realise this, you can appreciate our predicament. The commodities which I have mentioned are the highest source of foreign exchange and other benefits which accrue to us, and as I said a while ago, we have no control over their prices. It's a matter of 'Heads I win, tails you lose'; whichever way you turn it round, and we believe that that is where most of our difficulties stem from. I must repeat we have our own faults and we have our own parts to play and that we are determined to do.

► *From your experience, what do you think of the role of the IMF and other international financial institutions in the developing world's economies and what kinds of reform would you like to see to make them more responsive to the needs of countries like Sierra Leone?*

— The role of the IMF and other financial institutions in the developing world's economies today is, in my humble opinion, outdated. The conditions and modalities which obtained when these institutions were founded have changed very radically. I believe that the economic philosophy which obtained at the time when the IMF and other institutions were set up is totally different from the now-acknowledged economic philosophy; for example, that the world is one world, that the developed and under-developed parts of the world are interdependent and that each cannot properly live without the other. The sort of reforms which I would like to see would be reforms which would be in consonance with present-day economic trends. For example, it took Sierra Leone nearly 18 months to complete negotiations for economic aid of \$ 50 m, which, when it did arrive, was dribbled out to us in quarterly tranches of \$ 10 m. And, but for the grace of God, we would have reached a point of no return economically by the time we concluded negotiations for the \$ 50 m.

Two crises — diamonds and oil

► *Over the years, Sierra Leone has had to wage war against smuggling, especially of diamonds, an activity that has debilitated the economy. However, the Government is having to exert itself heavily in winning the battle. What other strategies are you adopting, or do you think can be adopted to help in the fight?*

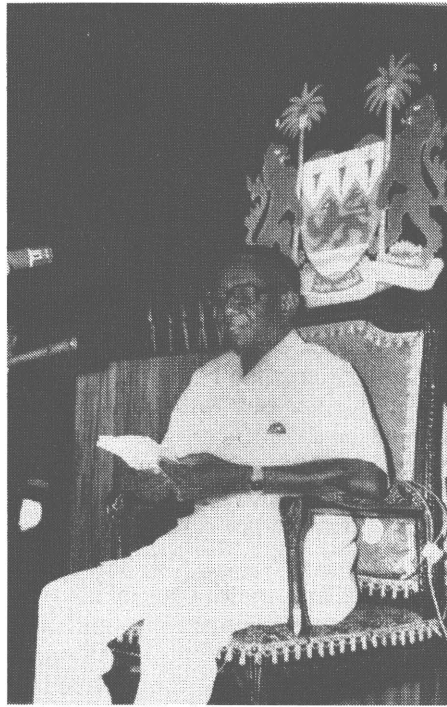
— Far be it that Sierra Leone should be reconciled to smuggling as a way of life. People who know about diamonds have long ago realized that they are one of the easiest commodities to smuggle. Apart from my own nearly two score years of experience in the diamond industry, first as a mine-worker, then as a trade union official in the mines, later first Minister of Mines and Lands in an independent Sierra Leone, when I hear people glibly suggesting methods to avoid smuggling, I say to myself, 'It's easier said than done'. And it is to be remembered that Sierra Leone's history and development have been built up against the background of a British type of democracy, which in a way we do not reject. But what I am trying to

say is that however hard people may try to deal with smuggling the due processes of law have got to be observed. Unlike other areas of the world, where certain lines of action can be taken with impunity, we here in Sierra Leone, as I said a while ago, against our own background, find that there are certain lines which must be followed. There are peoples' rights to be observed. Be that as it may, we continue to be as vigilant as possible against smuggling, and our struggle is not without success sometimes. The situation will definitely improve when, as alluvial mining diminishes, we go on to kimberlite mining.

► *The country is suffering from a shortage of petrol. How serious is the situation, and what arrangements has the government made to overcome the problem?*

— We have indeed been suffering from shortages of petrol, but until a year or two ago, we had very little control over our fuel affairs. Our petrol supplies were negotiated for, transported to Sierra Leone, and refined by local oil companies. The Sierra Leone Government was required to find all the foreign exchange necessary for the transaction, without any foreign exchange contribution by the oil companies. As would be expected, we ran heavily into what I would like to call foreign exchange debt with the companies. These oil companies, four in number, are also responsible for distribution, through their own agents, with all that that would imply. Our refinery, strange to say, has never been made to work to capacity since it was installed, for reasons unknown to us, and it may be pertinent to mention here that Sierra Leone has to bear some responsibility for much of the overhead costs of accommodating four oil companies in a small country like ours.

This is the situation which we met at independence, which we are still struggling with. These are some of the difficulties the Government has had to contend with in this matter of petrol supplies, but we have not been sleeping. The task has been uphill but we are determined to improve on the situation. We have started to buy supplies of crude direct from our sister republic of Nigeria, something which we should have done long ago but could not, because of various impediments. We are now expecting our 16th



'If the leaders of Africa would put their shoulders to the wheel, they can still bring strength and vitality to the OAU'

or 17th shipment of crude from Nigeria. We have also bought majority shares from BP and are also negotiating participation in Texaco. As soon as we can find the money we will try to secure more participation in the oil industry as a whole, which should give us an opportunity to effectively participate in this very vital industry.

Food strategy

► *Mr President, your Government has taken measures over the past ten years to boost agriculture, especially the production of basic food items. How close is Sierra Leone to achieving self-sufficiency in food?*

— Someone has said that when food abounds, society is peaceful, when mouths outrun the food, violence obtains — in any part of the world. Animals eat one another without qualms and civilized men consume one another by due processes of law. That is the position that exists in Sierra Leone.

We are taking every possible measure to boost agriculture, but we are far from self-sufficiency in food. Experts who have come here, including some from the IMF, have told us that we must increase the price of locally-produced rice so as to give incentives to farmers. We have tried that and

have now found that the price of locally-produced rice is higher than the price of imported rice which I do not think is a good thing for the economy of the country. In my view, the position should be that the prices of our primary products such as ginger, coffee, cocoa, palm oil, over which we have no control — these are the prices which should be increased—the locally-produced rice should be left out.

Our farmers are still on the hoe-cut-class method of farming, and this cannot amount to much. Indeed, it was never meant to amount to much, it goes for their local consumption, with a little surplus sold to buy bare necessities. The Government is, indeed, desirous of expanding agriculture. It holds this expansion as a priority, and in this respect we are planning to make lands available to private enterprises, to embark on mechanized plantations. This is the only way we feel we can tackle the problem of feeding the growing population, which is the result of better health facilities, as well as improved means of communication which have now turned Sierra Leone into a sort of economic centre for the area.

The cause of our depletion, in spite of the colonial divisions of the country, is that quite a sizeable part of the population of the surrounding areas filters through Sierra Leone now and again, something we cannot stop. They take away some of our imported goods which we bought with hard-earned currency and that is a point which is never taken into consideration, when our foreign matters are handled by outside agencies like the IMF, World Bank, etc. We are a sort of entrepot, right in the middle, and people just come and go and we cannot stop them.

► *Student unrest in Sierra Leone in recent years tends to give the impression abroad that the country is unstable. Are there deep-seated causes for this or is it just the high spirits and impatience of the younger generation?*

— Well, everybody has a right to his or her own opinion about stability in Sierra Leone. But when we consider the position—our position—with regard to student unrest and the general conditions in other parts of West Africa, we are grateful to Almighty God for His blessings. We have managed our affairs for the past twelve years or

so, whatever the world may think about them, and we will continue to do so, grabbing every opportunity for improvement.

External relations — OAU and EEC

► *Not long ago, Mr President, you hosted an OAU Summit. You must, during your Chairmanship, have recognized certain negative trends in the OAU. Now the Organization is near paralysis. Has the OAU outlived its usefulness. Doesn't the Africa of the 1980s and beyond need a different organization?*

— The OAU, like any other international organization, consists of states with diverse philosophical and political tendencies. This, of course should not be regarded as an impediment, as diversity of thought could, in fact, enrich an organization. During my tenure as Chairman of the Organization, I tried to reconcile these various tendencies within the Organization. I do not think the OAU has outlived its usefulness. On the contrary, I think it has done well even to survive, when one considers all the difficulties from within and without which have assailed the Organization since it started. What I think the OAU needs is adjustment to suit present day conditions. Conditions which existed 20

years ago when the OAU was founded are not the conditions which obtain today. I think that if the leaders of Africa would put their shoulders to the wheel, they can still bring strength and vitality to the OAU.

► *What has the Lomé Convention meant for Sierra Leone and what are your hopes for the next Convention?*

— Through the Lomé Convention, Sierra Leone had the opportunity of not only strengthening but also widening its former ties with Europe. New trading and business partners have emerged, thus opening up a wider market for our products as well as giving a greater choice for imports.

The Conventions are, by definition, about aid and trade, but, equally important, the Conventions are also about cooperation, between Europe and a large part of the developing world. As far as Sierra Leone is concerned we have of course had our share of financial benefits in the form of the Indicative Aid Programmes. We have also, as you know, received considerable food aid.

I should add that a particularly popular form of aid from the EEC is the Micro-projects Programme. Under this programme, individual communities are provided with financial assistance from the EEC to complement their own self-help efforts. You will

appreciate that, for quite some time now, my Government has fully recognized the importance of projects undertaken on a self-help basis, since they are directly relevant to the immediate needs of these areas. For example, a number of bridges, feeder roads, health centres, have been built by local communities under these facilities. As regards the new Convention, I sincerely hope that we will use the opportunity to build on the experience already gained from Lomé I and Lomé II. This is necessary if we are to narrow the difference which now exists in the negotiating positions of the EEC and the ACP countries respectively.

I also consider it fair to point out that when Lomé I was signed in 1975, it was hailed as representing a new and important beginning in the relationship between the developed world and the developing countries. Specifically, the Stabex programme was cited for special emphasis in this regard. We have since learned from experience that the Stabex programme and several other areas affecting our partnership with Europe could be strengthened in the context of the new Convention. There is also need to strengthen cooperation in the areas of industry, trade and agriculture which are crucial for the development of our country. This, however, will certainly require an increase in the quantum of resources to be made available under the new Convention, in addition to qualitative improvements in cooperation in these areas as compared to the first two Conventions.

“A need to shorten the gap”

We are necessarily concerned not only with the quality of the new Convention, but also its implementation. In this connection, if aid is to bring timely relief to the people for whom it is intended, then there is a need to shorten the gap between the conception and the implementation of projects. It is not uncommon for projects to face substantial cost overruns attributable to this problem. To the extent that this will in turn lead to a reduction in the scope of the project, the impact of the aid will have been seriously compromised. The new Convention should seek to find solutions to these malignant problems. ○

Interview by
T.G.



‘Our farmers are still on the hoe-cutlass method of farming and this cannot amount to much’

EEC-Sierra Leone cooperation

When Sierra Leone ratified the first Lomé Convention in 1975, it confirmed its close relations of long standing with Western Europe. This orientation is, of course, particularly strong towards the United Kingdom, where most of Sierra Leone's intelligentsia received its academic and professional education. Sierra Leone's national university, established in 1827 and one of the oldest on the African continent, maintains educational standards and an academic atmosphere which is clearly reminiscent of Britain. So too are the parliamentary system and the basic structures of law and government.

It is therefore not surprising that trade relations tend to be strongest with Britain, while becoming increasingly important with West Germany, The Netherlands and France, stimulated by obvious advantages of geographic proximity. With around half of Sierra Leone's imports originating from the EEC countries, to which over 75% of exports are sold, the Community is, by far, Sierra Leone's largest trading partner.

The Lomé Conventions:

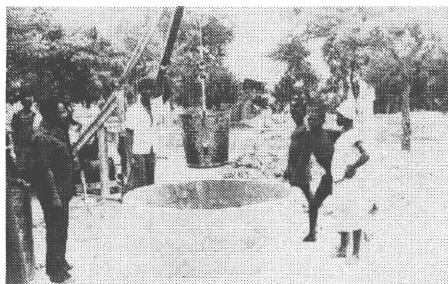
Trade

It is difficult to assess exactly to what extent the various trade incentives offered under the Lomé Conventions have stimulated Sierra Leone's export performance. One reason lies in the nature of the country's export products—diamonds, other minerals, coffee, cocoa and palm oil—which are traded through established market channels rather than in commercial competition for consumers' preferences. Another reason is related to domestic problems on the production side, partly caused by the effects of the oil crises—closure of the iron mines, constraints on produce collection, reduced palm oil milling capacities—and partly related to problems of transition from alluvial diamond mining to as yet untapped underground deposits. It is, however, clear that Sierra

Leone has never in the last decade encountered problems of absorption of its export products and produce, and this in itself constitutes a favourable condition for further growth. To the extent that these exports will continue to be directed to the EEC, they will enjoy duty-free access into this important market.

Stabex

In addition, Sierra Leone's main agricultural exports, i.e. coffee, cocoa and palm oil, are covered by the Stabex system. Disappointing price developments for these products justified Stabex compensations of ECU 8.3 m over the years 1980 and 1982, and for 1983 further claims for coffee and cocoa are under consideration. Under the first Lomé Convention the sum of ECU 4 m was transferred in respect of iron ore. These direct and rapid transfers were, especially in recent years, particularly welcome in view of Sierra Leone's present very severe balance of payments problems.



The UNDP-EEC well-boring programme ensures a secure water supply

Industrialization

Although Sierra Leone is rich in mineral resources, has direct access to sea links with the major consumer markets in the world and disposes of considerable well trained manpower in the various technical fields, industrialization, including the processing of agricultural produce, has not progressed significantly in the last decade. Major and decisive constraints are imposed by the small home market of low purchasing power, which provides an insufficient base of domestic turnover for most industrial ventures, and thus requires inclusion of high risk export operations from the outset, in order to reach viable production vol-

umes. In addition, infrastructural facilities often fall short of industrial requirements, while Sierra Leone's severe foreign exchange shortages have further affected the industrial ecology negatively in recent years.

The Lomé Conventions provide facilities to support the Government's attempts to address these problems, in particular through the European Investment Bank. In July 1982, the EIB approved a contribution of ECU 20 m towards the financing of the so-called Kimberlite Diamond Mining project, aimed at mining of considerable underground diamond reserves to replace, as the country's main foreign exchange earner, the alluvial surface deposits, which have become virtually exhausted in recent years. Once in full operation, this project will go a long way, directly and indirectly, towards restoring Sierra Leone's productive capacity and relieving its balance of payments problems.

A more modest and entirely different approach was financed under the Lomé I Indicative Programme, by providing a ECU 1 m line of credit to the National Development Bank. This enables the NDB to extend loans to small and medium-sized enterprises, who would have difficulty in meeting the collateral, repayment and interest conditions which commercial banks are obliged to impose. The line of credit will be exhausted by mid-1984, and some 40 enterprises in industry, agriculture, transport and the service industries will have benefited from loans ranging from ECU 2 000 to 180 000.

Under Lomé II a project is being appraised supporting industrial growth centres in rural towns, which will provide technical and managerial advice, initial inputs of raw materials, tools and possibly modest machinery to small enterprises in trades like furniture-making, blacksmithing, palm oil milling, soap-making and textile printing.

Finally, the activities of the Industrial Development Unit, operating under the Mano River Union, should certainly be mentioned in this context. The Unit, manned by a mixed cadre of highly professional expatriate and indigenous staff, has compiled, since 1980, a very detailed industrial survey of Sierra Leone, Liberia and Guinea as

well as an inventory of national industrial legislation, published a Guide to Investors and executed a large number of feasibility studies of potentially promising activities, including industrial woodworking, charcoal processing, salt and soda production and a glass container industry. This information and guidance centre satisfies an essential precondition for industrial promotion in support of the national efforts in this field.

Financial and technical cooperation

These more traditional forms of support to national development covered a wide range of projects and programmes aimed at priority objectives for development, on which broad agreement was reached during programming missions. The subsequent translation of these outline programmes into specific actions, the required interministerial coordination, data collection and appraisal and finally their actual implementation has been greatly facilitated in Sierra Leone by the institution of the National Authorizing Office. From the outset, Sierra Leone has taken its relations with the European Community seriously enough to not only appoint an Ambassador to the Community in Brussels and—as required under the Conventions—a local National Authorizing Officer but also to designate a separate official of high authority to this task alone, and to allow him to recruit qualified project officers around him. The National Authorizing Office—attached directly to the office of the First Vice-President—not only monitors the Indicative Programmes of projects but also supervises food aid operations and Stabex applications, and through a balanced allocation of counterpart funds ensures that Government/EEC co-financed operations are implemented according to plan. In this respect Sierra Leone is probably unique among the ACP countries, and this effort is without doubt largely responsible for the satisfactory progress made in utilising the various Lomé Convention facilities, despite the many serious constraints of a small, severely depressed economy.

The Lomé I Indicative Programme

The available funds of ECU 32.5 m



Work-oxen form part of the Koinadugu Integrated Agricultural Development Project

were basically allocated in support of two objectives (see also table):

(1) The opening-up of the Northern districts of the country. To this end the Makeni-Kabala road project was approved (in co-finance with West Germany) and integrated agricultural food production projects established in Koinadugu (N.E.) and Kambia (N.W.). These projects consumed ECU 20 m, or over 60% of the Indicative Programme.

(2) The further development of education and training opportunities, with projects (ECU 6.4 m) ranging from the establishment of a para-medical school to physical improvements of teachers' training institutes and the University (faculties of Agriculture and Education) to a large programme of scholarships, the majority of which were utilized for local awards (1720 student years) at the University of Sierra Leone.

The remaining 20% of the indicative programme was directed towards a supply project of much needed medical equipment, to credit facilities for small enterprises, to micro-projects programmes and to feasibility studies.

The indicative programme has been fully committed and 80% has been disbursed. Two projects, approved late in the period, remain to be completed, and the final balance reallocated.

The first objective of the Lomé I Indicative Programme has so far only partly been attained. The Koinadugu integrated agricultural development project—the introduction of improved farm techniques to small farmers, pro-

ducing rice, cassava, vegetables and citrus, by provision of extension services and farm inputs on credits with a major animal husbandry component—was off to a very slow start after approval in 1978 and experienced protracted management problems for several years. Most of these were caused by lack of experience with this type of complicated action in Sierra Leone, resulting in deficiencies of planning, logistics and administration. This led to under-achievement compared to targets, which, for mainly the same reason, were set too optimistically from the start. In recent years, however, performance has improved, as the management team acquired a better grip on the project, farmers' acceptance of new techniques grew and, particularly, a supporting programme of feeder roads and wells progressed to completion. The project was extended under Lomé II finance for another three years.

A major constraint to full success of the Koinadugu project was the bad road connection to the main consumer markets in the coastal regions of Sierra Leone. The reconstruction of the Makeni-Kabala road intended to rectify precisely this situation, but the agricultural development project could obviously not be held up until the road was completed. Thus for several years the two projects were implemented concurrently, and agricultural development suffered from insufficient access to markets.

The main road stretch—75 km of new construction—was completed on schedule in February 1983. It was then

decided, however, that, rather than apply spot-improvements (bridges, culverts, grading) on the remaining section (40 km) to Kabala in the Koinadugu district as originally foreseen, it was preferable to continue full road construction as far as funds permitted. This is now completed, but it does mean that the Koinadugu district is still without all-year access to the coast. Completion of new construction—partly under Lomé II finance—of the remaining 35 km is under examination.

The second integrated agricultural project is located in Kambia in the North-West. The project design is similar to the Koinadugu project, concentrating on rice, cassava and vegetable production by small farmers. In addition, large-scale experiments in mangrove rice cultivation are included, introducing power tillers and fertilizer injectors. The project is partially financed under Lomé II, which also provides for an artisanal fisheries project in the district, and foresees extension of the agricultural action to the neighbouring Port Loko area.

The Kambia project got off to a good start, and, after one and a half years, achievements are well on target, including a beginning of mechanized farming in mangrove rice fields, and this experience augurs well for further growth.

The Lomé II Indicative Programme

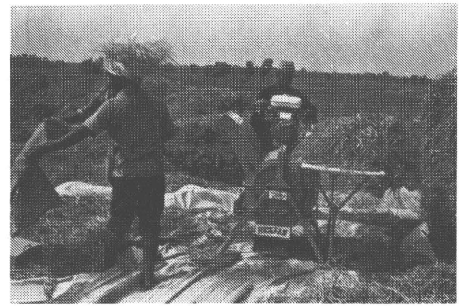
The economy of Sierra Leone stag-

nated and then entered into a downward spiral in the late 1970s. By the early 1980s the situation had reached crisis proportions, with severe foreign exchange shortages, unmanageable budgetary deficits, erosion of productive capacities and deteriorating public infrastructures. Against this background, the Lomé II programme attempted to account for three objectives of immediate concern:

- safeguarding and strengthening the investments in money and effort made under Lomé I;
- increasing productive capacities;
- addressing vital areas of public services to ensure their continued operation.

Available funds stood initially at ECU 45 m and were raised to ECU 48.8 m in 1983, thus representing a 50% increase over Lomé I. Again, some 60% was directed to agricultural production, including a tentative ECU 5 m for completion of the Makeni-Kabala road, continuation of the Koinadugu project and extension of the N.W. area food production project from Kambia to Port Loko. Also in the Kambia area, an artisanal fisheries project—boat construction, provision of engines and improved nets—has been launched, and a rural water supply project in the N.W. districts will come under implementation shortly.

A rubber production project re-activating and expanding existing old rubber plantations and providing first-stage processing facilities is foreseen to be established in the extreme south of



Intermediate technology at work: a rice-threshing machine on site at the Kambia Agricultural Project

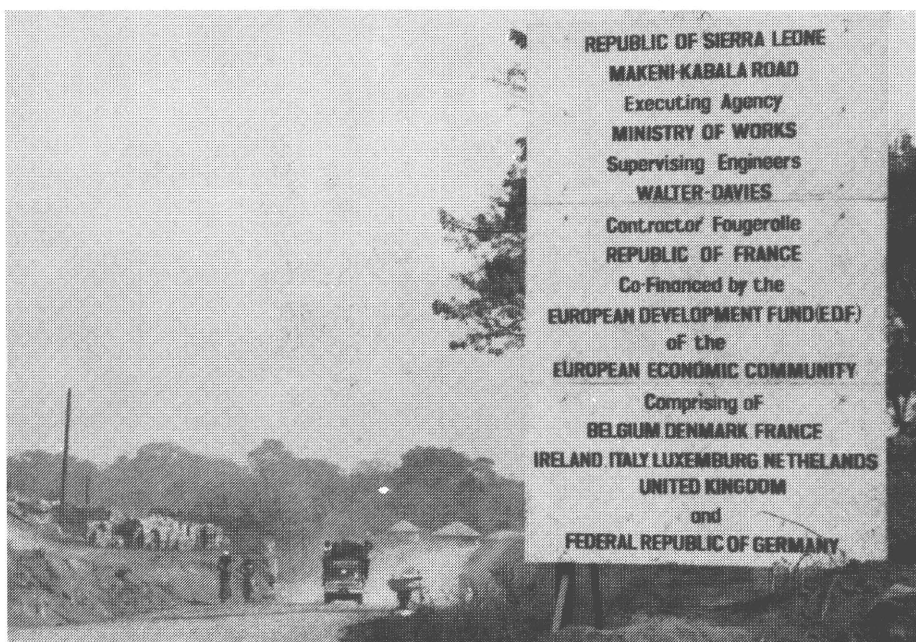
Sierra Leone towards the Liberian border. The project is expected to be viable in its own right and, perhaps more importantly, to generate substantial inflows of foreign exchange.

Also in the productive and export-oriented sector a programme of promotion and support of tourism is foreseen, in order to mobilize Sierra Leone's good potential in this area and improve the utilization of the considerable existing tourism infrastructure: three major tourist hotels, providing a total of 550 rooms, located on excellent beaches near Freetown.

Finally, as regards economic infrastructure, a project of renovation and consolidation of telecommunications facilities is programmed, to implement the main recommendations of an intensive study of this service, which was also initiated under Lomé II.

In education, the Indicative Programme continues the important scholarships programme, and again concentrates heavily on local awards for studies at the University of Sierra Leone (2940 student years). Overseas awards are restricted to those cases where no local solution is possible, the programme providing for an optimum ratio of costs to expertise gained. At the agriculture and education college of the University at Njala, a construction project of educational and campus buildings, including the required equipment and furniture, has recently been approved.

Among further projects still in the pipeline of definition and appraisal are an action to improve the country's means for geological exploration, geared to strengthen its capacity in exploiting the considerable untapped mineral resources, and a modest programme of rural health centres, which will mainly be involved in preventive health care.



The start of the Makeni-Kabala Road

Table 1
Indicative programmes Lomé I and II

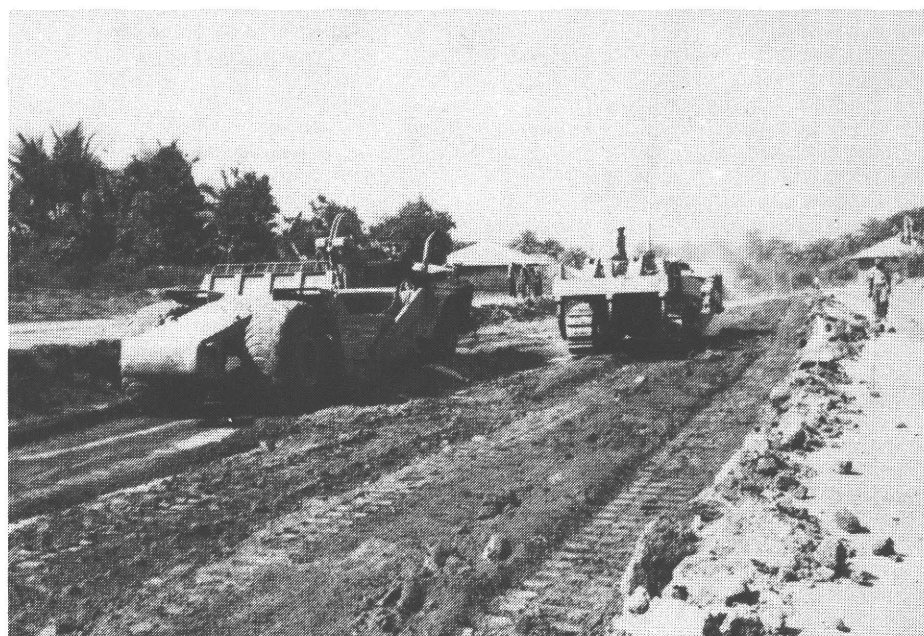
Project/Sector	Lomé I	Lomé II
	(Ecu m)	
Agricultural and Rural Development	10.7	24.7
– Koinadugu (integr. agr. dev.)	5.9	7.5
– Kambia (integr. agr. dev.)	4.1	0.8
– Port Loko (integr. agr. dev.)	–	(5.8)
– Potory rubber	–	(5.9)
– Kambia coastal fisheries	–	0.9
– Rural water supply	–	1.6
– Microprojects	0.7	2.2
Economic Infrastructure	10.0	8.5
– Makeni-Kabala road	10.2	(5.0)
– Telecommunications	–	(3.5)
Social Infrastructure	8.6	9.1
– Education facilities (para-medical school, Teachers Training Institutes, Njala University)	4.1	3.6
– Scholarships	2.3	4.0
– Health (equipment, rural health centres)	2.2	(1.5)
Other projects, including promotion of small enterprises, tourism, geological surveys, studies, reserves	3.2	(6.5)
Total Indicative Programmes	32.5	48.8
Progress at 1.4.1984:		
Committed	99.3%	48.6%
Disbursed	79.5%	6.3%
1 Ecu = Leone 2.15 (1984) Amounts between brackets indicate proposals under consideration.		

With commitments under Lomé II at just under 50%, and, more to the point, disbursements at a mere 6.5%, it is too early in the day to attempt an evaluation of achievements. As such these percentages would appear disappointing in themselves, but one should consider that the first project for Lomé II finance could only be submitted for appraisal in March 1981, i.e. more than a year after Lomé II formally began, and that capacity constraints usually prevent that such initial delays are quickly and completely caught up with. Under Lomé II, however, sufficient funds have been allocated to finance preparatory studies in advance for projects to be funded under a future Convention.

Regional cooperation

In addition to the Indicative Programme, Sierra Leone benefited directly and indirectly from a number of regional projects, financed under the provisions of the Lomé Conventions through regional institutions such as ECOWAS, WARDA and the Mano

River Union. Of immediate relevance to Sierra Leone is EEC support to WARDA, which operates the Rice Research Station in Rokupr, and the various actions financed under the auspices of the Mano River Union. These



Heavy machinery on earthworks in cuttings on the Makeni-Kabala Road

include (see table) a complete feasibility study of a hydro-electric scheme on the Mano River, an industrial survey and a wide range of feasibility studies of promising industrial ventures and the establishment in Freetown of a vocational training institute in the various Telecommunication specializations.

All the Lomé I projects, and the continuation of the industrial promotion programme under Lomé II, have been committed, and around 80% of Lomé I funds are disbursed. It is expected that decisions on the two remaining projects for Lomé II finance will be taken before the end of 1984.

Food aid

Provision of food aid, managed through the National Authorizing Office and the Delegation in Sierra Leone, is financed directly from the EEC budget and is thus additional to the funds provided under the Lomé Conventions. Major supplies have been effected since 1978, of which vitaminized milk powder (over 4 000 tons to date) and butteroil (1 000 tons) were provided to a large number of schools, hospitals and comparable institutions for free distribution to those in their care. As regards rice supplies (nearly 7 500 tons in the period), it was agreed that the Government would sell these in the open market, and would use the proceeds for projects or actions which would ultimately reduce the need for food supplies. These counterpart funds were there-

Table 2
Non-programme support

Type	Lomé I (ECU M)	Lomé II
Stabex 1976	4.0	
1980		0.9
1981		1.1
1982		6.3
	4.0	8.3
European Investment Bank — diamond mining		20.0
		(tons)
Food aid		
• rice	690	6.730
• milkpowder	2.100	2.000
• butteroil	400	600

fore almost exclusively used for the support of food production in Sierra Leone through partial financing of extension services projects, mechanization schemes and feeder roads construction programmes.

Although attaining self-sufficiency in rice, the country's major staple food, is one of the main goals of the Government's agricultural development policies, it must unfortunately be expected that provision of food aid will remain necessary for a number of years to come.

Microprojects

The special arrangements for financing small, self-help projects at village level, which are of direct benefit to the local communities involved, have become very popular in Sierra Leone.

Four programmes have been launched during the last seven years, covering such wide-ranging fields as the improvement or construction of rural roads, bridges and jetties, the in-

stallation of village water supplies, provision of treatment and storage facilities for agricultural produce, the construction and equipment of rural schools, health and community development centres and the provision of maternal and child health care faci-



Construction of a classroom block at the Port Loko Teachers Training College

Table 3
Regional projects

	Lomé I (Ecu m)	Lomé II
Mano River Union:		
— Feasibility study Mano River Hydro Scheme	2.6	
— Industrial Development Unit	0.9	1.5
— Telecommunications Training Institute	1.5	(3.5)
	5.0	(5.0)

ties.

Initially, progress on the first Microproject Programme launched in 1977 was slow, being hampered by shortages of essential equipment and materials, and suffering from a lack of supervisory staff required to cover the widely scattered batch of 15 small projects.

However, this state of affairs has since changed considerably with the setting up of a microproject support unit consisting of transport facilities and small building equipment, the introduction of a rapid purchasing procedure for materials to be shipped from Europe and the expansion of the supervisory team consisting of NAO and Government staff plus technical assistance from voluntary organizations such as Peace Corps.

The resulting reduction in the time lapse between introduction and implementation of a microproject has ensured that local community enthusiasm for the action remains high, and the obvious improvement in site or-

ganization has allowed the Administration to approach new microprojects with increasing confidence.

Consequently, the NAO is now able to consider giving greater emphasis to these popular and cost-effective schemes, as reflected in the level of commitment made to microprojects in the present Indicative Programme which, at ECU 2.21 m, represents a tripling of funds over the Lomé I sector allocation. ○

ROBERT SCHRÖDER
Economic Adviser,
EEC Delegation, Sierra Leone

Kambia : grass roots development in practice

Kambia lies in the north-west of Sierra Leone, bordered to the north by the Republic of Guinea, to the west by the Atlantic, to the south by mangrove swamps and to the east by uplands. To reach Kambia, the visitor must abandon most notions of decorous travel—the only way you could reach it in a still-pressed suit would be by helicopter. The roads are laterite, a sort of dusty red gravel on which a long-dissolved tarmac surface can still, in places, be seen. It is some 77 miles from Sierra Leone's capital, but they are a very long seventy-seven. The country-side is a mixture of uplands, a tract of wooded hills marked in places by burning, and lowlands, situated on either side of the Great Scarcies River in which paddy rice can be grown in places where the tenacious mangrove has been cleared. Kambia town sits on a reddish-brown slope above the river, a cluster of mud-walled houses and more imposing cement ones. The headquarters of the Kambia Integrated Agricultural Development Project are in a two-story building in a modest compound overlooking the broad river. It is not a place which is easy to work in. Annual rainfall in the region is three metres, most of which falls during the three months of the rainy season, and the mean temperature is 27° centigrade. The project area covers 3 100 square kilometres and contains 180 000 people. There are approximately 170 project staff, the bulk of them being local people, and over the



Mangrove swamps bordering the Great Scarcies River

four years of the project's life (up to November 1986) a total ECU of 4.9 million will have been committed, about equally divided between special loans and grants.

The position of the farmer in this part of Sierra Leone is somewhat ambiguous. The lack of infrastructure or any pole of attraction locally is instrumental in hastening the flight of the young men to Freetown—"the Cap" as it is known. At the same time, the Sierra Leone Government has reiterated its commitment to the goal of self-sufficiency in food and eventually to food security and the government is matching the EDF personnel contribution to the project twice over as proof of its seriousness. But now the ambiguity is reinforced—the Liberian border is as accessible to the farmers as Freetown and the Liberian currency is the US dollar, that very foreign exchange whose scarcity is the cause of many of the country's problems. There is no doubt that the problem can be reduced considerably by raising the price paid to the farmer for his produce and thus to increase production to such an extent that the leakage caused by smuggling ceases to be a critical one.

The staple food of Sierra Leone is rice—the average citizen eats 120-130 kilos a year and it is to increase the harvests that the main efforts of the Kambia project are directed. Given the nature of the country, its division between uplands and mangrove swamps, the project has decided on an attack on both fronts.

On the uplands front, the target is 6 800 acres under cultivation—mostly rice but also maize, millet, cassava and some tree crops—and on the mangrove front the aims are to bring 6 313 acres under cultivation—all for rice. Four thousand farmers are the project's target and given the extended family structure of society in Sierra Leone, this means that no less than 45 000-50 000 people, almost a third of the region's population, are likely to be affected by the outcome of the undertaking.

It is perhaps an opportune moment here to consider the methods by which these people are going to be affected.

Farmers all over the world are cautious, conservative, traditional and suspicious of outside interference. If

the goal of the Sierra Leone Government and of the donors in this scheme were merely to increase the acreage under cultivation and the yield per acre, it could no doubt be done by the infusion of a great deal of hardware and chemicals plus a few technicians and maintenance people. But the Project Manager, Sorie Bangura, explained that "the purpose of the Project is quite specific. It is to introduce farming systems to the community which are new but which are acceptable. If you are simply target-oriented you could probably achieve your target without touching a single farm family or training it. But if you are training-oriented—and this is the most valuable area—then farm families will change their ways and keep them changed and the lessons from the project can be applied to other parts of the country".

Commercial credit, on any level above that of the village moneylender, has foundered on the farmer's insouciance about repayment. The loan to buy seeds and tools has been turned into a dowry or the funds for a party or else an unexplained catastrophe completely prevents repayment. Land tenure is based on a complicated tribal system and cannot be alienated, so that mortgages on land cannot be asked as security. External donors are not keen to repeat the story of agricultural financiers and the project's inputs are not primarily financial. Nor are the inputs donated—the farmer's suspicion of free handouts is as deep as his suspicion of other forms of change. Thus the inputs—of cement, or seed, fertilizer or machinery—are loaned, and the repayment is in kind. Mr Bangura, when explaining this, was able to point to 901 two-bushel sacks of rice in a newly constructed store which was the current state of the repayments. "We have given out Le 32 000 in credits during 1983" he explained "and we achieved a 99.9% rate of repayment". This is quite outstanding. The EEC Delegation's technical adviser on the project Johannes Sode, explained that rates of 80% have hitherto been considered outstanding and that other projects, funded by non-EDF donors are accustomed, if not reconciled, to obtaining 20-30% rates of repayment.

Apart from his attitude to money, the farmer is also distinguished by his

respect for his peers. "One farmer", explained Mr Bangura, "is always more disposed to listen to another farmer than he is to listen to an expert". This is not to say that experts are unnecessary. Experts must convince, by example if possible. But their targets are, in the first place, the senior farmers in a community. It is with and through these men that the project officers must work. The scheme has devised a practical method for spreading its influence as widely as possible by designating a "Master Farmer" in each village, and by attaching twenty-five other farmers (volunteers only) to the Master Farmer. Through this key-man the inputs are decided upon and the rate and method of repayment agreed. The Master Farmer is in charge of the allocation of inputs and of liaison with the Extension Officer or the agro-technician supplied by the Government.

Once in the mangroves which border the tidal river, it is not hard to see why young men in the villages of the Kambia District have gone to Freetown. Life in Freetown, for an up-country boy, may not be easy, but it must be easier than the task of hacking away mangrove trees, fighting poisonous weeds and tilling the rich, deep, black mud of a cleared swamp. One of the inputs of the project has been introduced for trials in this area—the power tiller. The work is still hard, but it is no longer unendurable, and when the power tiller is joined by the small mechanical thresher, and by fertilizers, the Master Farmer's job of convincing his peers is certainly made a lot easier. One Master Farmer estimated that three people and a mechanical thresher could deal with 100 bushels of rice a day, a task that would require at least ten people using the old methods. Even with the current high fuel prices, that represents a considerable saving.

In the uplands, the story is somewhat different. The system of agriculture is based on crop rotation. The farmer will burn, say, three acres of bush and plant rice. Having harvested this, he will burn an adjacent three acres and plant more rice, planting cassava on the harvested patch. Then he will burn another three acres and repeat the process, but leave the first three acres to lie fallow. In the uplands, the Project's main task is to improve on these primitive cultivation methods, introduce new crops,

which represent a danger to the ecology and to promote local micro-industries. Mr Bangura highlighted three areas which might well prove to be breakthroughs.

Maize is not really a food crop in Sierra Leone, but there is a high demand for it as an animal feedstuff, and at present 90% of the country's requirements are imported. The country supports several industrial-size chicken hatcheries and a mass of small chicken farms, as well as numerous pig farms. "The demand for local produce is high", he explained, "and not only in our own markets but in Guinea and Liberia as well". He saw no reason why maize could not be produced in sufficient quantity to supply that market and to eliminate the need to import animal feed.



A 'Master Farmer' proudly showing off a mechanical thresher

Then there are the tree crops—Sierra Leone is already an exporter of several tree crops, but the project in Kambia has its eye on one which is relatively unknown—the pentadesma. The tall, straight tree grows a fruit which is large and brown and hard-skinned, something of the size and shape of a bald coconut. Inside the shell is a fibrous substance which protects the kernel, a nut which looks not unlike the cola-nut. Locally the tree grows wild and the nut is used for making shear-butter and donnie, an ointment used to treat children's ailments. Exported and processed, pentadesma oil is an ingredient for cosmetics, is used in the bakery trade and has a high value.

Finally, there is local industry. There is considerable scope in the uplands of Kambia district for processing cassava locally to produce gari, a rice substitute which is renowned

for keeping well in storage. The industrial techniques are simple and it would provide a measure of diversification for the region which would be most welcome.

What are the problems that remain to be faced in the district? The main one, according to Mr Bangura, is to develop distribution, storage and marketing methods. This lack of infrastructure, power, roads and other amenities, has hampered the progress of development efforts in the past, and the Sierra Leone Government, faced with a serious foreign exchange shortage, has been slow to recognize the gravity of the problem. But now that national food self-sufficiency is a Government priority, Mr Bangura and his staff are hopeful that the system will be improved. Next problem to be faced is that of reversing the flow of young people from the land. If the profitability of farming, through the fixing of realistic prices, can be achieved, it must also become attractive again. With an improved financial return and a developed infrastructure, the allurements of the capital can filter back to the countryside, and improved amenities will lessen the pull of Freetown. There is no land shortage, and the system of tenure will ensure that anybody wishing to return to farming will be able to do so.

And problems facing the project itself? Mr Bangura is optimistic. "We didn't have the full technology complement last year, nor did we have the full staff complement. But we now have them, 26 instructors and agro-technicians and 26 labourers are attached to the extension project. This year there are over 2 000 candidates for aid and credit, a five-fold increase over last year. And the rate of repayment shows that the system of lending can work".

The project is modest—working up to change the habits of groups of two dozen farmers in various villages in the uplands and mangrove swamps, lending modest tools and equipment in exchange for local produce. But the sense of purpose and order, the neat storehouses, the meticulous labelling of input stores, and the air of cooperation and support from extension staff and the farming community indicate that the formula is well adapted to the task which the Government of Sierra Leone and the European Community have set themselves. ○ T.G.

The Song of the Mermaid

The legend of the mermaid is known to all fishermen, of a beautiful creature, half-woman and half-fish, who entices then destroys fishermen foolish enough to listen to her song. The reality behind the legend is the manatee or sea-cow, a marine mammal related to the seal, trusting, playful and greedy which is now a rarity. On Yelibuya Island in the north-western corner of Sierra Leone two, types of manatee exist — the traditional one, the sea-cow, which still comes ashore to nibble rice shoots from time to time, and a new one. The new Manatee is a 26-foot GRP-hulled diesel-powered all-purpose vessel which is the flagship of the Yelibuya Fisheries Project.

Like everything else about the project — which is EDF-funded for ECU 900 000 over two years — the Manatee is modest. Costing only £8 000, she looks as if she was worth far more. Although the craft draws only about 3 feet of water, she is not only ideal for travel in the network of rivers round Yelibuya Island, but can face the wild Atlantic on her frequent trips between the island and Freetown, several hours' cruise away to the south. Her powerful diesel gives her a turn of speed of well over 20 knots and at the end of the project there is speculation that various branches of

the Sierra Leone government will compete for her — either as a customs launch or as a fisheries protection vessel. But for the moment she has a future as the lifeline for Yelibuya Island where the Fisheries Project is changing, in the subtlest and most acceptable way, a very traditional way of life.

The island of Yelibuya, along with the surrounding coastal villages, is devoted to fishing. The 300 or so fishing boats of the area (of which 80 or 90 are from the island itself) catch 13 000 tons of fish annually, about 55% of the total artisanal catch of Sierra Leone. The fishing methods are centuries old, modified by the introduction of outboard motors which are hoisted onto the stem of the traditional high-prowed canoes, 60-foot-long slender craft called *Ghana planks*. Crewed by ten to fifteen fishermen, these boats go out daily and return with a full load — two or three tons — of bonga, a small herring-like fish, for which a ready market exists inland. Once on shore, the fish are counted, smoked, packed in baskets and transported to market and sold. An average of two to three thousand dozen are sold every day.

The island, like the surrounding coastal villages, has a well-defined social structure. Fishing is the exclusive concern of the men, but handling, processing and marketing is the exclusive concern of the women. A man is elected chief of the village and it is through him that any development must operate. The chief of Yelibuya,

Pa Adekale Kamara, is elected for a four-year term and is elected not by virtue of some hereditary principle but because of his personal qualities — the soundness of his advice, the success of his own fishing, and a number of other factors. At the moment of writing, the chief has been re-elected for his fourth term and the Fisheries Project Manager, David Raeburn, paid tribute to his sagacity and diplomacy. "People trust him and respect him" he explained "So when he accepts a new idea, everybody else does too".

Just as a man is head of the village, and the chief of the fishermen, a woman, in this case Lahaja Kamara, (no immediate relation to the Chief) is president of the women's cooperative. It is through her that plans for improved storage, processing and marketing must be passed for weekly discussion among the women. Perhaps the women are even more important than the men for, since they handle the marketing, they have the money, and they can decide upon or veto purchases vital to the success of the fleet, such as fishing nets, floats or fuel for the motors. In order to influence the women, Mr Raeburn has enlisted the services not only of his wife, Alison, but of a Temne-speaking Peace Corps volunteer, both of whom have become popular and respected figures in the women's cooperative and in consequence there is, in the village, enthusiastic support for the Project. The Sierra Leone Government has given the services of a well-qualified Fisheries Extension Officer who assists the Project Manager on the spot, and who effects the liaison between the government departments concerned and the project on the ground.

What are the objectives of the project? In broad outline, they are to increase the community's catch of fish, improve marketing, extend the range, stability and life of the fishing boats, reduce fuel costs, improve the knowledge of local species and introduce high-value species to boost local income. An impressive array of project targets, to be fulfilled by a minimum staff and a small budget. The village's resources are many — willingness, a wealth of experience, and enough money to pay for any developments needed. What the project really offers is not money but techniques and, by



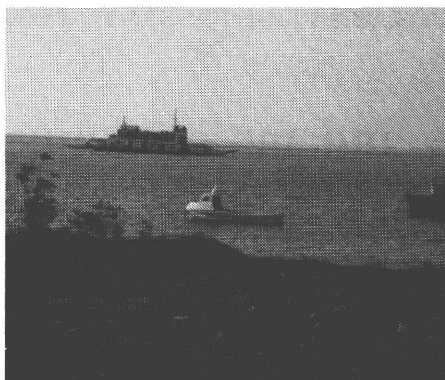
Yelibuya — Canoe under construction

working very largely through the traditional social structure, there is every chance that these techniques will be enthusiastically adopted.

The traditional fishing boat is a carvel-built canoe rather reminiscent of a Viking longship, narrow and fast. Carvel-built, as opposed to clinker-built, means that the planks are laid on the frame edge-to-edge. The traditional method of construction involves finding the right pieces of curved wood for the frame, planing them a little, and then nailing the planks to the frame with four inch wire nails. Gaps between the rough planks are sealed with a variety of substances, including a mixture of cement and bananas, and the boat is given some strength by the transverse planks for the seats and by additional baulks along the gunwales. These are the traditional boats and the experience of the boatbuilders enables one to be built in five weeks or less.

The Project Manager who is a naval architect and has designed fishing boats himself is full of praise for the design. But, he adds, there are drawbacks. "In the rainy season" he explained, "the island can expect to lose one boat a month in the heavy seas. The craft have a narrow beam and a shallow draught which reduces their seaworthiness. And the use of wire nails in the boats, which is all that these people can get hold of at the moment, reduces their strength. You see, a long, thin boat like the Ghana plank will twist about in a heavy sea, and the thin wire nails are liable to corrosion, with the result that heavy seas will cause the planks to spring". Even if they survive the heavy storms, wear and corrosion mean that the average life of a fishing boat is two to three years, and Mr Raeburn estimates that with a few small changes to the design, and the use of galvanized Roman (square) nails, the life of each boat could be doubled. And the lives of the fishermen would be safer, too.

The main change that has been accepted in principle is the gradual substitution of diesels for outboard motors. Installing diesels will mean extending the draught of the vessels and reinforcing the structure to provide a double keel. Thus fuel economy and increased stability of the vessels will be the first fruits of the development. The European Community will pay for the first diesels, which will gradually replace their 60 outboard motors,



Centre foreground is the "Manatee"

and the project will construct a boatyard where the village's shipwrights can build their boats to the improved design. Since fuel costs have, at least in part, fostered the design changes and the move to diesels, it is logical to suppose that the use of sails would be a further step. Whilst some villages do use a lateral square sail on a V-shaped mast, there is no sailing tradition in Yelibuya and the Project Manager is free to design the most appropriate rig for the circumstances. The chief, Pa Adikale Kamara, will be the first boat owner to hoist a sail on one of his vessels, but the projects boatyard will have room for a sailmaking section as well as a mechanical repair workshop.

The first stage, then, of the project concerns boat design and motive power, all with the aim of reducing fuel costs and increasing the stability, cargo capacity and life of the vessels. More fish, therefore, will be brought ashore, more cheaply and more safely. What happens when they get there? The fish are smoked, even those for local consumption. They are counted and taken to the various smoking trays of which Yelibuya boasts 152. These trays stand about four feet high and consist of vertical and lateral posts supporting wire mesh. Fires of mangrove wood are lit beneath the trays and are kept going throughout the night, tended by women and children. A modification of the FAO-designed smokehouse has been introduced and enthusiastically welcomed, since it is far more compact and efficient, with racks placed one above the other, and much more comfortable than spending the night in the appalling heat and smoke of a traditional smokehouse. In this way, the increased catch can be processed efficiently.

Marketing presents no problem. The

bonga finds a ready market in places as far away as Bo and Sefadu on the other side of the country, and at present, the fishermen also catch herring and buttonfish which can be sold locally. What would constitute a breakthrough would be a species marketable as a luxury item, such as shark (whose fin is much prized in the Far East) or the spiny lobster. For this purpose, the project intends to install a small laboratory to study the habits of all the local fish including the bonga, and then to encourage the community to diversify and perhaps even to market some species for foreign exchange. This would be a further aid to reducing fuel costs, a major drain on the country's foreign exchange reserves.

In the near future, the community will perhaps be able to make economies in a different way. If the Project Manager can persuade the fishermen to pool their resources, they could achieve savings by bulk purchase of fuel and fishing gear. Thus, the project complex which is beginning to take shape (thanks to the Manatee which ferries cement and other materials) will look like this: boatyard, sailmakers' yard, repair and maintenance workshop, store, office and laboratory. All these will make full use of local experience and expertise (except the laboratory) and will in time be financed by the profits from an increased yield. "There's nothing that we're doing", explained Mr Raeburn, "that the community cannot see the benefits of. They already have the experience and the bulk of the materials. All we're doing is introducing some new techniques". And there is undoubted enthusiasm for these techniques perhaps because Yelibuya is a very professional community. As the chief explained: "Whenever we hear an outboard motor start up, we all go rushing down to the boats; yes, even if we have just sat down to a meal".

For the music-loving villagers of Yelibuya, the loveliest song at the moment is the hum of the Manatee's diesel motor as it plies to and from the island with supplies and building materials (and the necessary documents) promoting a very quiet revolution. It is a song which may soon be sung in chorus and a very profitable tune it will be, for the villagers, the consumers near and far, and for those who seek a future in Sierra Leone's fisheries. o T.G.

Industrial equipment and maintenance

By Michael ADIGUN (*)

In a speech to a CID-sponsored industrial workshop in Lagos recently, the Nigerian Minister of National Planning, Chief Michael Adigun, outlined the constraints of one aspect of Nigeria's industrialization—industrial equipment and maintenance. We publish below the salient points of the speech.

Nigeria has adopted the policy of import substitution as a strategy to achieve industrial development. Despite the implementation of four national development plans the industrial base remains low as it accounts for only 8% of the gross domestic product. The manufacturing sector faces a number of problems:

- it is dominated by the production of final consumer goods with relatively little base in the manufacturing of intermediate and capital goods;

- it depends heavily on import of raw materials. The import component of the manufacturing sector as a proportion of total production is about 75%;

- it is based on foreign technology with little or no indigenous ability to maintain the imported plant and equipment.

I will deal with the last point. The problem of equipment and maintenance has translated itself into several drawbacks for the industrial aspirations of Nigeria. The country lacks maintenance culture: public buildings and roads are poorly maintained. In the private sector, the situation is not better. Manufacturers lack the patience for maintenance and, in most cases, prefer to import new components of their equipment or new ones altogether instead of maintaining the existing ones.

A more serious problem is the lack of local maintenance capabilities. This is manifested in two ways. Most companies have maintenance agreements with foreign technical partners. Foreigners are often flown into the country for the purpose of repairing plant and equipment. Such arrangements account for the nonchalant attitude of the local manufacturers towards technical training for local employees. Another aspect of the problem is the short life of plant and equipment. Plants which normally last for between 15 and 20 years in developed countries last for less than 10 years in Nigeria. A by-product of this problem is the resultant high prices of locally manu-

factured goods since manufacturers have to pass on the cost of accelerated depreciation allowances to the consumers.

While the oil boom lasted and the country enjoyed substantial foreign exchange earnings, there was no problem. A manufacturer could afford to import new equipment every five years. Since the beginning of the foreign exchange crunch, however, the country can no longer afford such luxury. Manufacturers now have to pay adequate attention to proper maintenance of all their equipment. In doing so, we expect that the emphasis will be on the use of indigenous personnel for the job.

The argument can be advanced that the lack of break-through in the transfer of technology to Nigeria and to other developing countries can be attributed to the use of foreign technicians for maintenance of industrial plants. Apart from the unnecessary foreign exchange expenditure incurred as a result, it renders the adaptation difficult of imported plant and equipment to make use of local raw materials for the manufacture of consumer goods. It is, however, the policy of the present Administration to promote the use of local substitutes whenever they are available and the Government, through its agencies such as CMD (Centre for Management Development) and ITF (Industrial Training Fund) will ensure that manufacturers pay sufficient attention to the training of Nigerians for the maintenance of industrial plants.

The training and re-training of our technicians for the effective maintenance of our assets, including our industrial plant and equipment, is certainly one of the surest ways of optimising the use of our available resources. At a time like this when most of our public and private firms are experiencing problems of shortage of raw materials and spare parts, as well as a reduction in profit, the task of maintaining industrial plant and equipment is bound to be much more difficult than it was during the good old days when funds were relatively abundant and spare parts readily available.

There is, of course the tendency, on the part of many firms, to lessen emphasis on staff training, since some of those already trained are now becoming redundant due to the current contraction in economic activities. But, as the industrialists in Nigeria will confirm, failure to maintain plant and equipment easily leads to break-down at the time they are most needed. The cost in terms of loss of production time and early replacement of the plant, is usually very high. Proper maintenance of plant, on the other hand, ensures its effective utilization. — It is like "a stitch in time" which, as the saying goes, "saves nine".

One important reason why most Nigerian firms are not able to properly maintain their plant and equipment is the general shortage of competent maintenance personnel which, in turn, is largely due to the inadequate emphasis placed on technical education. It is also generally believed that the training of technicians in most of our institutions is deficient and hence our heavy reliance on expatriate personnel each time there is a major repair job to be done. There is, therefore, a pressing need for Nigeria to run regular training and retraining programmes on plant maintenance to remind industries, among other things, about the need for preventive and planned maintenance of plant, acquaint them with the latest technology in the field of plant maintenance, and up-grade the competence of their maintenance technicians.

I cannot conclude without mentioning the attitude of Nigerians to work. The rush to get rich quickly has made us abandon our chosen professions and we thereby lack the necessary excellence required for the management of our economy. Part of the problems facing Nigeria today can be attributed to the unwillingness of trainees to practise their vocations. Many technicians have abandoned their fields of speciality and gone into the distributive trades while others have left their employers to set up their own private businesses, without the necessary capital to purchase modern equipment. Professionally, they become worse off than when they were working for various companies. Our technicians often do not want to soil their hands with work; in other words, the notion of dignity of labour has deserted them. All this needs changing if Nigeria is to have a sound base for industrialization. ○

M.A.

(*) Minister of National Planning.

Drought: despair is a thing of the past

By Djibril DIALLO (*)

Nara, on the Mali border. "I have never seen such a drought in all my life. The problems get worse every day and we haven't got anything left to eat", says Tata Souko, the local representative of Mali's national union of women, on the eve of Nara's worst famine for 50 years. In this Moslem part of the Sahel, where the average family has two wives and six children, there is no more food. Whole families in the town of Nara had had nothing to eat for two days when I visited them. Villagers are fighting the ants for the tiny bits of grain they have stored away in their holes and others have been reduced to eating roots that "are so bitter we only use them in times of dire famine", Tata says. Whole villages have been abandoned, a fairly rare occurrence in this part of Africa, and the hunger-stricken people have gone off to the south.

The drought has harmed agriculture, withering the millet, the sorghum and the groundnuts at the critical period of flowering and seed formation.

And matters are made worse by the enforced emigration of thousands of Mauritanian herdsman, who have been driven by the drought to comb the area for water and pastureland. Mali's estimated needs for 1983/84 is 275 000 tonnes of cereal of which 86 000 t have to be in the form of emergency aid to meet the immediate needs of the people hit by drought. "So far, only about 54 000 t of emergency aid (21 000 t from the FAO and WFP) has been promised and the rest has to be provided before the rainy season starts in July", Paolo Copponi, UNDP representative in Bamako, says.

Meanwhile, Tata, like other women in Nara, has to find what work she can to feed her children. "Some women take in washing and others grind millet, but there isn't enough washing or millet to go round." They get MF 100 for washing, but rice is MF 350 a kg and beef MF 800. The sums are quickly done — at best they can earn

enough for just one kilo of rice per day. Those who can have little irrigated plots, 5 km outside Nara, where they grow tomatoes, onions, potatoes, carrots and aubergines, but these crops, unfortunately, have been affected by the water cuts that are now so common. Under normal circumstances, the town's water supplies come from two pumping stations in the outlying villages of Nima and Tindié. Two of the five generators on these stations were bought by the local inhabitants themselves and there is an annual MF 500 per head to pay to cover operating costs. But Minabé Diarra, the village deputy, has no illusions about what will be the consequences of the drought this year. "We usually manage to collect at least MF 35 million, but this year we can't even count on MF 15 m because anyone who is fit has left and the others want to buy food with the little bit of money they've got left."

The severity of the climate, particularly the sand storms, makes the life of a generator short. Breakdowns are common and repairs have to be carried out in Bamako, 400 km away down a stony track, and two of the generators (one in Nima and one in Tindié) were, in fact, out of action when I visited. Minabé Diarra said that all the generating facilities in Nima had once been broken down for five months and the stunted plants in the nursery by the water outlet still have not recovered from being so long without water. Yet the people of Nara do not despair. "We aren't lazy. We don't stand about waiting for famine to strike. We are fighting on all fronts with all possible means", Minabé Diarra emphasized.

Over and above any emergency aid, the future of Mali, as of the whole of the Sahel, depends on the judicious implementation of medium- and long-term programmes that will lead Africa to self-sufficiency in food. Hence the importance of the UNDP-backed projects involving such things as developing rivers and lakes, providing drinking water and building roads to open up rural areas.



These are also the lines along which the recently-launched CILSS plan (costing US \$2 300 m and aimed at taking a global approach to the problems of the Sahel) will be working. This plan, which was produced with the help of the UNDP and the UN office for the Sudan-Sahel, involves:

Food	Estimated cost (in million US \$)
1. 1.6 million tonnes emergency food aid	400
2. Storage & regular supplies of food: construction of silos, constitution of reserve stocks of cereals & management of food stocks	240
3. Distribution of food products (including an average 3 100 km transport and the relevant vehicles)	500
4. Construction of secondary roads (7 000 km) and road maintenance (3 100 km)	216
5. Forage, protection and health services	34.12
Water supplies for people and livestock	
6. Construction of 72 400 more water points in villages of at least 5 000 people	833
Anti-desertification campaign	
7. Stabilization of dunes, afforestation to provide firewood and protect the soil, integrated development of forest and agricultural areas, creation of small forestry concerns, forestry	108.35
Total	2331.47
	o D.D.

(*) Head of the African information service, UN Development Programme, New York.

● Having completed its first year of full operation, CID is now in a better position to evaluate its mode of operation and also, to a lesser extent, its impact on industrial development in ACP countries.

Economic environment: The slowly improving economic conditions in the EEC countries, along with CID's promotion and public relations activities, seem to have created a greater interest among European industrialists. It has been possible to initiate more joint venture contacts and many more projects are reaching the implementation phase.

On the ACP side, interest in joint ventures is also increasing; however, the number of new ventures reaching production through feasibility studies undertaken has not increased as much as expected, although it has generally been possible to increase the number of units going into production through implementation and rehabilitation assistance.

Institutional liaison: The number of projects that CID has in process with the European Investment Bank (EIB) is still limited and CID is only now beginning to feel a slight impact of the new credit lines that have been recently established with the Development Finance Companies (DFCs) in ACP countries.

CID only received auditors' reports for 1981 and 1982 in mid-1983. These put forward useful propositions for improving CID's accounting procedures and financial control, including the suggestion to begin a system of internal auditing: this was introduced by the end of the year.

Advisory Council: The Advisory Council as usual held three sessions during 1983, dealing, in particular, with the 1982 Annual Report and the 1984 Budget.

The Council also commented on the external auditors' reports for 1981 and 1982 and expressed the view that a compromise should be found between the necessity of abiding by strict financial rules imposed on CID and the fact that it has to work in a business environment which requires quick reactions and operational flexibility. The Council expressed concern about the risk of CID becoming too bureaucratic.

1983: the first year of full operation under Lomé II

It further expressed the view that CID should be allowed greater flexibility in utilizing its yearly budget appropriations, in order for it to be in a better position to meet the actual needs of ACP countries as and when practical considerations make it desirable.

ACP response and interests: From its mission findings, reports from antennae, letters from correspondent organizations, etc. CID feels that its services are beginning to have an impact; greater interest is now shown by most parties in increasing the use of these services by their countries.

There is considerable appreciation of the fact that CID is able to provide its services at very short notice, without government intervention. No other organization providing a free service would be able to offer such direct and fast assistance for the creation of joint ventures in ACP countries with small and medium sized private EEC industrialists.

Interest of EEC industry: Most industrial circles that have already shown an interest in developing countries today know CID and the services it can provide. Through its promotional meetings, circulars to professional organizations, publications and press releases, CID is gaining consid-

erable publicity in the specialized trade press, thus reaching industry in all EEC countries.

There is, however, evidence that those EEC countries which have organizations taking a more direct "project by project" interest in CID, are also developing most joint venture projects via the latter.

Constraints on CID

CID is proving it can fully utilize the budget made available within the Convention. In fact, a substantially larger budget could now be used, especially for training in industry and for expertise to reduce development costs in starting up industries.

At the same time, CID is also feeling the constraints within its present organization. In fact, there are too few staff members to cope with the many requests within the administrative framework imposed upon them.

Full utilization of the budgets

In 1983, CID has come as close to 100% commitment of the budget as is possible in practice (97%).

At the same time, the disbursements by the end of the year have again improved compared to 1982.

For 1982, the final expenditures reached 74% of the budget. 64% of Title III (Programmes) was disbursed which compares well with a commitment of 70% of the budget, as foreseen by the Directorate when presenting the 1982 budget.

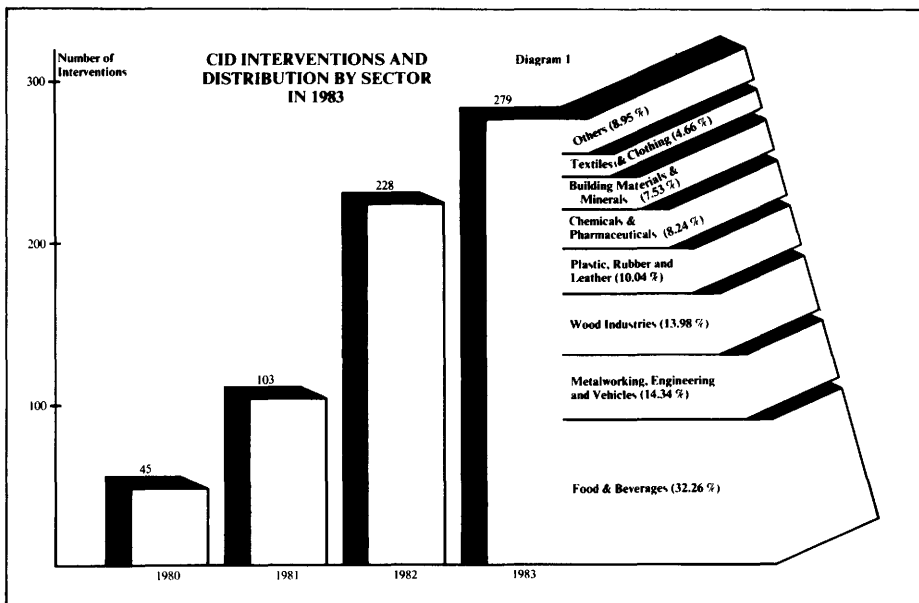


TABLE 1
Development Effect Evaluation
of CID Interventions

	1982	1983	Change
NEW INDUSTRIES/EXPANSIONS			
Projects retained for negotiations/studies	51	60	+ 18 %
Projects which entered implementation stage during year*	6	17	+ 183 %
Projects in production	6	8	+ 33 %
EXISTING INDUSTRIES			
Training projects initiated	23	32	+ 39 %
Training projects showing physical results	19	26	+ 37 %
Rehabilitation projects initiated	19	34	+ 79 %
Industries now improved from these	12	19	+ 58 %
SMALLER PROJECTS			
Adapted technologies under implementation	1	9	
Adapted technologies in production	3	4	+ 33 %
TOTAL NUMBER OF PROJECTS WHERE CID'S IMPACT CAN BE DIRECTLY OBSERVED	46	74	+ 61 %

(*) = entered implementation = projects under construction/machinery installation, and projects with investors committed to invest and all financing secured
Accumulated number of projects now under implementation is 25, as is the total number of industries in production

Evaluation of CID's work in 1983

CID's activities are directed towards three main areas:

- *project promotion*, including feasibility studies with long-term effect; up to 5-6 years before production can be reported;
- *technical assistance* and training for existing industries, with a more immediate effect; however, this effect is often difficult to measure directly;
- *dissemination of information* on specific projects/technologies and of general industrial and country data. This work area may be as important as the two others. It is, however, impossible to measure its effect.

Although the last two groups of activities definitely have had the greatest impact in the ACP countries, CID has often been evaluated on the basis of the first group of activities only — forgetting that the increased funding under Lomé II would not be likely to

isting staff.

General development effect analysis

Whereas the first analysis related to the number of interventions undertaken by CID, the second one relates to the number of projects that have been promoted and assisted during the year and, where possible, indicates the effect of this assistance.

As will be seen from the results of the first group (*new industries*), an increasingly large number of projects have been retained for negotiations/studies. It is most important to note in this group that it is the greatly increased number of projects having reached the implementation stage that shows progress (183%), although the projects having reached production have also increased from 6 in 1982 to 8 in 1983. Thus, a total of 25 industries are now in production.

show significant results in this group before 1984-85.

Analysis of the volume of CID assistance: Diagram 1 (p. 44) shows how the volume of CID's technical assistance projects has increased year by year since 1980, reaching 279 individually assisted projects in 1983. These are projects where CID has provided both a financial input as well as a contribution/evaluation from its own staff.

The number of interventions has increased more than 100% every year from 1980 to 1982. With a smaller increase of 22% this year, it is obvious that CID is now close to reaching its maximum number of possible interventions with the ex-

Coming to *existing industries*, the number of training projects has been significantly increased, as has, to an even greater extent, the number of rehabilitation projects. For the first time, CID is in a better position to evaluate these projects, in the sense that it is convinced that at least 26 of the 32 training projects and 19 of the 34 rehabilitation projects have resulted in improvement of the specific industrial companies where the assistance has been provided, either in the form of increased production or improved products, etc.

On *smaller projects*, adapted technologies are usually applied to small industries where joint ventures are not justified, but which may have received significant technical assistance for their implementation, if they are projects of a pilot nature. Out of 9 of these projects under implementation, 4 have actually gone into production.

Although *information projects* are normally executed with little or no financial expenditure for CID (e.g. computer terminal costs), they are large in number (625) and often require special in-house efforts; this was true in more than 200 cases.

Summary evaluation of development effect

If, for a summary evaluation, one includes: new industries having reached implementation stage; projects having reached production; training projects showing physical results; rehabilitation projects improved by CID expertise; adapted technologies in production.

This would amount to a total number of 74 projects, where the impact of CID's intervention could be directly observed in 1983.

It would, however, be misleading to claim for CID that it has been the cause of a certain sum of money being invested or of so much creation of new employment, in the same way as it is often misleading for financial institutions in general to claim such figures. Although CID's input to such projects will be far smaller in financial terms than that of the financial institutions, the latter in general are never alone in creating these employment figures, usually receiving support from other development finance institutions and sometimes from CID. ○

ACP exports of manufactured products to the Community, USA and Japan

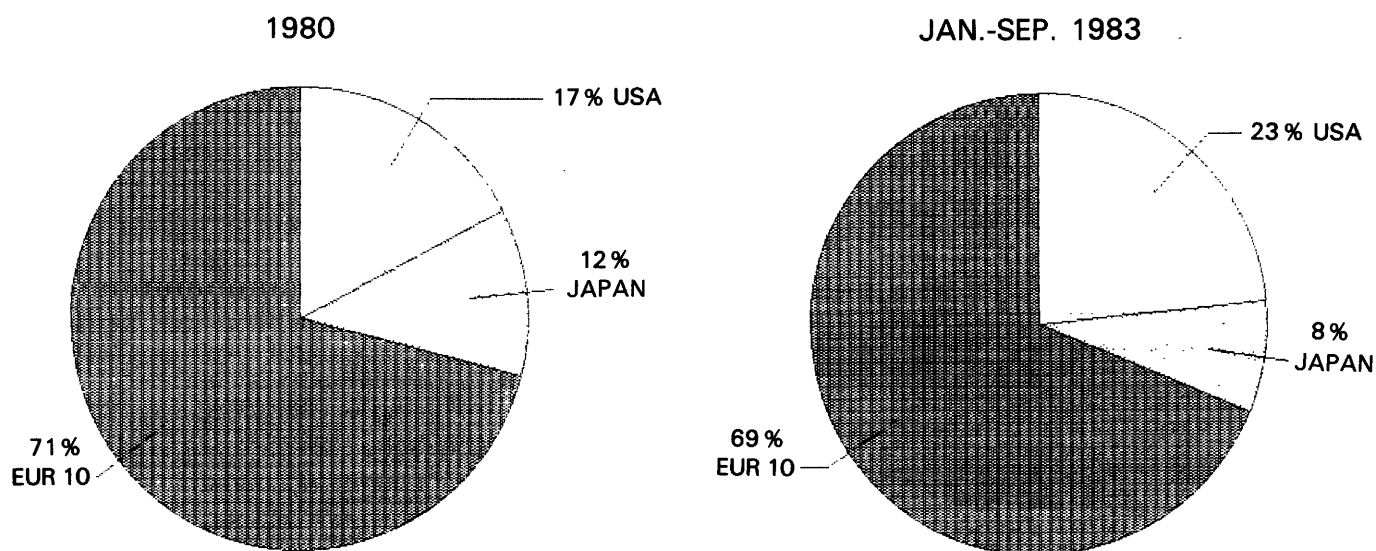
Manufactured goods, taking a broad definition (SITC 5-8) which includes processed metals, accounted for 10% of total ACP exports to the Community, the USA and Japan in 1980. In the

first nine months of 1983, this proportion was somewhat higher (12%) against a background of declining ACP and world energy sales.

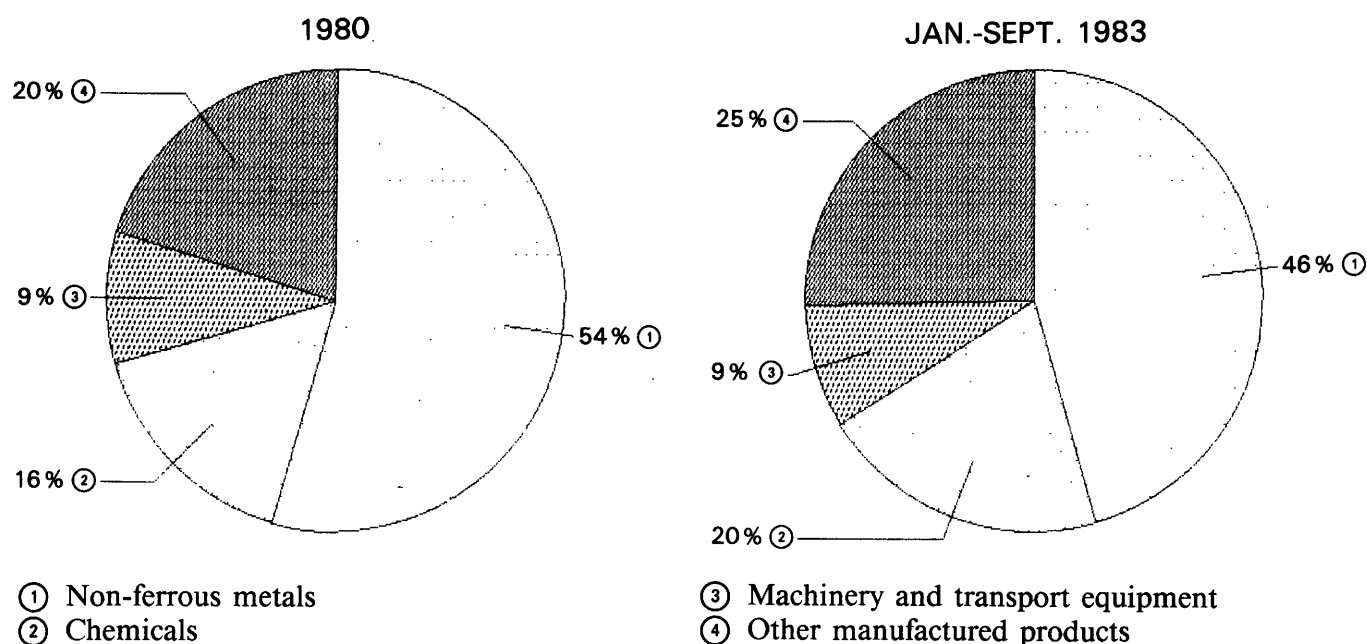
The first set of charts shows the

breakdown of ACP exports of manufactured goods by destination for 1980 and the first nine months of 1983. In 1980, the Community bought 71% of

By destination



By category of product



these exports, the USA 17% and Japan 12%. The three zones took around 80% of ACP exports of manufactured goods sent to the industrialized countries in 1980. The corresponding proportion for 1983 is not yet available. For the first nine months of 1983, the Community received 69% of ACP exports of manufactured goods to the three zones, a slight decline in share since 1980. The USA's share has risen six points to 23% and Japan's has fallen to 8%.

The second set of charts gives a breakdown by type of product in the two periods. Non-ferrous metals represented 54% of exports of manufactured goods in 1980 and 46% in the first nine months of 1983. Copper accounted for around 80% of this category (mainly from Zambia and Zaire) and aluminium for a further 10%. Ghana, Suriname and Cameroon are the leading ACP exporters of aluminium. Other non-ferrous metals which are exported by ACP countries are tin (from Nigeria and Zaire) and silver.

Exports of chemicals made up 16% of ACP exports of manufactured products in 1980 and 20% in 1983. Those of machinery and transport equipment represented a further 9% of exports of

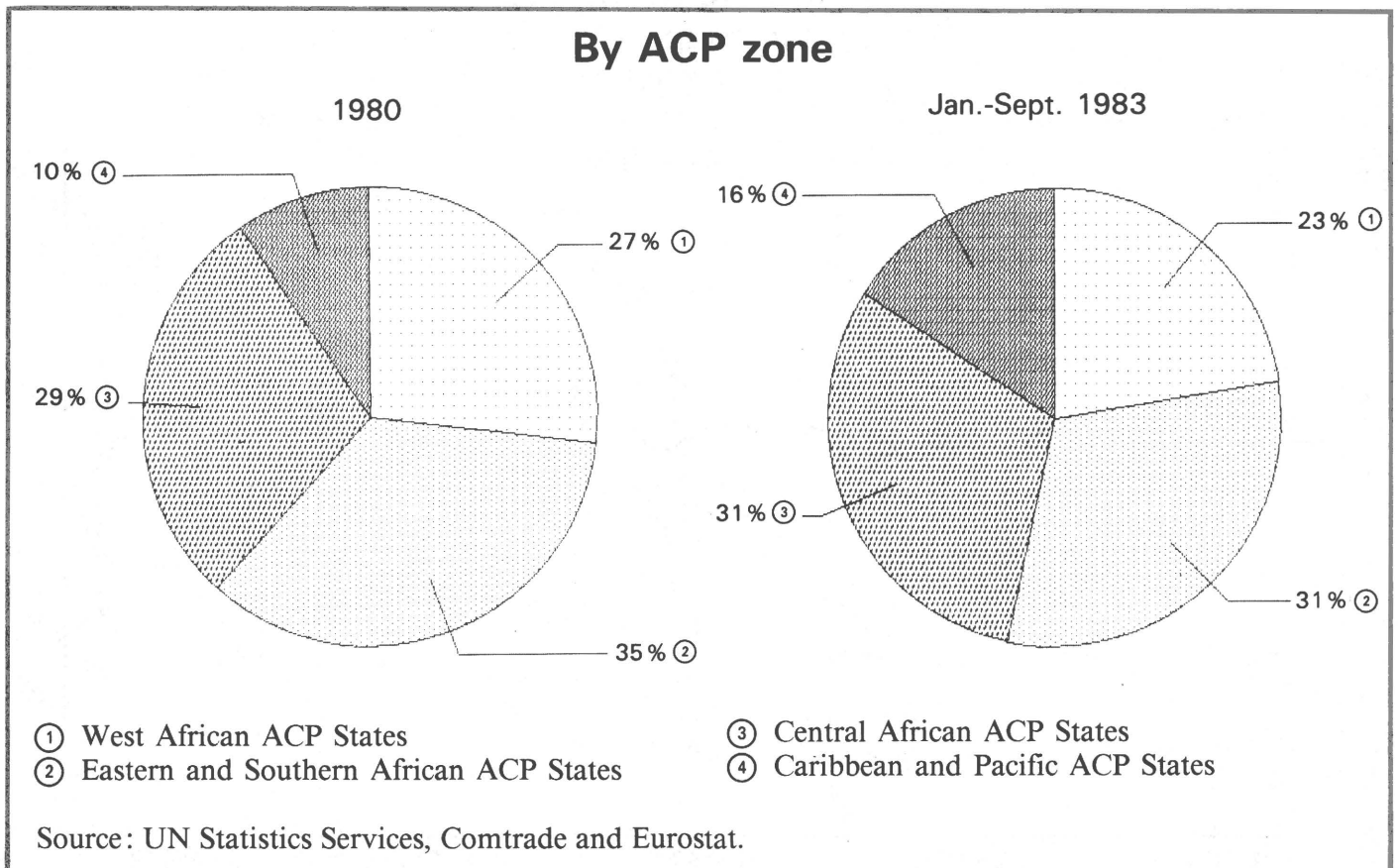


Although many ACP states are timber producers, they export little in the way of finished products in comparison with the Northern European producers

manufactured products in both 1980 and the first nine months of 1983. Diamonds, clothing, textiles and articles made of wood among other miscellaneous manufactured products accounted for the remaining 20% of manufactured products in 1980 and the remaining 25% in 1983.

The third set of charts gives a breakdown of ACP exports of manufactured goods by ACP zone. ACP-West Africa produced 27% of the exports in 1980 and 23% in the first three quarters of 1983. However, around half of ACP exports of chemicals originates from this zone. ACP-Central Africa produced 29% of ACP exports of manu-

factured goods in 1980, and this proportion rose to 31% in 1983. Copper and diamonds are important exports for this zone. The share of ACP-East and Southern Africa declined from 35% in 1980 to 31%. This region is an important ACP producer of copper, textiles and clothing. In 1980, the ACP states of the Caribbean and Pacific accounted for only 10% of ACP exports to the Community, the USA and Japan, of manufactured products, but this proportion rose to 16% in 1983. The zone produced about 40% of ACP chemical exports in 1983 and around half of ACP exports of machinery and transport equipment.



ENERGY 1983 — Less coal, more electricity for the Community

In 1983 the Community coal sector went through another difficult year. Production showed a further drop of around 5.2%, compared with only 1.8% in 1982. At about 229 million tonnes, Community production continues to dwindle at a fast rate and is well below the 1975 figure of some 315 million tonnes.

It should also be noted that during 1983 pithead stocks reached the record level of 56 million tonnes, equivalent to two and a half months' Community production; in 1975, the stocks/production ratio was only slightly more than one week.

The first consequence of this adverse trend was a reduction in the number of jobs in this traditional sector of the European economy. 15 600 jobs were axed, including 10 700 in the United Kingdom alone.

The second inevitable consequence was a reduction in imports from third countries, which fell by 16.1% in 1983

after rising by 1.3% in 1982. The most marked reductions were in Belgium (-43.0%), Luxembourg (-33.3%), France (-23.4%), the Netherlands (-18.6%) and the FR of Germany (-10.9%), while there were substantial increases in Greece (+58.4%) and Ireland (+23.5%).

The third consequence but this time a positive one, so to speak, was an increase of around 2.3% in productivity, bringing output to 449 kg per man/hour in 1983.

The crisis in another sector, the steel industry, led to a fall in demand for another product, namely coke-oven coke. The steel industry used 6 million tonnes less, resulting in a further increase of one million tonnes in stocks despite a fall of around 7 million tonnes in production.

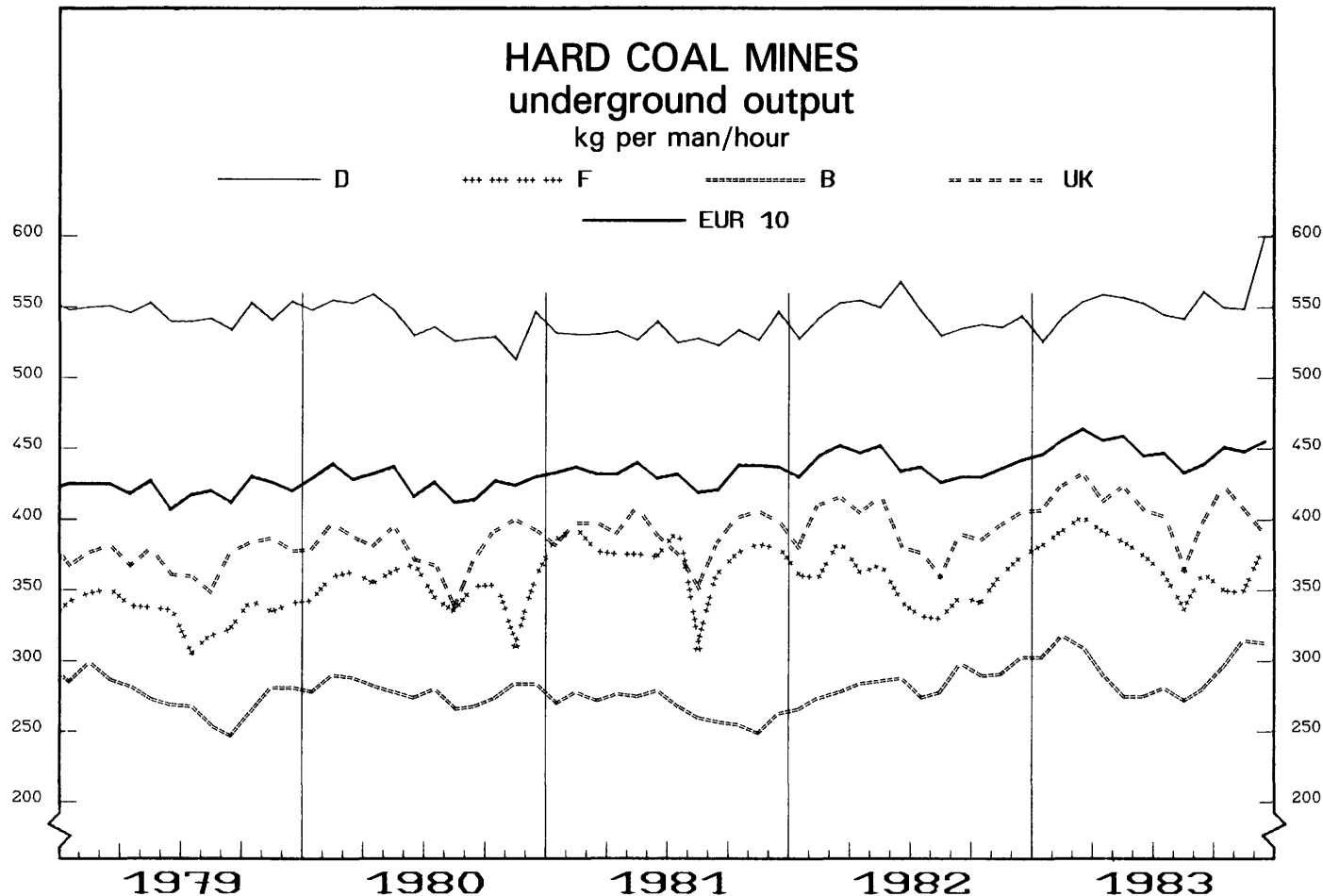
On the other hand, net electricity consumption in the Community went up by around 2% between 1982 and

1983 to 1 236 thousand million KWh, well above the level in previous years.

As regards the various sources of electrical energy, the main features were the sharp drop in hydro-electric production (-1.4 thousand million KWh), the substantial increase in nuclear production (+50 thousand million KWh) and the fall in conventional thermal production (-25 thousand million KWh), resulting in an overall saving of 6 million tonnes on tradifuels.

Of particular note were the stagnation in the consumption of solid fuels, the sharp drop in consumption of petroleum products (-26%) and the increased use of natural gas (+14%).

Lastly, it should be noted that the share of nuclear power in total electricity production reached the record level of 22.5% for France (18.9% in 1982) and 45.8% for Belgium. o



NEGOTIATIONS UPDATE

The third ACP-EEC Ministerial Conference held from 3-5 May 1984 enabled both sides to clarify areas of agreement and disagreement as well as to reach further agreement in a few areas, such as in beef and veal quotas, and on migrant workers and students, where it was agreed that the ACP could refer problems of their migrants and students in the Community to the ACP-EEC Council.

This exercise in clarification undertaken in Fiji enabled the Ministers to request their respective hierarchies to start drawing up draft articles for the new convention in areas where few problems remained, and also to form joint ACP-EEC drafting groups, which would start to reduce the differences between the articles suggested by each side.

The Ministers also requested each side to develop its own internal positions on the problem areas where a lot of work remained to be done.

This process is well under way with draft articles having been produced by the Community on desertification, regional cooperation, agriculture, mining and energy, investments, fisheries, rules of origin and industry. The ACP have submitted draft articles for institutions, socio-cultural cooperation, regional cooperation and trade promotion, in addition to refining their position on Sysmin, and forwarding proposals on rice, bananas and tourism. Joint drafting groups have been established for institutions, agriculture, mines and financial and technical cooperation. As well as this, joint groups have been established to clarify technical issues in investments, Stabex and customs, and there have been meetings of the negotiating groups in many of the sectors, including 3 meetings of the plenary group.

At the second of these, on 12 June, there was a stocktaking exercise on the progress of the negotiations (updated at the third plenary on 21 June), and it was here that the ACP voiced their concern that the Community was taking a long time to formulate its new proposals, and to reply to ACP proposals on trade, especially on rules of origin and most favoured nation status. These concerns were met to an extent by progress made at the EEC

Council of Ministers of 18 June, so that, by the plenary of 21 June, the spokesman was able to announce to the ACP that its position on rules of origin, fisheries and investment had been unblocked, and that draft articles had just been forwarded to the ACP. Both sides at this most recent plenary recognized each others' hard work, and congratulated the drafting and technical groups, whilst recognizing that no major breakthroughs had been made at a joint level since Fiji.

The stocktaking carried out at the plenary sessions of 12 and 21 June provided the following evaluation of the state of the negotiations in each sector:

Agriculture

There was a joint text, containing some sentences in brackets, which indicated that no final agreement had been reached in these areas. The ACP were still examining the Community text on drought, and the EEC was soon to be ready to express a position on available agricultural products, which it felt was a very important topic which would be discussed at ministerial level.

Trade

Access

The EEC said it was still defining its position on this important dossier and hoped to be able to make progress at the Luxembourg ACP-EEC ministerial meeting on 28/29 June.

Trade promotion

The ACP proposals made at the end of May were largely acceptable to the Community, except for some of the financial aspects. The Community announced that its text for the new convention would be ready very soon, and that it hoped that with the help of a group of experts, both sides could present a joint text, agreed "ad referendum" at Luxembourg.

Rice and bananas

The Community was studying proposed ACP modifications to Lomé II.

Stabex

- The joint group of experts had

submitted its report which clarified the technical issues involved in the method of calculation. It was continuing its work on procedures for dealing with transfer requests.

- The ACP list of additional products sent on 16 June was being studied by the Community.

- The Community position was still being defined internally.

Mining cooperation, energy and Sysmin

Sysmin

The ACP had presented on 8 June more precise proposals for Sysmin, namely: an enlarged list, reduction of thresholds, aggregation of products for calculating dependance thresholds, the possibility of financing investments for diversification. The Community was to study these proposals.

Mining and energy

A joint drafting group had agreed a joint text "ad referendum".

Industry

One formal meeting had taken place after Fiji, where the ACP proposal that the CID should have a role in financing industrial cooperation went well beyond the conclusions agreed at Suva. Both sides were preparing texts for the new convention.

Fisheries

No joint progress since Fiji, but the Community position had been finalized and sent to the ACP on 20 June.

Investment

It was agreed that this topic merited a separate chapter in the new convention. The Community spokesman announced that whilst a system of investment guarantees was not possible, the Community proposed that there be a study of a joint system submitted to the ACP on 20 June, which they said they would examine. An ACP text was soon to be given to the Community.

Financial and technical cooperation

The joint drafting committee had been working very hard since early June and had produced draft articles containing brackets, and presentations

in two columns where problems remained. Whilst the Community estimate of the number of these problem areas was between 8 and 12, the ACP felt there were nearer 35. Both sides shared the view, however, that agreement had yet to be reached in programming, competition and customs duties for EDF-funded goods. It was felt that the joint document provided a very good basis for ministerial discussion in Luxembourg.

Rules of origin

Three formal meetings had been held since Fiji, in which the ACP repeated their positions and reminded the Community of the importance that they placed on the rules of origin for fisheries.

The Community position on this was still being examined by Member States, but its proposals on other rules had just been transmitted to the ACP. These were the first modifications to be made to the rules of origin since Lomé I was signed, and the most important were the abolition of the 50% originating materials rule for a number of products, the improvement of waiver procedures and the extension of waivers themselves from two to five years.

In addition a technical group had met 3 times since Fiji, and the value of its deliberations was recognized by both sides.

Least developed, island and landlocked countries

One negotiating session was held since Fiji, in which the ACP repeated their demands, and said they wished to start drafting texts. The Community felt that many of the topics were covered by other negotiating groups (e.g. Stabex, Sysmin, FTC) and recalled the agreement at Fiji that such topics be discussed in the other negotiating groups first, and then be reviewed by this group. The ACP at both plenaries said they felt this was unacceptable, and stressed the importance of this group.

Transport and communication

This subject has not been raised at negotiating group level since the third Ministerial Conference in Fiji.

Drought and desertification

The EEC text was sent to the ACP on 12 June. It emphasized that EEC actions would be carried out over a long term, in the context of ACP poli-

cies, and in conjunction with other donors, and stressed the importance of improved management of wood, water and energy resources.

Regional cooperation

Though a few problems remained, there were texts from both sides, and a drafting group was trying to reduce the distance between the texts, in areas such as the definition of a regional action.

Socio-cultural cooperation

Attempts were being made to shorten the long texts produced by each side as well as to iron out the differences between them. A couple of negotiating meetings had been held since Fiji, during which the ACP sought clarification of the EEC statements on migrant workers and students made at Suva. The Community position at these meetings was that the existing text had been very difficult to achieve within the Community.

General questions

A joint drafting group had produced a joint text, which had been examined twice by the negotiating group. A telex had just been received from the joint presidents of the Consultative Assembly, who recommended, amongst other things, and for reasons of cost and efficiency, that the future Joint Assembly contain only one representative from each ACP state, and an equivalent number of EEC parliamentarians. This proposal and the others were going to be examined informally by the co-chairmen of the negotiating group.

Although official negotiations were suspended until the Luxembourg Ministerial 28/29 June, both sides agreed to continue working together informally, and also at an internal level.

The successive late nights, worked week-ends and missed holidays since Fiji are finally taking their toll, and all those involved in the negotiations can be recognized by their glazed eyes and lined faces! o

ACP worried about negotiations

Two weeks away from the ACP/EEC Ministerial Conference to negotiate renewal of the Lomé Convention which both groups of partners wanted to be decisive, the ACP States have shown their concern at the lack of progress on a series of important dossiers.

The Fiji ministerial meeting, at the end of April, had aroused the hope that, at the following conference, on 28 and 29 June in Luxembourg, the Lomé partners might conclude the discussion at least on the essential aspects of the negotiation. Now, after an ACP-EEC plenary meeting which took stock of progress made up to 12 June, the representatives of the ACP States said they were very concerned over the fact that the working pace was not as intense as would have been necessary to obtain concrete results in Luxembourg, and because the discussions continue to deal with fairly general aspects.

Speaking to the press, Uganda's ambassador, Mr Okelo (replacing the chairman of the committee of ambassadors, Mr Kazunga, Zambia), said that, if the drafting of texts had made progress on questions like the principles and general objectives of the future Convention, subjects on which disagreement was considerable had not yet been seriously tackled. Mr

Okelo and the other ACP "spokesmen" in the negotiations (including the ambassadors of Senegal, Mr Sy, and Nigeria, Mr Afolabi) mentioned among these controversial issues the volume and procedures for aid, trade (notably rules of origin), Community available farm products, investments, Sysmin. According to the ACP States, the Community seemed at this stage to be moving backwards where it had seemed ready to take steps forward at the Fiji meeting.

In reply to a question on the absence of any discussion on the amount of aid, Mr Francis Okelo declared that the ACP States would proceed methodically, that they wanted the final figure arrived at to be compatible with the objectives and the resources involved. This is why they proposed, at Suva, a discussion on the criteria for fixing the volume of aid; to avoid creating the gap which had been observed between the objectives of Lomé II and the means of financing their achievement.

And if no agreement is reduced before the end of the current Convention? To this question, the ambassador of Senegal, Seydina Omar Sy, speaking from his considerable experience of previous negotiations, replied that there was always the possibility of recourse to transitional measures. o

THE CONVENTION AT WORK

EDF

Following favourable opinion delivered by the EDF Committee (189th meeting of 10 April and 190th meeting of 15 May 1984, the Commission has approved in respect of the following projects:

Member states of the African Association of Trade Promotion Organization (AATPO)

Trade Promotion
Fifth EDF
Grant: ECU 220 000

The Association was formed in 1974 following a resolution from the Economic Commission for Africa in 1971, which was endorsed by the Organization of African Unity. At present it has 26 member states consisting of both francophone and anglophone ACPs as well as the Maghreb States and Egypt. The objectives of the Association are "to foster contact and the regular flow of information and communication among African countries in trade matters and to assist in the harmonization of commercial policies of African countries, in order to promote intra-African trade" and "to serve as an instrument for the promotion of trade, market research and export oriented investment in Africa".

The project has as its goal to promote intra-African trade by various measures e.g. provision of counsellors and consultants and training of personnel from the member states of the Association.

Madagascar

Strengthening of the health infrastructure
Fifth EDF
Grant: ECU 3 360 000

The basic aim of the project is:

- to convert two simple secondary hospitals at Ahoisy and Maevatanana into medical-surgical hospitals by providing each of them with surgical and maternity units;
- to equip 17 simple secondary hospitals with 12 medical care units (dentistry) and 10 diagnostic units (5 radiology and 5 laboratory);
- to strengthen the central maintenance department by supplying techni-

cal and teaching equipment and to provide a small repair shop for the five main hospitals in each of the main provincial towns, with training for staff at the central maintenance department.

Rwanda

Renovation of the Gisakura tea factory
Fifth EDF
Grant: ECU 142 932

The aim of the project is to get the Gisakura tea factory back into running order by supplying additional equipment to improve both the quantity and the quality of the tea produced.

Lesotho

Multiannual training programme
Fifth EDF
Grant: ECU 1 100 000

The proposal is for financing a multi-annual training programme for Lesotho covering the period 1981-85.

The project consists of three main components:

- Local remedial courses
- Teacher Training and Teaching Development
- Training and Study Awards

Netherlands Antilles

Improvement of the road network on Bonaire
Fifth EDF
Grant: ECU 1 000 000

Because of the importance of its topography, its flora and fauna, its bays, and a number of historical buildings, the north-western part of Bonaire has been declared a national park and is administered as such by the Netherlands Antilles National Parks Foundation (STINAPA). The aim of the project is to preserve this region and increase its socio-economic, cultural and educational value.

Because of the poor state of the roads, the accessibility of the park is limited, particularly in the rainy season. Thus the project consists of improving both the access road to the park from the village of Rincon (4 km) and the 46 km network of roads inside the park.

Also in the yellow pages

I. Negotiations update

The Convention at work

III. EDF financing

VI. ACP Embassies

VII. Development Council

IX. Lesotho: donors' conference

X. 1984 Food aid programme
Emergency aid

XI. Visits

Developing world

XI. Summit of the 7 industrialized countries

XIII. Towards a cocoa agreement

European Community

XIII. E.P.: election results

Tonga

Fava Fisheries harbour
Fifth EDF
Grant: ECU 3 300 000

Tonga's fishing industry is at present not developed to its full potential. In consequence large quantities of canned and frozen fish, as well as mutton, are imported as a source of protein. Consumption of local fish per capita is lowest in Tongatapu, the main island.

In order to improve this situation and to diversify the economy, the Government of Tonga has started an artisanal fishing boatbuilding programme to service these boats and their catches. At present no infrastructure is available. The purpose of the project is to construct a small boat fishing harbour with quays, slipway and barge ramp, and to construct a fish market and cold storage facilities, to encourage fishing as a commercial venture and to help satisfy the demand for locally caught fish.

Mali

Bamako refrigerated abattoir
Fifth EDF
Grant: ECU 1 000 000

The Bamako refrigerated abattoir was financed by the first and second EDFs for a total of ECU 2 864 000. It has been operating since 1965. As a public service of the city of Bamako, the abattoir has completely fulfilled its function.

After 18 years of service, the abattoir has considerably improved the well-being of the city's population. It ensures an effective service of health inspection and produces meat of good, hygienic quality.

The upgrading project proposed for financing by the European Community comprises the renewal and, above all, the modernization of slaughtering, refrigeration and electrical equipment, as well as the extension of certain facilities, in particular meat transport and water supply.

Niger

Rural health programme

Fifth EDF

Grant: ECU 4 500 000

The purpose of the project is to contribute to the improvement of health services in rural areas and to the country's efforts at becoming self-reliant in matters of medical coverage.

The principal objectives are the construction of a medical centre at Mirria, building and equipping 14 rural clinics and supplying equipment. In addition, the programme will provide funding for technical assistance and a share of the running costs.

Chad

Repairs to public buildings

Fifth EDF

Grant: ECU 1 250 000

The project concerns the repair of 68 public buildings damaged during the unrest in Chad.

It forms part of the Government's plan for reconstruction and the re-launching of social and economic life in the Republic of Chad.

Member Countries of CILSS

Improvement in the machinery for permanent monitoring of the cereals and livestock sectors in the member countries of CILSS

Fourth and Fifth EDF

Grant: ECU 3 130 000

This regional project is aimed at improving the quality of statistical information in the cereals and livestock sectors in the eight member countries of CILSS (Permanent Interstate Committee for Drought Control in the Sahel — the member countries of which are Cape Verde, Chad, Gambia, Mali, Mauritania, Niger, Senegal and Upper

Volta) so that national policies aimed at food self-sufficiency can be defined more accurately and coordinated at regional level.

The goals of the project are:

— to improve the existing arrangements in each of the CILSS member countries for the collection and processing of data relating to the two sectors;

— to record regularly the main parameters of the two sectors at the level of national economies and external markets and thereby build up a regional data bank.

Ghana

Ghana Commercial Bank

Fifth EDF

Grant: ECU 847 500

The project concerns the provision of agricultural equipment to small-scale farmers' groups in the Dunkwa-on-Offin and Tepa districts of Ghana under the auspices of the Ghana Commercial Bank (GCB) Small-Scale Farmers' Scheme.

Ghana

Ghana Cocoa Marketing Board

Fifth EDF

Grant: ECU 2 936 500

The project is in line with the Government's Four-Year Economic Recovery Programme announced in December 1982. An important aspect of this programme is the rehabilitation of the cocoa export sector. Cocoa has in the past accounted for over 70% of export earnings but has been in serious decline for several years, as a result of a number of major structural problems. This project aims to improve one of its problems; the evacuation of cocoa from the producing areas to the ports.

Cameroon

Development of fishing

Fifth EDF

Grant: ECU 2 000 000

The filling of the Lagdo reservoir, completed in 1983, created an artificial lake some 800 km² in extent inside the zone of the rural development project in the Bénoué valley.

According to initial studies, the potential sustained production of fresh fish is about 3 000 t/year, subject to rational management of resources.

The project covers a series of cohe-

sive operations for the optimum exploitation of the stock, involving four main operations:

— a programme of applied biological research,

— training of the fishermen, who at present are not familiar with lake fishing,

— assistance to groups of fishermen to improve their efficiency,

— the supply of appropriate fishing tackle and equipment for processing the fish, and development of the infrastructure.

Trinidad and Tobago

Training Programme, Health sector

Fifth EDF

Grant: ECU 1 200 000

This training programme comprises the following components:

— advanced paediatric training for up to 30 nurses;

— training of individuals in toxicology; industrial and occupational hygiene;

— laboratory equipment for evaluating and monitoring health hazards;

— technical assistance (in connection with the above-mentioned sectors).

Suriname

2nd Line of Credit to Landbouwbank

Fourth EDF

Special loan: ECU 7 500 000

The purpose of this project is to provide part of the funds needed in the agricultural sector for development-oriented capital investment.

Operations under the credit line will aim at small and medium-sized farmers and small fishermen, at conditions which are geared to the specific character of the subsectors and sizes of exploitations. The size of the loans will vary from Sf. 5,000 to Sf. 100,000 (ECU 3 000 to 65 000) for individual farmers but may be higher for groups of farmers.

Papua-New Guinea

Trade Promotion

Fifth EDF

Grant: ECU 350 000

The objective of the project is to improve Papua New Guinea's export promotion capabilities by strengthening the services of public and private sector organizations concerned with encouraging exports, namely the Trade and Investment Promotion Branch (TIPB) of the PNG Department of

Foreign Affairs & Trade and the membership of the PNG Chamber of Commerce and Industry (PNGCCI).

Cape Verde

Soil protection and conservation
Fifth EDF
Grant: ECU 1 360 000

The main aim of the project is soil protection and conservation in the João Varela area, which lies to the south of São Tiago, the largest and most populated of the Cape Verde islands.

The project is in four parts:

- (a) the development of two valleys (ribeiras) with the construction of embankments and terracing and the planting of trees (including a small irrigated area);
- (b) the construction of three small dams;
- (c) the purchase of rural works and transport equipment;
- (d) technical assistance for three years.

Member countries of the West African Economic Community

College for Mining Engineering
Fifth EDF
Grant: ECU 6 520 000

The purpose of the project is to set up the Ecole des Mines et de la Géologie (EMIG) (College of Mining and Geology). This establishment will provide the member states of CEAO and of associated countries, particularly the governing bodies of CILSS and ECOWAS, with senior staff who are highly qualified engineers and technicians, thus enabling these countries to become technologically independent in the areas of prospecting, exploration and development of minerals, and geological and energy resources.

EMIG will provide the motive force for this development on the sub-regional level, through its activities in the following fields: teaching, prospecting, applied research, industrial promotion, and the collation and dissemination of experimental results.

Guinea

Establishment of a Child Health and Nutrition Institute
Fifth EDF
Grant: ECU 2 000 000

The aim of this project is to set up a

Child Health and Nutrition Institute (ISNE), with a capacity of approximately a hundred beds, in Conakry.

The objective is to improve the quality of child care both in the Conakry area and in the country as a whole.

The project will improve the child health situation through the setting up of a hospital capable of undertaking consultations, health care and treatment, plus research aimed at finding solutions to the major problem of nutrition, for the benefit of those living in the capital and in the country as a whole.

Ghana

Line of Credit to the National Investment Bank
Fifth EDF
Grant: ECU 2 900 000

This project is in line with the Government's three-year investment programme which covers the period 1984-86. This programme is devoted to economic reconstruction and consolidation, and the development of a self-reliant and integrated national economy. A key aim of the programme is to achieve moderate increases in the production of selected agricultural and industrial products in the first year, and more general increases in the following years, through rehabilitation of existing capacity.

Benin

Cattle farming in Borgou
Fifth EDF
Grant: ECU 5 950 000

The project is part of the effort to increase the return from Benin's natural resources. It involved the whole of Borgou province in the north-eastern half of the country, where livestock farming is a traditional activity. It is a follow-up to the current cattle farming project in South Borgou, financed under the third EDF. It will consolidate the previous project in the Parakou area and extend it northwards to Kandi and beyond up to the frontier with Niger.

The project consists of strengthening the operational resources of the government department responsible for animal husbandry (Direction de l'Élevage). This in turn will give livestock farmers easier and more reliable access to production factors, particularly those related to animal health, nutri-

tion and watering, marketing of products, etc.

ACP countries in the Indian Ocean

Regional cooperative
Fifth EDF
Grant: ECU 1 000 000

The purpose of the project is to provide countries in the Indian Ocean region (Comores, Madagascar, Mauritius and the Seychelles) with support designed to foster regional cooperation in the Indian Ocean in accordance with the second Lomé Convention. The project will back up the activities of the Commission de l'Océan Indien—COI (Indian Ocean Commission) set up in December 1982.

It is proposed, through a framework programme, to provide these countries with the means by which they can implement several schemes or specific actions likely to encourage and strengthen regional cooperation. The areas covered by the project are:

- Training and seminars
- Pilot studies and projects
- Technical assistance.

Mayotte

Water supply system on Mayotte
Fourth and Fifth EDF
Grant: ECU 2 650 000
Special loan: ECU 1 600 000

The project is for a drinking water supply network in a rural environment on Mayotte; existing installations are of the most rudimentary type and only allow the supply—and not even reliably—of untreated water.

The project will entail the construction of offtakes for river water, plus reservoirs and the supply and installation of pipes.

Somalia

Gelib-Bardheera Road study
Fifth EDF
Grant: ECU 1 000 000

The aim of the project is to finance the technical studies, the engineering design and the preparation of the tender documents of the road connecting the towns of Gelib and Bardheera. The length of this road is approximately 235 km.

A feasibility study has already been carried out by a consultant. This study was financed by the World Bank.

Tanzania and other SADCC Member States

Regional rinderpest control programme
Fifth EDF
Grant: ECU 4 300 000

Rinderpest is a highly contagious disease. The disease did not occur in Tanzania for several years, but in 1982 an outbreak of the disease appeared in buffaloes in the Serengeti and Ngorongoro parks.

Ring vaccination was carried out to stop the spread of the disease with, among others, emergency aid from the EDF.

The present project envisages extending the vaccination for an initial period of three years to control the disease in Tanzania itself, and to form a barrier against the spread of the disease to other neighbouring states.

The EDF contribution involves the supply of vehicles, veterinary and laboratory equipment, camping equipment and vaccines.

Somalia

Somali Pharmaceutical Institute
Fourth EDF
Grant: ECU 600 000

The purpose of this financing proposal is to increase the funds made available for the Somali Pharmaceutical Institute project by a further ECU 600 000.

This sum will be used for technical assistance activities involving four months' training for the workers who will be employed in the Institute and to supply the basic materials needed for the trial run.

Uganda, Kenya, Rwanda, Burundi

Supply of 25 tank wagons to Uganda Railways Corporation
Fifth EDF
Special loan: ECU 2 500 000

The project is part of the Northern Corridor Regional Programme. It aims at providing the Uganda Railways Corporation (URC) with 25 fuel tank wagons to allow part of the petroleum products for Uganda and her neighbouring countries on the Northern Corridor route, to be shifted from road to rail. ○

EIB

Guinea-Bissau: restoration of a ship repair yard

The European Investment Bank, the European Community's bank for long-term finance, has lent ECU 3.8 million, under the second Lomé Convention, to help finance restoration of a ship repair yard in Guinea-Bissau.

Under the first operation to be mounted by the EIB in this ACP State, the funds have been advanced to the Government in the form of a conditional loan, for a term fixed in principle at 20 years at 2%, financed from risk capital resources provided for under the Convention and managed by the EIB.

The project centres on renovation of a ship repair yard serving principally the local fleet composed in the main of ferries, transport vessels and fishing boats. The country's geography favours water transport which is used for almost 50% of domestic freight movements.

Situated on a 2.5 hectare plot of land near the port of Bissau, the GUI-NAVE shipyard's installations comprise a slipway for vessels up to 240 tonnes, a dry dock currently unfit for use and about twenty workshops and other buildings. After several years of near inactivity and a 4-month closure, the shipyard was reopened in November 1981 but is working well below capacity, due chiefly to a lack of parts and serviceable machinery.

The project provides for dredging of the access channel to the slipway, relaying the slipway foundations, restoring existing machinery and purchasing new shipyard equipment. The number of jobs it will safeguard is put at nearly 400. The EIB's contribution will be employed by the Guinea-Bissau Government to furnish the capital funds needed for the success of the project. ○

ACP EMBASSIES

New Ambassadors from Benin, Ivory Coast, Madagascar and Niger have just presented their credentials to the Presidents of the Council and the Commission of the European Communities.

Benin

Saliou Aboudou, who holds a law degree (Paris), diplomas in civil ad-



Saliou Aboudou,
Ambassador of Benin

ministration and political science and is a qualified magistrate, is Benin's new Ambassador in Brussels. From 1967-68, he was President of the Porto-Novo Tribunal. He then held various high-level posts—including that of Head of Cabinet, first at the Ministry of Justice and then at the Ministry of Health.

In 1976, he was appointed First Adviser to his country's embassy in Paris and, in 1982, to the representation in Bonn. Mr Aboudou, a family man—he has three children—is 43.

Ivory Coast

Valy Charles Tuhu succeeds Seydou Diarra as Ivorian Ambassador to the EEC. The new Ambassador, who holds advanced qualifications in economics (Paris), began his career as a lecturer in economics at the University of Dakar and rapidly rose through the ranks to become Vice-Chancellor of the University of Abidjan (1974), a post he kept until his Brussels appointment. Mr Tuhu, a 46-year-old father of four, is the author of many reports, articles and books on economic subjects, including trends in agricultural structures in Senegal and external debt and economic growth in the developing countries.

Madagascar

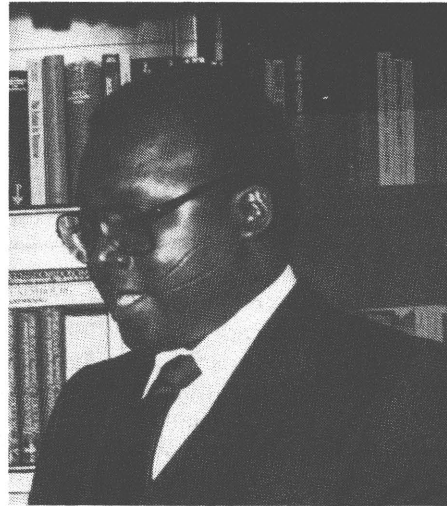
The new Ambassador from Madagascar, Christian Rémi Richard, holds a master's degree in biology and has spent some time in the island's education service. He taught for several years, held various posts of responsibility in education, became Head of Secondary Education in 1974 and did



Valy Charles Tuhu, Ivorian Ambassador, presents his credentials to Gaston Thorn



Christian Rémi Richard,
Ambassador of Madagascar



Yacouba Sandi,
Ambassador of Niger

a brief spell (February-June 1975) as Education Minister. Mr Richard, a permanent Commissioner of the Supreme Revolutionary Council, was appointed Minister of Youth in 1977 and then Minister of Foreign Affairs, where he stayed until 1983. Mr Richard is 43, married and has six children.

Niger

Niger's new Ambassador, 38-year old Yacouba Sandi, is no stranger to Brussels or to ACP and Community circles, as he was Adviser at his country's Embassy here in 1977-80.

In the intervening years, he was Director of International Cooperation and then Secretary-General at the Ministry for Foreign Affairs and Cooperation. Mr Sandi, a married man, holds a degree in economics, a diploma from the Paris International Institute of Public Administration and a

qualification from the Institute of Economic and Social Development Studies. ○

COUNCIL

The EEC Council on Development Cooperation met in Luxembourg on 5 June under the chairmanship of Christian Nucci, the French Minister for Cooperation.

The meeting focussed on the relations between Europe and Africa.

Campaigns on specific themes

On the basis of a Commission communication and an introduction by Mr Pisani, the Council held a broad policy discussion on campaigns covering specific themes.

These are long-term activities of an essentially regional nature concerning priority themes (control of desertification and drought, development of liv-

estock and game resources, water-resource management) designed to safeguard and exploit the agricultural potential of the developing countries.

The Council stressed the importance of these activities in combating the increasing deterioration in natural factors of production which had accelerated in the last decade.

On the basis of the approaches developed in the discussion the Commission will submit practical proposals for the implementation of these activities.

Alternative operations in place of food aid

The Council agreed on the substance of a draft Regulation concerning alternative operations in place of food aid intended to permit the application of Article 929 of the budget in respect of this type of operation.

The draft Regulation makes it possible for the Community, where conditions justify it and if requested by developing countries eligible for food-aid operations, to implement alternative operations within the resources available.

These operations, which are in the form of financial and technical aid, are intended to support the preparation and implementation of a food strategy or of other measures conducive to the food security of the recipient countries and to encourage them to increase their food self-sufficiency.

Operations may, for example, involve the supply of inputs essential for agricultural and livestock production, rural-credit operations, storage operations, operations covering the fields of marketing, distribution and processing, and research and training activities etc.

The Parliament has delivered a favourable opinion and the Council will formally adopt the draft Regulation without delay.

Commission communication on Africa

The Council heard a statement from Mr Pisani introducing the communication on the European Community and Africa which the Commission had just submitted to the Council. The communication describes the disquieting deterioration in the economic and social situation in Africa, which is of increasing concern to the international community, and is designed to set out in a comprehensive and integrated form the problems of the African con-

continent and to lay down guidelines for Community action.

The Council was aware of the situation in Africa and confirmed the Community's intention of continuing its action within the framework of existing instruments in order to help bring about an improvement. It agreed to continue its examination of the Commission communication at a forthcoming meeting.

The Council noted the Commission's intention of submitting a communication on the Caribbean and the Pacific, and possibly other regions, in the near future.

Emergency plan for the Sahel

Mr Nucci submitted to the Council a plan to combat the effects of the exceptional drought in the Sahel. The plan is designed to improve the organizational response to critical situations in the Sahel, with particular reference to sufficiently early warning of such situations, the assessment of likely requirements and the response to those needs. What is essentially required is a more effective response and better use of the means available through improved co-ordination at the level of the Community and its Member States in close co-operation with the Sahel governments, the competent bodies and the other members of the international community which provide special aid for the region.

The Council heard this communication from the French delegation with great interest and noted that co-ordination of this type could be extended to other regions where similar problems arose. It instructed the Permanent Representatives Committee to report to it at a future meeting.

Co-ordination of co-operation within the Community

The Council adopted the following Resolution which, while acknowledging the considerable progress already made as regards co-ordination, is designed to supplement previous Council Resolutions by stressing the operational aspect of co-ordination with a view to ensuring that the aid from the Community and its Member States is as effective as possible.

Food strategies

The Council heard a report from Mr Pisani, Member of the Commission, on the implementation of Community support measures for the food strate-

gies of Mali, Kenya, Rwanda and Zambia.

This report contained the Commission's initial favourable assessments of the results already obtained in these four countries and the growing interest shown by other developing countries in the preparation of food strategies.

The Council thanked Mr Pisani for the action he was taking in this important area and asked Member States to continue giving their full support, particularly on the spot, to the measures in progress.

The Commission will submit to the Council's next meeting a comprehensive report with a view to continuing action by the Community in this area. ○

COMMISSION

New memorandum on Africa

A new and important Memorandum on the ever-increasing difficulties facing the African continent and how Europe should tackle these problems has just been published by the European Commission. Recognizing that the results of two decades of development have been "disappointing", the Memorandum insists that Africa needs more aid. But it is not as simple as stepping up cash flows, which, in these times of economic gloom, are hard to come by. "Not only does Africa need a larger volume of aid", says the Memorandum "but that aid must be made more relevant and more effective".

"Africa has reached a critical stage in its affairs", says the Memorandum, "and events have brought home to its leaders that, if the tide is to be turned, the priorities adopted at the time of independence must be reconsidered". There would be no question of Europe dictating these priorities which, says the Memorandum, should be the very same set out by the African states themselves in the 1980 Lagos Plan of Action: greater self-reliance; self-sufficiency in food; less reliance on imported energy; an industrialization process geared to domestic markets and increased regional cooperation.

Aid must be made more effective

Although the Memorandum notes that the countries of Africa must shoulder most of the responsibility of this renewed effort, it insists that "Eu-

rope has special responsibilities towards Africa". Europe must strengthen its relationship with Africa, says the Memorandum, by "consolidating the Lomé Convention and refashioning the Mediterranean Policy". "Europe's contribution to the development of Africa must rest on two foundations: aid and mutual interest. EEC aid to Africa to date is granted in two main forms: food aid and emergency relief and support for development policies". "A new priority must now be added", insists the Memorandum, "in the shape of aid to halt desertification, and preserving Africa's natural environment". "Otherwise", warns the Memorandum, "there is a danger of the whole exercise being jeopardized".

Better guarantees for trade and investment

In addition to aid, EEC support for Africa must also be reflected in economic relations, says the document. "More stable and predictable arrangements for trade with African countries must be made" and "more ambitious policies must be formulated in all areas where complementary resources and interests permit, such as mining, energy, fishing and industry. Also, it says, European investors must "step up considerably" their involvement in the development of Africa's productive resources but, it adds, "for this the conditions first need to be right".

The Memorandum, which goes no further than to review and analyse the situation on the African continent and put forward some suggestions, has now been sent to the EEC Member states for approval. The EEC's Development Ministers Council is expected to discuss the document at its session on 5 June and, if it agrees with the guidelines set, the Commission should make more specific proposals later in the context of the various cooperation agreements which link the EEC with the countries of Africa. ○

TCA

The Technical Centre for Agricultural and Rural Cooperation, created by Lomé II, and which has just established itself at Ede, near Wageningen in the Netherlands, was host to the first delegates meeting in April.

The participants were senior officials from six EEC and ten ACP countries.

The meeting opened with introductory talks on three topics:

- identification of constraints on food production in ACP countries;
- identification of constraints on livestock production in ACP countries;
- problems of desertification in ACP countries.

These three themes were discussed in working groups afterwards, with the objective of drawing up a priority list of actions to be undertaken by the TCA. The management of the Centre was enabled, by means of these discussions, to obtain proposals and precise guidelines for its programme of work for this and for subsequent years.

Under the terms of Lomé II the TCA is responsible for ensuring that ACP countries obtain better access by a variety of methods to available information on agricultural research and technology. It will become a point of contact between EEC and ACP countries and serve as an information exchange between the two groups. ○

LESOTHO

Donors Round Table Conference

A Donors Round Table Conference for Lesotho was held in Maseru 14-17 May 1984. The Conference was the fifth of its kind to be conducted in Lesotho which had its last Round Table Conference in 1979.

There were 46 delegates attending the Conference, representing 19 bilateral donors, 3 international financing organizations and 17 United Nations agencies. The Commission of the European Communities was represented by the Director for Eastern and Southern Africa, Mr G. Livi, the Delegate of the Commission to Lesotho, Mr T. Rohrsted, and Miss Y. Soezen, country officer for Lesotho.

The Conference was opened by Lesotho's Minister of Foreign Affairs, Planning, Employment and Economic Affairs, Mr E. R. Sekhonyana, who gave an overall view of the economic situation of Lesotho and the Government's plans and sectoral policies. The Government outlined the need for increasing agricultural productivity through diversification into high value crops, drastic improvements and commercialization in the livestock sector and increased utilisation of irrigation. The Government further expressed the need to develop the manpower resources of the country, not least at the vocational and technical levels.

During the Conference the participants were briefed on the development of the Lesotho Highlands Water Scheme, and the Government stressed its desire to have the project implemented as rapidly as possible and urged donors to provide the maximum support for this important project which will earn Lesotho significant revenue from the sale of water to South Africa, create considerable employment and provide the potential for making Lesotho self-sufficient in electricity.

The representative of the Commission, Mr Giovanni Livi, emphasized the help the Community is giving in the field of food security and food strategy, as underlined by Commissioner Pisani during the SADCC conference in Lusaka last 9 February. He particularly stressed the fact that the Commission should give, under the new Convention, comprehensive backing for the better utilisation of agricultural resources as foreseen within Lesotho's new agricultural strategy.

In the final communiqué, approved by consensus, the Conference emphasized that it would be necessary to keep recurrent budget implications of the development programme in view, that as many projects as possible

should be directed towards productive sectors of the economy and should yield comparatively quick results. ○

NEGOTIATIONS

House of Lords: says Ten could be more generous on several points

"Given the existence of a ceiling on total United Kingdom aid, any significant increase in real terms in the size of the next EDF would mean the diversion of United Kingdom funds from contributions to other international bodies or from the United Kingdom's own bilateral programme.

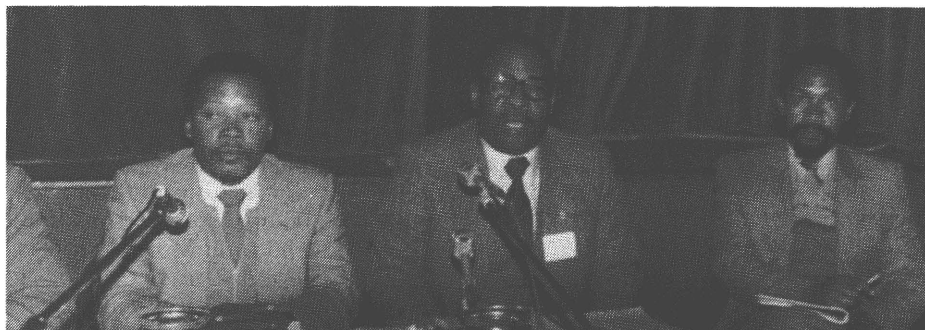
The Committee would deprecate this". This was pointed out by the "Select Committee on the European Communities" of the House of Lords in a report on the negotiations for the renewal of the Lomé Convention, entitled "A Successor to the second Lomé Convention".

The Committee of the Lords did not recommend a change to a Conventional of unlimited duration and said that it would be wrong at present to include the EDF in the Community budget (this is one of the European Parliament's traditional demands to the Council).

On the other hand, the Lords were open to a number of measures to strengthen and deepen relations between the Community and the ACP States, established under the Lomé Conventions: provisions designed to create a good climate for private Community investment, resolution of shipping problems, possibilities of providing aid to media systems in the ACP States, an increase in the "cultural" content of cooperation in the next Convention.

The report by the Select Committee also points out that "it is desirable that the Community should offer trade concessions wherever it is possible to do so". The report says that while the Commission is justified in scrutinizing carefully applications for derogations from the rules of origin provisions, "it could afford to be more generous and should try to be more expeditious than hitherto".

The report advocates: an open approach towards increasing the proportion of EDF funds allocated to Stabex; a greater flexibility in the use of the Stabex system (even if the percentage of credits earmarked for Stabex should not increase) and the Sysmin system;



(Left to right) Mr Seyaname, head of Lesotho's Planning Department, and Mr E.M. Malie, Permanent Secretary at the Ministry of Education, Sport and Culture

a modification of Sysmin so that it can be used more flexibly to support ACP economies dependent on mineral exports. ○

NGOs discuss Lomé

Representatives of non-governmental organizations (NGOs) from throughout the Community's Member States gathered in Brussels from 5-7 June for a seminar devoted to examining the workings of the Lomé Convention and reflecting on possibilities for improved cooperation under the new ACP-EEC cooperation agreement now being negotiated. Areas covered in their discussions included agricultural policy, food strategy, food aid and emergency aid, micro projects, training, trade and financial cooperation, cultural cooperation and human rights.

Amongst their recommendations were a significant increase in funds (particularly by those countries now contributing markedly less than the target of 0.7% of GNP) and a greater emphasis on trade, rather than aid, as the most important objective of the ACP-EEC relationship. In this context the NGO representatives called for changes in the Rules of Origin which would take account of the low levels of industrialization in ACP countries and, by being made more flexible, give greater support to industrial development in the ACP countries.

Other proposals for improved cooperation included a greater attention to the socio-cultural impact of certain projects, particularly micro-projects, calling for further involvement at all stages of the populations affected by the project—and in particular, the women—and suggesting that the NGOs could play an important role in the successful implementation of such projects.

A full report on the conclusions of the seminar will be submitted to the authorities of the EEC and ACP states shortly. ○

FOOD AID

1984 programme

On 7 May the Council adopted a Regulation, proposed by the Commission, laying down implementing rules for 1984 for Regulation (EEC) No. 3331/82 on food-aid policy and management, on which Parliament had delivered its opinion at its meeting on 13 April.

Under the Regulation the following overall quantities of products are to be made available as food aid to certain developing countries and certain organizations in 1984:

Cereals:

(a) an instalment of 927 663 tonnes;
(b) a second instalment of up to 200 000 tonnes.

Milk powder: a maximum of 122 500 tonnes.

Butteroil: a maximum of 32 760 tonnes.

Sugar: a maximum of 13 500 tonnes.
vegetable oil (seed oil and olive oil) a maximum of 20 000 tonnes;

Other products (fish, dried vegetables, vegetable flour, etc.): quantities equivalent to not more than 147 000 tonnes of cereals.

In accordance with the Council Resolution of 15 November 1983 a substantial part of this aid will be used for operations which enable food aid to be more thoroughly integrated into programmes for developing food production and will go, as a matter of priority, to the most vulnerable sections of the population.

Subject to formal adoption of this Regulation by the Council, the Commission decided, on 25 April, to grant emergency aid of 59 000 tonnes of cereals to certain countries in West Africa and Southern Africa, where the effects of drought are making the food situation particularly acute.

In addition the Commission has decided, under the ordinary procedure to allocate food aid worth 122.4 million ECU and comprising 274 000 t of cereals and 31 830 t of milk powder.

It is worth noting that within three weeks of approval of the implementing Regulation, the Commission decided to commit nearly a quarter of the food aid budget (500 100 000 ECU, either directly or via international or non-governmental organizations, in order to help the countries most at risk to cope with their critical food problems. ○

EMERGENCY AID

Antigua

The Commission has decided to grant ECU 200 000 of emergency aid to Antigua, under Article 137 of the Second Lomé Convention. The island is at present experiencing a severe

drought and 18 000 people, one-quarter of the population, are without water.

The aid is part of a programme set up by the Commission's Delegation to Barbados in collaboration with the Government of Antigua to organize the transportation of water and the purchase of small water tanks in the area.

Ethiopia

The drought, which follows several years of insufficient rainfall, is regarded as the most serious in Ethiopia for a decade. The current estimate is that the country has 5 million drought victims. This has resulted in a population movement towards the distribution centres which the Relief and Rehabilitation Committee (RRC) is having increasing difficulty in keeping supplied.

Under the food aid programme for 1984, Ethiopia will receive 18 000 tonnes of cereals. In view of the gravity of the situation, the Commission has decided to treat this aid as emergency aid so as to ensure rapid deliveries. The quantities will be sufficient to feed 400 000 persons for three months and will be distributed to drought victims and those affected by events in the north-east of the country.

Madagascar

The Commission has voted emergency aid of ECU 350 000 for Madagascar under Art. 137 of the second Lomé Convention.

Cyclone Kamisy, which struck the country recently, affected 35 000 people.

The aid is contribution to the relief programme of the League of Red Cross Societies, which provides for the purchase and transport of tents, cooking utensils, milk etc.).

Uganda

The Commission has just decided upon emergency aid of ECU 250 000 as a contribution to the rescue programme implemented by the International Red Cross Committee to help about 100 000 displaced persons in the Luero, Mubende and Mpigi districts of Uganda. The aid is intended for the purchase and transport of indispensable help such as utensils, material for shelters, medicines, as well as local purchase and domestic transport of provisions and seed. ○

VISITS

Prime Minister of Guinea at the Commission

The Prime Minister of Guinea, Colonel Diara Traoré had meetings at the European Commission with President Thorn and Mr Pisani Commissioner for Development.

Mr Traoré, who was accompanied by the Foreign Affairs Minister Mr Touré, the Minister for International Cooperation, Mr Camara and the Minister for Information, Mr Traoré, discussed cooperation between his country and the Community in the framework of the second Lomé Convention, as well as the prospects of the future Convention. Under Lomé II, the financial and technical aid foreseen for Guinea is ECU 68 million in the form of subsidies and ECU 12 m in the form of special loans: the priorities are rural development, energy, health and education. In addition,

Guinea received 9 000 tonnes of cereals with a value of ECU 1.8 million in 1983 as Community food aid.

A fishing agreement was concluded between the Community and Guinea: it regulates the conditions for Community fishing vessels in the Guinean coastal zone for three years. Under this agreement, the Community commits itself to pay financial compensations of a minimum of ECU 2.1 million (in addition to the fees which the fishing companies will pay, who should also employ a certain number of Guineans during the fishing season); to award the equivalent of 18 grants for training abroad; to contribute ECU 200 000 to a research programme on the fishing resources of Guinea.

As for trade exchanges, they were balanced in 1978 and 1979 but have subsequently recorded a slight surplus for the Community (ECU 49 million in 1980, 35 in 1981 and 8 in 1982). The Community imports mainly aluminium and bauxite from Guinea. o

major debtors to reimburse even the interest on their loans.

The "7" decided:

«— to continue with and where necessary strengthen policies to reduce inflation and interest rates, to control monetary growth and where necessary reduce budgetary deficits;

— to maintain and wherever possible increase flows of resources, including official development assistance and assistance through the international financial and development institutions, to the developing countries and particularly to the poorest countries; to work with the developing countries to encourage more openness towards private investment flows; and to encourage practical measures in those countries to conserve resources and enhance indigenous food and energy production. Some of us also wish to activate the Common Fund for Commodities;

— in a spirit of co-operation with the countries concerned, to confirm the strategy on debt and continue to implement and develop it flexibly case by case; we have reviewed progress and attach particular importance to:

— helping debtor countries to make necessary economic and financial policy changes, taking due account of political and social difficulties;

— encouraging the IMF in its central role in this process, which it has been carrying out skilfully;

— encouraging closer co-operation between the IMF and the International Bank for Reconstruction and Development (IBRD), and strengthening the role of the IBRD in fostering development over the medium and long term;

— in cases where debtor countries are themselves making successful efforts to improve their position, encouraging more extended multi-year rescheduling of commercial debts and standing ready where appropriate to negotiate similarly in respect of debts to governments and government agencies;

— encouraging the flow of long-term direct investment; just as there is need for industrial countries to make their markets more open for the exports of developing countries, so these countries can help themselves by encouraging investment from the industrial countries;

— encouraging the substitution of more stable long-term finance, both direct and portfolio, for short-term bank lending;

— to invite Finance Ministers to carry forward, in an urgent and thorough



President Gaston Thorn assured Prime Minister Traoré (centre, with glasses) of the Community support for the recovery programme

GENERAL INFORMATION

The London Summit: the "7" and Third World debt burden

The 10th Summit of the Heads of State and government of seven major industrialized countries met in London from 7-9 June 1984 under the chairmanship of Margaret Thatcher, the Prime Minister of the United Kingdom. Presidents Ronald Reagan (USA) and François Mitterrand (France), Prime Ministers Pierre Trudeau (Canada) and Yasuhiro Nakasone (Japan), the President of the Ital-

ian Council Bettino Craxi, the German Chancellor Helmut Kohl, and the President of the EEC Commission Gaston Thorn also attended.

Third World debts was one of the principal subjects debated. Even if it has been possible to avoid a major crisis until now, the risks nevertheless remain high as has been shown by the recent difficulties experienced by ma-

manner, their current work on ways to improve the operation of the international monetary system, including exchange rates, surveillance, the creation, control and distribution of international liquidity and the role of the IMF; and to complete the present phase of their work in the first half of 1985 with a view to discussion at an early meeting of the IMF Interim Committee. The question of a further allocation of Special Drawing Rights is to be reconsidered by the IMF Interim Committee in September 1984. (...)»

AID TO NON-ASSOCIATED DEVELOPING COUNTRIES

Under the programme of financial and technical assistance to non-associated developing countries, the Commission has approved financing for the following projects:

Thailand: ECU 4 900 000

Development of crops in the North-East

The chief aim of the project is to use the results obtained during the previous four years of development to improve and expand the research programme, provide more diversified agricultural systems and operational training for extension workers, all with a view to ensuring that the services concerned are properly equipped to promote and disseminate improved technology in order to enable farmers increasingly to grow crops other than manioc. In addition, the project is based on the need to promote and intensify land utilization with special emphasis on the need to encourage investment in improved methods of cultivation, the intended aim being to improve organization and management methods within the departments chiefly concerned, using forms of research and technology readily suited to peasant farmers.

The region in question is the north-east of Thailand which accounts for almost 60% of the country's manioc production. A special effort will be made in the chief manioc province of Korat, which supplies over 40% of total production and where the need for diversification in the north-east is greatest. The project will have implications for some four million small farmers.

ECU 1 300 000

Development of cashew-nut production in the north-east

The project, which concerns the north-east of the country, involves providing technical assistance, material and equipment for the purpose of implementing a research and development programme aimed at encouraging an expansion of cashew-nut production in the area.

The project involves supplying small growers with high-quality seeds and grafting buds, putting together a suitable programme of research into varieties and ways of combating diseases and pests and providing appropriate training for government officials and farmers. The project should benefit in all some 450 000 small growers, i.e. almost a quarter of the area's total farming population. ○

EMERGENCY AID

The Commission has approved the following emergency food aid:

Nicaragua

Nicaragua continues to experience a very difficult food situation. Following the disastrous climatic conditions of 1982, the end of 1983 was marked by a prolonged drought which chiefly affected the Pacific area and led to a reduced harvest of cotton and basic grains (white maize and beans).

In response to a request by Nicaragua, the Commission has approved the delivery of 1 000 tonnes of vegetable oil in order to meet the country's most urgent needs. The estimated cost of this operation will be ECU 1.2 million.

Afghan refugees in Pakistan

The Commission has decided to finance a health project to assist refugees from Afghanistan in Pakistan.

The situation of these refugees is as precarious as ever and is made still more complex by the fact that enormous numbers of displaced people have been settled in camps. The Commission has already provided emergency aid funds for a medical programme in Baluchistan, via Action International Contre la Faim (AICF).

This NGO has also started a project to improve the health situation in the

province's two largest refugee camps; Pir Alizai and Surkhab, which between them contain about a quarter of a million people.

The project consists of curative and preventive measures to combat epidemics in the camps and preventive care for illnesses such as tuberculosis, polio and measles. Side by side with this, local people are receiving training as health workers so that in future better health cover can be provided in the two camps. The project also involves the construction of 14 000 latrines, in which local labour is being employed on a massive scale.

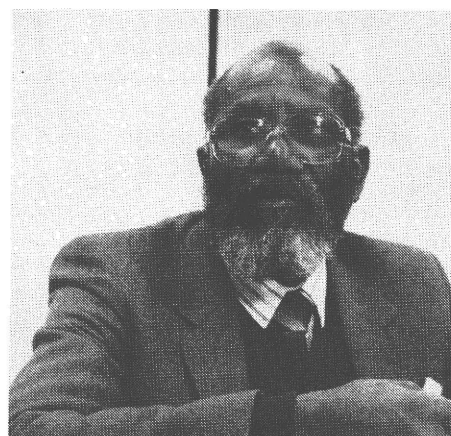
It is estimated that the project will cost ECU 1 057 000. The Office of the High Commissioner for Refugees is contributing ECU 338 000, the AICF ECU 39 000 and the remaining ECU 680 000 is to be provided by the Commission. ○

NAMIBIA

Toivo Ja Toivo in Brussels

Andimba H. Toivo Ja Toivo, a prominent member of SWAPO, the Namibian liberation movement, spent some time in Brussels at the end of May when he toured Europe following his release from prison—where he has spent 16 of his 20 years of fighting the occupying power, South Africa.

At a press conference in the International Press Centre in the Belgian capital, Mr Toivo Ja Toivo outlined the movement's position on independence. It was normal, he felt, for two countries at war to negotiate at some stage, and he put the failure of the Lusaka (Zambia) meeting down to Pretoria's insistence on continuing to link Namibian independence to the situation in Angola. He again asserted



Andimba H. Toivo Ja Toivo

his Movement's total rejection of South Africa's claim and reminded his audience that South Africa's acceptance of cease-fire and application of Resolution 435 (free elections under international supervision) were a basis for a permanent solution to the Namibian issue.

Mr Toivo Ja Toivo also condemned the European governments for officially receiving Mr Botha, the head of the minority racist régime in South Africa, and he was somewhat ironical about the attitude of people in Europe who had claimed that the Nkomati agreement constituted justification for Mr. Botha's visit. The agreement between Pretoria, Angola and Mozambique failed to mention apartheid, he said, and so it did not signal the end of the fight against institutionalized racialism in South Africa.

Before leaving Belgium, Mr Toivo Ja Toivo was received by Development Commissioner Edgard Pisani, by the ACP and OAU Group in Brussels and by the Belgian anti-apartheid movement. ○ L.P.

OECD

New Secretary-General

The Council of the Organization for Economic Cooperation and Development held a ministerial meeting on 17 and 18 May when agreement was reached on the policies needed to boost the international system of commercial and financial relations and ensure that economic recovery led to lasting growth that would generate employment.

The meeting was chaired by two Finns—Paavo Väyrynen, Foreign Affairs Ministers, and Jermu Laine, Minister for Foreign Trade—who congratulated the Secretary-General, Emile van Lennep, for the authority and skill with which he had led the Organization, thanking him for all he had done and underlining the exceptional character of his contribution to inter-

national economic cooperation over the past 15 years.

The Council appointed Jean-Claude Paye as successor to Mr van Lennep. Mr Paye, currently head of economic and financial affairs at the French Foreign Relations Ministry, will take up his post on 30 September 1984. ○

COCOA

The UN Conference called to negotiate a fourth International Cocoa Agreement met in Geneva on 7-25 May and will be back again in the autumn, on 8-26 October, when the chairman (Ecuadorian Ambassador Aleman) has held consultations to smooth the workings of the next session.

This first session, attended by almost all the cocoa producing countries (including Ivory Coast, the world's biggest producer, but not a member of the current Agreement) and many consumers, including the Community and its Member States (the USA only attended the debates), was the opportunity to reach a general consensus on the need to ensure that the new Agreement contained a mixed system to defend negotiated price margins.

With this in mind, the Community and the Member States made an original proposal in Geneva, to supply management measures, as an addition to the buffer stock system, focussing on a system of withdrawals from the market. Although the methods for implementing such a system have yet to be defined, it would have a similar effect on the market as the quota system proposed by the producers and several of the consumers and it does not, the Community feels, involve any of the risks of abuse that would impede the efficiency of a quota-based system. This proposal, which was submitted too late to be discussed by the Conference, could, if it were elaborated upon later, make a significant contribution to developing the stabilization machinery of a fourth International Cocoa Agreement. ○

seems that the left-right division in the new House will be accentuated.

France

The Union of the Opposition did slightly better than the UFE and the DIFE lists, while the Socialists lost a little ground and the Communists slipped back badly. The National Opposition Front, led by Jean-Marie Le Pen, made a firm appearance on the French and the European political scenes. Both the Greens and the ERE failed to make their 5%.

Belgium

The government majority parties (the Social Christians and the Liberals) did much less well than in 1979, largely because of very considerable losses by the CVP (Flemish Christian-Democrats), who lost three of their seven seats. However, the French-speaking Liberals substantially improved their 1979 position and won one seat. The Volksunie (Flemish regionalists) got two seats instead of their previous one, but the French-speaking and Walloon regionalist parties (the FDF and the PWE), which stood, unlike in 1979, separately, lost both their seats. The fact that Mr Happart, the mayor of the Fourons, was on the French-speaking Socialist list no doubt had something to do with this.

Both Flemish and French-speaking Socialists did well, winning one seat each. The two Socialist lists now have nine seats between them instead of seven and the Christian-Democrats, who had 10 seats, now have to be content with six.

Lastly, the Ecologists made a spectacular breakthrough by winning one seat in each of two electoral colleges.

Luxembourg

There was a slight deterioration on the part of the Social Christians, who form the government with the Liberals—they lost almost a third of their voters—and the winners were the Socialists, with two seats instead of one. The Greens' 6%, although inadequate to get them a seat, is nonetheless an interesting result.

Germany

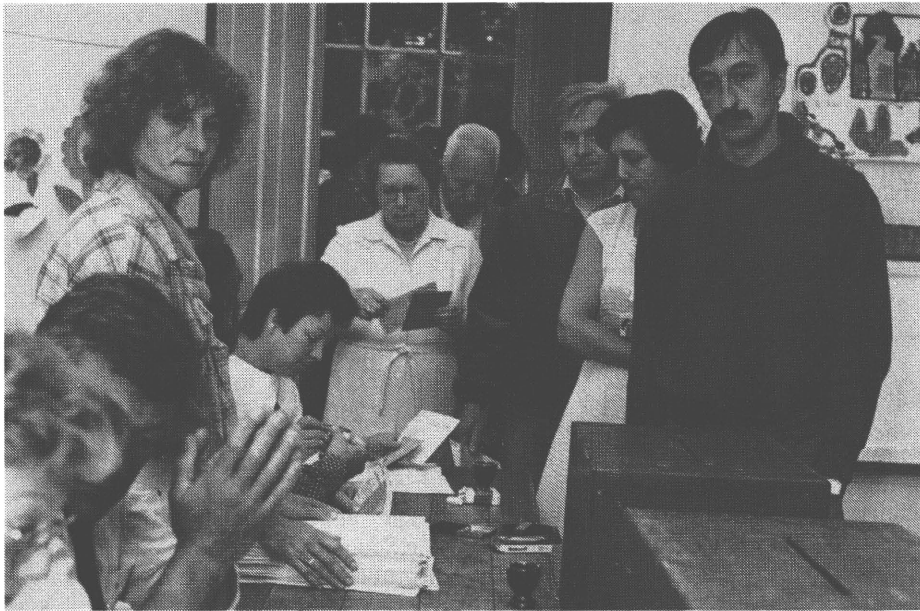
The big event in Germany is the disappearance of the Liberals—whose leader, Martin Bangemann, chaired the Liberal and Democratic Group in the Parliament elected in 1979. There

EUROPEAN COMMUNITY

European Parliament election results

Elections to the European Parliament, the second by direct universal suffrage, were held in Denmark, Ireland, the Netherlands and the UK on

14 June and in Belgium, France, Germany, Greece, Italy and Luxembourg on 17 June. The average turn-out was slightly smaller than in 1979 and it



The average turn-out in the European elections was down on 1979

was a breakthrough by the Greens, who won seven seats with their 8% of the votes, and both the Christian Democrats and the Socialists got fewer votes and fewer seats.

Greece

The two main parties—PASOK and New Democracy—kept the same number of seats, the Socialists with slightly better (7%) figures and New Democracy winning one seat.

In spite of slight loss of ground, the two Communist Parties kept their respective seats (3 and 1) and an extreme right-wing list (EPEN, the National Political Union) made its appearance, getting 2.3% of the votes and winning one seat. The small lists, particularly the KODISO, whose leader, Mr Pesmazoglou, lost his seat, did badly.

France					
Parties	1984		Parties	1979	
	%	Seats		%	Seats
Union de l'opposition (Mme Veil)	42.96	41	UFE	27.6	25
PS (M. Jospin)	20.77	20	Soc. et Rad. de Gauche	23.5	22
PC (M. Marchais)	11.24	10	PC	20.5	19
ERE (M. Stirn)	3.30	—	DIFE	16.3	15
Front d'opposition nationale (M. Le Pen)	10.98	10	Europe-Ecologie	4.4	—
E-U d'Europe (M. Cartan)	0.39	—	E-U Soc. d'Europe	3.1	—
Initiatives 84 (M. Toutati)	0.6	—	Emploi-Egalité-Europe	1.8	—
Lutte ouvrière et pays d'unité (M. Gauquelin)	0.9	—	UDIP-FIDES	1.4	—
Lutte ouvrière (Mme Laguiller)	2.06	—	Eurodroite	1.3	—
POE (M. Cheminade)	0.08	—			
PSU-CDU (M. Depaquit)	0.7	—			
Réussir l'europe (Mme Gomez)	1.89	—			
U.T.I.L.E. (M. Nicoud)	0.68	—			
Verts (M. Anger)	3.36	—			
Total Participation		81 56.7%			81 60.7%

Luxembourg				
Parties	1984		1979	
	%	Seats	%	Seats
CSV (Christian democrats)	35.33	3	36.2	3
DP (Liberals)	21.15	1	28.2	2
LSAP (Socialists)	30.28	2	21.6	1
Alternative Greens	6.13	—	—	—
Kommunistische Partie (Communists)	4.11	—	5.0	—
PSI (Independent Socialists)	2.59	—	—	—
Revolutionary Communist League	0.38	—	0.5	—
Total Participation		6 87%	6 88.9%	



Claude Cheysson, French Foreign Affairs Minister and President-in-Office of the EEC Council, names the new yacht "Europe", which will soon be taking part in a race in France, in front of the Parliament building in Brussels

Italy				
Parties	1984		1979	
	%	Seats	%	Seats
Christian Democrats (DC)	33.0	26	36.4	29
Italian Communist Party (PCI)	33.3	27	29.6	24
Italian Socialist Party (PSI)	11.2	9	11	9
Italian Liberal Party (PLI)	6.1	5	3.6	3
Italian Republican Party (PRI)			2.6	2
Italian Social Movement (MSI)	6.5	5	5.4	4
Italian Social Democratic Party (PSDI)	3.5	3	4.3	4
Radical Party (PR)	3.4	3	3.7	3
Proletarian Democracy. (DP)	1.4	1	0.7	1
South Tyrol Peoples' Party (SVP)	0.6	1	0.6	1
Sardinian Action Party	0.5	1	—	—
Liga Veneta (European Federalist Union)	0.5	—	—	—
PDUP	—	—	—	—
Total Participation		81 83.9%		81 86%

Federal Republic of Germany				
Parties	1984		1979	
	%	Seats	%	Seats
CDU	37.5	34	39.1	34
CSU (Bavaria)	8.5	7	10.1	8
CDU/CSU (Christian Democrats)	46	41	49.2	42
SPD (Socialists)	37.4	33	40.8	35
FDP (Liberals)	4.8	—	6.0	4
Greens	8.2	7	3.2	—
German centre Party	0.4	—	—	—
Pacifist List	1.3	—	—	—
EAP (European Workers' Party)	0.1	—	—	—
European Federalist Party	0.1	—	—	—
Feminist Party	0.4	—	—	—
NDP (extreme right)	0.8	—	—	—
Democratic ecologist Party	0.3	—	—	—
Electoral community of worthy citizens	0.2	—	—	—
Bavarian Party	0.1	—	—	—
Total Participation		81 56.8%		81 65.7%

Ireland				
Parties	1984		1979	
	%	Seats	%	Seats
Fianna Fail	39.2	8	34.7	5
Fine Gael (Christian Democrats)	32.2	6	33.2	4
Labour	8.4	—	14.5	4
Independents	10.1	1	14.1	2
Others	10.2	—	3.6	—
Total Participation		15 47.6		15 63.6%

United Kingdom				
Parties	1984		1979	
	%	Seats	%	Seats
Conservative	38.00	45	50.6	60
Labour	34.75	32	33.0	17
Liberal/SDP Alliance	18.51	—	13.0	—
Scottish National Party	1.64	1	1.9	1
Others	1.27	—	0.6	—
Democratic Unionist Party (Paisley)	1.64	1	1.3	1
Social Democratic and Labour Party (Social.)	1.08	1	1.1	1
Official Ulster Unionist Party	1.25	1	0.9	1
Total Participation		81 32.6%		81 31%

Netherlands				
Parties'	1984		1979	
	%	Seats	%	Seats
CDA (Christian Democrats)	30.03	8	35.6	10
PvdA (Socialists)	33.72	9	30.4	9
VVD (Liberals)	18.90	5	16.2	4
CPN/GPN/PPR/PSP (Greens, Pacifist and Communists)	5.60	2	—	—
SGP/RPF/GPV	—	—	—	—
Religious right wing	5.21	1	—	—
D'66	2.28	—	9.0	2
Centre Party	2.55	—	—	—
Europese Groenen (Greens)	1.27	—	—	—
God met ons (religious list)	0.44	—	—	—
Total Participation		25 50.52%		25 58%

Ireland

A low turn-out was recorded (47.6%) compared with 1979 (63.6%). Of the two parties in government, the Labour party failed to hold on to four of the seats it had won in the 1979 elections. Fine Gael, on the other hand, while losing 1% of the vote, increased their number of seats from four to six.

Italy

The major political event in Italy was the Communist Party coming out in the lead, with more votes and one more seat than the Christian Democrats. The Socialists and the Liberals failed to improve their position, but the Italian Social Movement did slightly better than before. It is worth noting that the Sardinian Action Party won one seat. o

Belgium				
Parties	1984		1979	
	% (1)	Seats	% (1)	Seats
CVP } (Christian Democrats)	32.5	4	48.1	7
PSC }	19.5	2	21.2	3
SP } (Socialists)	28.1	4	20.9	3
PS }	34.0	5	27.4	4
PVV } (Liberals)	14.2	2	15.3	2
PRL }	24.1	3	17.8	2
VU (People's Union, Flanders)	13.9	2	9.7	1
FDF (Francophone nationals)	6.4	—	19.7 (2)	2 (2)
PWE (Walloon in Europe)	2.3	—	—	—
AGALEV } (Greens)	7.1	1	2.3	—
ECOLO-V. }	9.9	1	5.1	—
KPB } (Communist)	0.7	—	1.2	—
PCB }	2.8	—	5.1	—
Vlaams Blok (Flemish nationalist)	2.1	—	—	—
PVDA } (Workers' Party)	0.9	—	1.1	—
PTB }	0.6	—	0.4	—
SAP-RAL	0.3	—	0.2	—
PPS-LRT	0.2	—	0.1	—
Total Participation		24 92.2		24 91.4%

(1) Percentages obtained in each case in the Flemish or Walloon electoral colleges.
(2) The FDF and Walloon Rally had a common list in 1979.

Denmark				
Parties	1984		1979	
	%	Seats	%	Seats
Folkebevægelsen (anti-EEC)	20.8	4	20.9	4
Konservative (Conservatives)	20.8	4	14.0	2
Socialdemokratiet (Social Democrats)	19.4	3	21.9	3
Venstre (Liberals)	12.5	2	14.5	3
Soc. Folkeparti (Socialists)	9.2	1	4.7	1
Centrum-Demokraterne (Centre Democrats)	6.6	1	6.2	1
Fremskridtspartiet (Progress Party)	3.5	—	5.8	1
Radikale Venstre (Social Liberals)	3.1	—	3.3	1
Parti chrétien du peuple (People's Christian Party)	2.7	—	1.8	—
Socialistes de gauche (VS) (Left wing Socialists)	1.3	—	3.5	—
Retsforbundet (*) (One-tax party)			3.4	—
Total Participation		15 (1) 52.3%		16 47.8%

(1) The 16th seat belongs to Greenland until the end of 1984, after which it will go to the Socialists.
(*) In 1984, the One-tax Party formed part of the Anti-EEC Movement.

Greece				
Parties	1984		1981	
	%	Seats	%	Seats
Panhellenic Socialist Movement (PASOK)	41.58	10	40.1	10
New Democracy (ND)	38.05	9	31.3	8
Greek Communist Party (KKE)	11.64	3	12.8	3
Greek Communist Party of the Interior (KKE-es.)	3.42	1	5.3	1
Democratic Socialists (KODISO)	0.80	—	4.2	1
Progressive Party	0.17	—	1.2	1
Christian Democracy	0.45	—	1.2	—
Union of the Democratic Centre (EDIK)	0.28	—	1.1	—
Liberal Party	0.36	—	1.1	—
National Political Union (EPEN)	2.30	1	—	—
Unified Greek Socialist Alignment (ESPE)	0.14	—	—	—
Unified Nationalist Movement (ENEK)	0.09	—	—	—
Greek Revolutionary Communist Movement (EKKE)	0.30	—	—	—
P.C.G. - Marxists/Leninists (M.L. - K.K.E.)	—	—	—	—
International Workers Union (EDE - Trotskyites)	0.11	—	—	—
Greek Militant Socialist Party (ASKE)	0.18	—	—	—
Others	0.15	—	—	—
Total Participation		24 77.2%		24 77.1%

EIB

Nomination of new president

The Board of Governors of the European Investment Bank (EIB), composed of Ministers of the Economy or of Finance of the ten Member countries, held its annual meeting in early June with Mr Otto Ruding, the Dutch Minister for Finance, in the Chair. The Governors have proceeded to the nomination of a new president and a new vice-president (Mr Alain Prate, France) of the EIB. The present President, Mr Yves le Portz, has announced his intention to leave office on 1 August, after 14 years as Chairman. In recognition of his services, the Board of Governors conferred upon him the title of Honorary President and he nominated M. Ernst Gunther Broder, spokesman for the Board of the Kreditanstalt für Wiederaufbau and member of the Administrative Board of the EIB since 1980 as his successor. He is the first German to occupy the office of Chairman of the bank. o



European parliament: the June 1984 elections

Elections for a new European Parliament took place on Thursday, 14 June 1984, in Denmark, Ireland, Netherlands and the United Kingdom and on Sunday, 17 June 1984, in Belgium, France, Greece, Italy, Luxembourg and the Federal Republic of Germany (1).

The European Parliament comprises 434 deputies who are distributed among the ten Member States as follows:

France	81	Belgium	24
Italy	81	Greece	24
Fed. Rep. of Germany	81	Denmark	16
United Kingdom	81	Ireland	15
Netherlands	25	Luxembourg	6

Organization of the European Parliament

The European Parliament meets and deliberates in public during plenary sessions. Its debates, opinions and resolutions are published in the Official Journal of the European Communities.

Political groups

Members of the European Parliament do not sit in the hemicycle in groups of national delegations but as political groups.

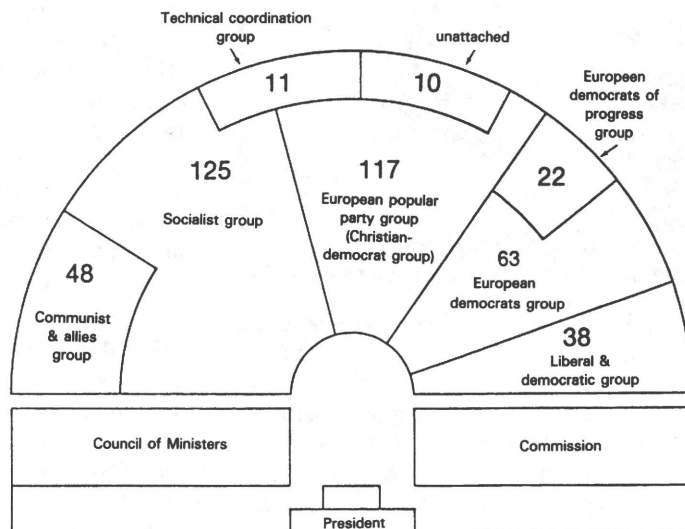
Like in national parliaments, parliamentary groups determine the political orientations of the Assembly. Their spokesmen are present, in commission and in plenary session and their positions on problems are examined.

At present, parliamentarians of several countries are in all the groups, which makes them take interest in issues that go beyond national preoccupations. The political groups in the European parliament are as follows:

- The Socialist group, 125 members.

- The European popular party group (Christian-democrat group), 117 members.
- The European democrats group (conservatives), 63 members.
- Communist and allies group, 48 members.
- Liberal and democratic group, 38 members.
- The European democrats of progress group, 22 members.
- The technical coordination group of European independents, has 11 members who retain their specific political identity. Ten parliamentarians are unattached to any political group.

This is how the European Parliament hemicycle looks:

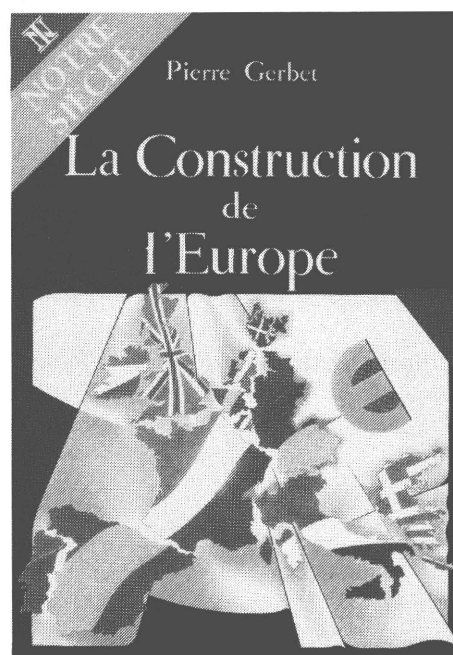


Note: On the left of the President of the Parliament is the bay reserved for the Council of Ministers (represented mainly by one or more ministers of the State holding the presidency of the Council); on the right of the President are seats for the Commission. ○

(1) From "Dialogue", Press and Information Office, Geneva.

Pierre GERBET — **La construction de l'Europe** (The construction of Europe) — Collection 'Notre Siècle — Imprimerie nationale, Paris — 498 pages — 1983

Although the unification of Europe is not complete, it is still one of the most fruitful and original ventures of our time. For centuries, historical trends accentuated the diversification and division of Europe into a chequer-board of languages, cultures, religions and political and economic structures. Nation-states had gradually grown up and armed themselves, in perpetual competition and rivalry, and their only relations were domination or fragile balances of power. Emulation was certainly one of the reasons for the greatness of Europe, for the richness of its civilization and for its mastery of the world. But exasperation at antagonism and an absence of organization led to ruinous conflict.



With the Second World War and all its destruction, the rise of non-European powers and the loss of its colonial empires, Europe stopped being a centre of world power. What is more, it was divided by the cold war. The need to get organized was obvious, but there was divergence as to the ways of doing so. While the Soviet Union asserted its domination over Eastern Europe, the democratic nations of Western Europe grouped together freely to rebuild and defend themselves, with

the help of the USA, and lay the foundations for unification.

This book relates the progress of the construction of Europe through the action of the European movements, the favourable attitude of public opinion and the courageous initiative of convinced men such as Jean Monnet, Robert Schuman and Paul-Henri Spaak. The governments committed themselves to unification, not without reservations or differences of opinion, particularly with de Gaulle. The cooperation organizations (Organization for European Economic Cooperation, the Brussels Pact, the Western European Union and the Council of Europe) were only limited in scope and it was the European Communities that made it possible to take a decisive step forward, first with the Schuman plan and the ECSC and then, after the failure of the European Defence Community, with the European Economic Community and Euratom. Considerable progress has been notched up. A 270 million-strong common market has been created, with its own common agricultural policy and European monetary system.

These Community institutions have been completed by the introduction of the European Council of heads of government and the election of the European Parliament by universal suffrage. The Communities have expanded to 10 members and many countries are now associated. But the construction of Europe must be boosted to stand up to the challenge of the modern world and the internal crises that could well arise. It must be pursued with the institution of a European Union which has proper political powers and can assume a role commensurate with its human and economic potential in international relations.

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Luigi BARZANI — **Ces Européens sont impossibles!** (Those impossible Europeans!) — Editions Buchet/Chastel, 18, rue de Condé, Paris, 75006, Paris, France — 309 pages — Bfrs 684 — 1984

Luigi Barzani, who produced this remarkable analysis of contemporary Europe and wrote "The Italians", is considered to be one of the best journalists in the world and the wisest and most brilliant of European chroniclers.

He revels in his culture, yet he is warm-hearted and lucid and sees a Europe which should, but does not want to, which must, but probably cannot, find a common will, speak with a single voice, defend itself and have a single foreign policy. Europe is wealthy, densely populated and homogeneous enough to become a super-power overnight. But although it is at peace, it is far from being a super-power because each of its nations is warming itself around the embers of its own ephemeral greatness.

In his thoroughgoing examination of European culture, of the nations that would of necessity be the foundation of a united Europe (Britain, Germany, France, Italy and Benelux) and of Europe's fears and confusion about its main ally, the USA, Barzani sounds the alarm. If the West cannot grasp the need to unite, it is in danger of disappearing.

Barzani combines historical research and very perceptive personal observations with both spirit and authority. The result is an impassioned work by a great writer at the height of his talent. At the end of the book, he says: "The future is in the hands of the gods". But, he adds: "It looks as though it will depend, once again, on what decisions Germany makes".

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Michel JOBERT — **Vive l'Europe Libre!** — **Réflexions sur l'Europe avec le Centre d'Etudes du Mouvement des Démocrates** (Long Live Free Europe — Thinking about Europe with the Democratic Movement Study Centre) — Editions Ramsay, 9, rue du Cherche-Midi, 75006, Paris, France — 208 pages — Bfrs 542 — 1984

The European Community has been weakened by the crisis, it is under the thumb of the great powers and today it is no more than a complicated contrivance masking vast disagreement.

Yet if all the Europeans wanted to be free, anything would be possible and a future for Europe could be built up around that freedom. "Long live free Europe!" does not hide the difficulties, but it does show how to overcome the economic and agricultural difficulties; start common industrial action and organize expansion; run a European financial policy with its own

currency, the ECU; transform what is a series of egoisms into a cultural collectivity that is rich in diversity and languages; break down Europe's strategic dependence and give it the means to defend itself and its independence; and create the institutions required to make progress. Being European is wanting, solely and fundamentally, freedom for Europe.

"The time is ripe for European emancipation, for the two (Soviet and American) empires are wavering. The Soviet Union, the last 19th century colonial power, is trying to hold together people who would split up if it weakened its military hold. And the USA is itself affected by the economic and monetary rules, that modern form of colonial pact which have created vast imbalances in the world. The two super-powers are now on the defensive. Then let us say so! Let us shout it from the rooftops! Let us capitalize on it!"

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EUROPEAN DOCUMENTATION
— **The ABC of Community Law** —
Office for Official Publications of the
European Communities, Luxembourg
— 52 pages — 1984

On the basis of the European Treaties (European Coal and Steel Community, European Economic Community and European Atomic Energy Community (Euratom)), which were signed in Paris in 1951 and Rome in 1957, thousands of decisions are taken each year which have a major impact on the running of the Member States and on the lives of European citizens. The individual ceased long ago to be a citizen merely of his town, locality or State: he is now a Community citizen too.

The purpose of this publication is to explain the European legal order to those citizens. It is addressed primarily to non-lawyers and tries to describe the Treaties in terms intelligible to the layman.

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Altiero SPINELLI — Come ho tentato di diventare saggio — I — Io, Ulisse — Il Mulino, Bologna — 356 p — Lit. 25 000 — 1984

So this is the first volume of Altiero Spinelli's Memoirs. The title of the whole work, "How I have tried to be-

come wise", expresses the aim, the final project of a life the ideal of which is quiet wisdom. But a life story is a tale of struggles, sometimes very cruel ones. What this first volume recounts ("I, Ulysses") is a real material and intellectual Odyssey. "Ulysses" was Spinelli's name during the underground years, first in 1925-1926 after which he was arrested and sentenced to 16 years' goal, and later in 1944, under the German occupation, when European Federalism was set up on a clandestine basis. This will be the starting point for the second part of these Memoirs.

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Jacques MOREAU — L'Europe quand-même — Syros, 6 rue Montmartre, F 75001 Paris. — Collection "La France des points chaud" — 125 p — 45 ff — 1984

The author, who is a French Socialist and chairman of the European Parliament Committee on economic and monetary affairs, chairman of the IXth Plan working party on France's European strategy in the 1980s, stresses in this book the need for Europe to have a "clear and precise" purpose. Following the difficulties and failures of the years 1983 and 1984, he writes, one is tempted to say "it is still Europe"; but the European Community "still possesses a number of advantages", if we are quick. Mr Moreau, who in his book takes a brief historical look at the past 30 years of the Community before reviewing clearly and concisely the different policies in Europe, states the need to confirm that "over and above the different expressions and translations, the aims are the same for all Member States, i.e. acquiring its own decision-making capacity, asserting its own economic and social system and determination to exist and to make its presence felt in world affairs".

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Daniel STRASSER — Les finances de l'Europe — 5th edition (third in French), revised and updated — "Collection Europe", run by Guillaume Muller. Fernand Nathan (Paris), Editions Labor (Brussels), RTL Editions (Luxembourg) — 661 pages + index — 995 FB (113 FF) — 1984

What are then the finances of the European Community and which ones

are most in the public eye? This is the question to which Mr Daniel Strasser (European Commission Director General for budgets) addresses himself. He analyses EEC budgetary law, and describes sources of finance. In the third part, he analyses the interventions they finance. Annexes give information on past data which help to give an overview of the present situation. Mr Strasser's work has, and rightly so, become a reference source on all Community budget matters. In the conclusion of the present edition, Mr Strasser first of all stresses that Community budgets, which are certainly quite sizeable in absolute terms, are still of fairly modest proportions (0.86% of the Community's GDP and 2.5% of the total national budgets in 1982). The Community's financial resources cannot, therefore, be an instrument of economic policy. They should mainly be an instrument to back Community policies, fashion solidarity among Member States and ensure rational use of Community resources.

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The European Community and EFTA in the 1980s — European Research Associates (ERA), 39 bd Clovis, 1040-Brussels — 206 pages — 18 500 BF (or 345 dollars) — 1984

This study by ERA experts is published at a very timely moment. For the first time, the Ministers of the European Community and the European Free Trade Association have held a joint meeting (in Luxembourg on 9 April) to acknowledge the setting up of a free trade zone including both groups. They issued a joint declaration where they stressed what had been accomplished, and, in the view of some, what is still to be accomplished. The authors of this study have precisely posed the question whether, in order to take up the challenge of American and Japanese competition, the best advantage which European industry could enjoy would be the setting up of a genuinely unified market covering the whole of Western Europe. This will also be the main topic of discussion at the EFTA summit to be held in Sweden at the end of May. This study clearly does not confine itself to merely posing a question: it provides valuable information and scientifically develops each subject it deals with. ○

Tropical oilseeds

Oilseed calls to mind, essentially, lipids, i.e. fatty substances. For a long time scientists underestimated their protein value. And yet it is known that African peasants, on the high western plateaux or in the coastal regions of Cameroun, for example, were well aware of the nutritious value of oilseeds (in particular soya, groundnuts, palm nuts, coconuts, etc.), which constituted the main crops and figured in the making of the principal meals.

The same is true of coconut in the Caribbean, the Pacific, and in certain regions of Africa (e.g. Tanzania and the Seychelles) where its dietary use is very varied.

For several years now, scientific research has established complementary or substitutory links between the high protein value of oilseeds and fats. It is now quite clear, for example, that soya is richer in protein than fatty matter, and that cottonseeds are as rich in protein as fats.

Oil cakes, moreover, formerly considered to be unusable, are now playing an expanding role both in the feeding of livestock and in agriculture in the form of fertilizer production.

Economically speaking, tropical oilseeds, long neglected to the benefit of crops such as coffee and cocoa, are now coming into the limelight, since the ACP states' serious food problems will only be solved if the potential in terms of agriculture and livestock of the countries concerned is realized.

Not to be forgotten, either, is



the industrial value of oilseeds, whose amino acids are used in the manufacture of numerous finished products in the food, cosmetics, cleaning and building (paint) industries as well as in the arts (lacquers and varnishes).

This "Courier" dossier explores the great potential for economic development offered by oilseeds in the ACP states. While certain plants such as

sunflowers, flax and jojoba are playing an increasingly important part in the manufacture of foodstuffs and cosmetics (see p. 85), only the principal oil-yielding plants are examined here.

A summary of EEC financial assistance to ACP oilseed production demonstrates the interest shown by the Community in strengthening the economic bases of its Lomé Convention partners. L.P.

Palm oil and the world market in oils and fats

By G. MARTIN (*)

Over the past 30 years, the world production of edible oils has increased from 23.5 million tonnes to 62.3 million tonnes, an annual increase of 5%.

Vegetable oils have constantly increased their share of the market and they now represent more than two thirds of world consumption. The rapid growth and importance of palm oil production is the major event of the past 15 years in this sector and the product, like soya oil, has become one of the most popular oils, justifying the interest currently being shown in growing oil palms.

Prior to 1945, in the period between the two World Wars, Africa accounted for most of world production and exports, the other regions which produced and exported them being the Far East (Malaysia and Indonesia).

World demand for edible oils and fats soared spectacularly after the war, primarily due to the industrialized countries, and most of the new needs were met with soya oil, a situation which was encouraged by the general use of the hydrogenation technique, which meant it was widely used in the margarine industry too.

The considerable availability of low-priced soya oil on the world market originated in the ultra-rapid increase in demand for soya cattle cakes, which was itself a consequence of a substantial rise in protein consumption in the industrialized countries.

In the 1950s, the world oils and fats trade developed faster than production and palm oil, which was expanding at a very slow rate, lost more and more ground on a market that was increasingly dominated by fluid oil, with soya oil in the lead.

However, in the early 1960s, the conditions of profitability in the palm oil industry were to change overnight.

(*) Director of Systems and Means of Production Department of IRAT (Institut de Recherche Agronomiques Tropicales et des Cultures Vivrières).

Improved selection meant that, as from 1960, the planters could be provided with material that brought them a substantially better yield and palm oil became by far the potentially most productive oil plant per hectare, with as much as three tonnes oil when ecological conditions were good.

So it became a far better proposition to grow oil palms and this encouraged certain countries, such as Ivory Coast, Cameroon and Benin, to include the crop in their development plans.



High yielding selection of 4-year-old palm trees

In 1961-77, 88 000 hectares were planted with oil palms in Ivory Coast, 25 000 ha in Cameroon and 27 000 ha in Benin. The two biggest producers of the 1950s, Nigeria and Zaire, lagged behind, mainly because of internal difficulties but also, in Nigeria's case, because of the Marketing Board's low prices.

This enthusiasm for oil palms took practical shape, something which was made easier by ever-increasing international funds being made available for agricultural development in the countries of the Third World. The World Bank, to take but one example, financed 22 oil palm plantation products in 1965-75.

The entry into massive production of new plantations, from 1968 onwards, generated a spectacular increase in world production — which rose from 1.4 m t in 1968 to 3.6 m t in 1978 and 5.5 m t in 1982.

Malaysia, the main country concerned in this remarkable surge, adds its production to that of Indonesia, and most of world production comes from the two Far Eastern countries, which provide 70-80% of supply.

So, of all the products on the edible oils and fats market, palm oil has made the most progress over the past 10 years.

The oil palm is currently the perennial oil plant that produces most oil per unit area. Six hectares of groundnuts and 10-12 ha of soya bean would

be needed to produce as much as one hectare of oil palms.

As the palm yields throughout the year for more than 20 years, it guarantees a supply of constant quality in the long term.

Its products can be used both for industry and human consumption.

The length of time it can be exploited means that labour forces and populations can be stabilized and it ensures that road and social (schools, hospitals and dispensaries) infrastructure can be amortized.

Progress of research

Selection has gone through a num-

ber of stages and meant that the spontaneous palm (99% *dura* palms with fruit with thick shells) has been abandoned in favour of the selected palm (100% *tenera* palms with fruit with thin shells) and yield increased from 500-600 kg oil per ha to a potential six or seven tonnes.

The period from 1920 to 1940 was a time when local attempts at selection were ineffectual because yield is not a highly heritable characteristic. In 1940, the Yangambi Station (in Zaire) discovered the shell thickness heredity mechanism and is behind the spread of *dura* × *pisifera* crosses. In 1947-1954, there was a vast international exchange of material, designed and organized by the IRHO, between various countries of Africa and Asia. This revealed the superiority of crosses between *deli* palms from the Far East and African palms over *deli* × *deli* and African × African palms. At this stage, a 50% improvement had been achieved (4.5-5.5 t oil per ha). From 1957 onwards, the IRHO adapted a reciprocal, recurrent selection method for the oil palm and 15 of 750 crosses tested were chosen to produce seed, making for further progress of 20-25% in productivity with the seeds in current use (six to seven tonnes oil per hectare). The second cycle of recurrent selection, which began in 1970, called for a study of 840 crosses in Africa and Indonesia. The principle is a simple one. Some of the parent palms used to reproduce the 15 crosses previously selected give higher performance hybrids than others (i.e. they have a better aptitude when it comes to combination) and so an attempt will be made to use only these.

This stage suggests that a further improvement of the order of 10% can be made.

There has also been an improvement as far as containing upward growth is concerned. It is now less than 50 cm p.a. as against the previous figure of sometimes as much as 75 cm p.a. and the period of exploitation has gone up by three or four years as a result.

The fluidity of the oil will be improved by a 10% increase in the unsaturated fatty acid content.

But before the end of the present decade, the productivity of the oil palm will surge forward yet again

thanks to the introduction of an *in vitro* vegetative multiplication process.

This combined ORSTOM-IHRO operation, which the ORSTOM researchers Rabechault and Martin introduced in the Bondy laboratories (France), yielded the first plantlets in 1976. The process was perfected and a clone production unit has been operational since 1981 at the La Me oil palm station in Ivory Coast. The clones are tested for conformity, growth and production on the station and the best of them will be mass produced.



Turning the *Imperata savanna* in the Dabou region (Ivory Coast) into oil palm plantations

A cross between two parents producing, say, 30 t of bunches per ha (220 kg per palm on average) will contain individuals that produce 300 kg and it is these that it is expected to reproduce exactly, as this would enable us to hope for a further improvement in yield, reaching 10-11 t oil per ha in ideal ecological conditions.

Biochemistry and physiology are leading to a better understanding of mechanisms such as mitochondrial activity and enzymatic activity (nitrates, phosphates etc.) and a study of the genetic variability of ecotypes (electrophoresis techniques) and thus to a better-informed choice when it comes to introducing and crossing species.

Applied agricultural research in the main regions of the world and the perfection of leaf diagnosis mean that two types of fertilizer can be offered to meet the needs of the different categories of planter — companies seeking maximum production, companies seeking maximum profit and small

farmers who can only spend a limited amount of money on fertilizer.

The oil palm, which originated in Africa, is highly susceptible to American parasites, which, in many cases, transmit diseases whose pathogenic agents are gradually being discovered. Flagellate protozoa and fungus nematodes have been recognized by the IRHO-CERDAT laboratory in Montpellier and viruses will probably be isolated too.

In West Africa, burrowing larvae of a small beetle, *coelaenomenodera elaeidis* are the main threat, and an endemic one. There is a variety of

treatment (injection, spraying from helicopters and planes) for this and dates and numbers of treatments are defined by biomathematical methods.

Poor early fruit formation in Papua-New Guinea and Sabah (Borneo) was found to be due to the fact that there was practically no pollinizing fauna. A more extensive study of fruit characteristics (normal and parthenocarpic fruit) in both Cameroon and Malaysia and Sabah was run and it led to the conclusion that it would be a good idea to bring in five or six types of little weevil that were the main pollinators in West Africa where the percentage of fertilized flowers is 70-80%, as against 50% in Malaysia.

The first batches were released in the south of the peninsula in April 1981 and, a year later, all the flowers and all the palms in the whole of Malaysia had been colonized by *elaeidobius kamerunicus*. The effect on palm nut production was spectacular — yield increased by 54% over the pre-



A palm plantation in the Ivory Coast with 4-8 year-old trees. Ivory Coast has the biggest and the most advanced development programme for oilseeds in Africa

vious year and the production of palm oil went up by 24% too. The 30% difference can no doubt be put down to the introduction of the weevils. The indirect effects of the idea (reduction in the numbers of the local pollinating thrip and an increase in the number of tree rats that eat the larvae of *elaeidobius Kamerunicus*) do not seem to have been very great.

Outlook

Palm oil represents 14% of world vegetable oils and fats resources.

This is due to an improvement in yield per hectare on the plantations and a large increase in the surfaces under oil palms in the Far East, where average yields are beyond four tonnes oil per ha.

Productivity could still go up a lot in the future thanks to such things as vitroplants, which should certainly be able to come into widespread use by the end of the decade. World needs are still immense. Today, four fifths of mankind get less than 10 kg of oils and fats per person per annum — as against an average 25 kg in the developed countries and as much as 30-35 kg in most industrialized countries.

Assuming the conservative figure of 6 000 m for world population in the year 2000 and a target of around 18 kg

per head, theoretical needs will be of the order of 108 m t, a production increase of 46 m or 2.6 m t p.a., in 18 years.

The shortfall is far from being made up.

It would, therefore, seem reasonable, whenever ecological conditions allow, to go in for the oil crop that produces most per unit of land. The best oil factory is indeed the oil palm, because of its high yields, so it should be to the fore in the development programmes.

Oil palm products

Because industrial palm oil has a very low acid content (4-5%), it is almost all used for food and, once it is refined, there are major outlets in the margarine industry and in the manufacture of vegetable fats.

Palm oil can be split into a liquid part and a solid part and both are excellent for alimentary purposes. Liquid palm oil, once refined, has a fine golden yellow colour and can be used as table oil, by itself or combined with other oils, colza in particular. Solid palm oil, which is very white, is used, in the same way as the whole oil, to make margarine and vegetable fats and in the biscuit and cracker industry.

Palm oil is also used in soap mak-

ing, although to an ever-smaller extent. The product used for this purpose has a high acid content (10-25% or even more), which is to say it has been made from sub-standard fruit and preserved carelessly.

Almond oil has much the same properties as coprah oil, which it very much resembles (coprah oil contains slightly more volatile acids with low molecular weights). The main outlet here, after refining, is the food industry, where it is used in the manufacture of margarine, vegetable fats and fat for chocolate making. It is also used in the soap industry, as, because of its lauric and myristic acid content, it helps generate a good lather.

Palm oil cattle cake is popular in the making of compound animal feed.

As things stand, the stalks, fibres and shells are burnt, usually in the boilers of palm oil mills. Stalks are also used for mulching in nurseries and on plantations. The minerals they contain (30% K_2O) can be returned to the soil in the form of ash after incineration.

Biotechnical research is also being carried out to process palm oil, or the solid part of it, into protein. A yeast, *candida lipolytica*, brings about a bio-conversion with a satisfactory yield in laboratory conditions.

It is hoped to move on to the pilot stage soon and the oil palm could then become a source of protein in the same way as soya beans and coconuts.

It is not technically out of the question for palm oil, untreated or in the form of esters, to be used in diesel engines in unusual cases where it is worth 50% more than diesel fuel.

There are many regions in countries on the equator and in the tropics that would be right for the development of oil palms, which, with their high productivity, are very much to the fore in the oil industry. Plantations covering relatively small areas would be enough to meet a large part of the needs of the expanding populations.

In view of the foreseeable increase in needs, oil palms are in line with the aims of an enlightened agricultural policy and, with their high productivity and long life, are an asset to the countries in which they grow

o G.M.

Detoxification and use of groundnut oilcakes in animal feed

J. DELORT-LAVAL (*) and G. VIROBEN (*)

The world production of groundnuts was around 12 million tonnes in 1982/83. This was slightly down on the previous year, although a long way from the particularly low figure of 11 m t recorded in 1980/81.

The nuts are grown on different continents, with India very much in the lead, and marketed primarily as they are, for human consumption.

Oilcake production was very much lower in 1980 and 1981 than it had been in 1979 because bad harvests in Senegal and Argentina reduced the quantities for grinding. In 1982, Senegalese output picked up again, as economic conditions were more favourable. The EEC imports its oilcakes mainly from India, Senegal and Sudan, but the market waned markedly in 1979 and 1980 and slumped completely the following year when the European Community took up a position that considerably worsened the constraints on their use.

What is aflatoxin?(1)

Groundnuts can be contaminated to a greater or a lesser extent by *Aspergillus flavus*, a mould which is in the soil and develops when humidity and temperature are right, particularly in the tropics. This mould generates metabolites which are toxic and carcinogenic and the most common and most dangerous of them is aflatoxin B1.

Some species (trout) and certain categories of young animals (ducklings, turkeys and young rabbits) are very sensitive to this toxin, which causes cancer of the liver, even after repeated ingestion of tiny doses. Of the larger animals, pigs are more sensitive than cattle and sheep are fairly resistant. Aflatoxin B1 seems to undergo profound changes in the rumen of ruminants and, in dairy cattle, it is excreted, in the form of the far less toxic aflatoxin M1, in the milk.

The risk to humans comes from direct ingestion of contaminated products or from residue excreted or contained in animal products. Aflatoxin builds up in the liver and the kidneys, but very little goes into the muscle tissue, so it mainly finds its way into man through offal.

The main risk, obviously, is food that has itself been contaminated with aflatoxin and primary cancer of the liver has been found in populations that consume the nuts—often those left in the field after the harvest, which are the most contaminated. However, there is apparently little danger attached to eating the nuts, if they are very carefully sorted. Very little aflatoxin gets into oil either, as it is eliminated during the neutralization and decolourizing stages of the refining process.

The Community Directive of 17 December 1973 (OJ L 38/31 of 11 February 1974) set the maximum admissible aflatoxin B1 content of basic food destined to be used directly by the farmer at 0.05 mg per kg and at 0.02 mg per kg in additional feed for dairy cattle. This last figure has been recently lowered to 0.01 mg per kg (2).

Faced with the decision that some countries had taken to refuse to allow imports of dairy products in which aflatoxin M1 had been detected, France tightened its control of contaminated cattle cakes and decrees, on 29 May 1980 and 5 October 1981, laid down 0.05 mg per kg and then 0.03 mg per kg as the maximum aflatoxin B1 rate in groundnut cattle cakes and the figure was brought down to 0.01 mg per kg just recently. Over the same period, the United Kingdom ruled that compound animal feed should contain no groundnut at all while other countries, Germany, for example,

were attracted by the low cost of the product and substantially increased their consumption of it.

This was a serious threat to the economies of the African producers, as it compromised their exports of cattle cake, which was one of the main assets for certain of them. Groundnut production leaders are aware of the gravity of the situation and are trying to find an answer by perfecting the genetic selection of thicker-shelled hybrids which can resist *Aspergillus flavus*, using varieties which are adapted to the presumed rainfall cycle of the region in question. At the same time, schemes are being run to get the peasant farmers to stick to the sowing dates, to harvest the nuts at the right stage or ripeness and to improve storage conditions, all of which are decisive as far as the development of the mould is concerned.

Detoxification techniques

These different measures will only have an effect in the relatively long term and a rapid answer to the contamination problem would mean trying to eliminate the toxic substance either by sorting the nuts or by detoxification techniques. Contamination is particularly high in the case of nuts that have been damaged by insects or that are broken or unripe and so countries where labour is cheap use manual methods of sorting, sometimes accompanied by visual stereomicroscopic checks.

Various mechanical sorters have been tried out. The zig-zag method weeds out the contaminated nuts, which are lighter, by suction, and another device, using air separation and electronic sorting (based on the fluorescence of contaminated nuts under ultra-violet light) has been suggested for nuts destined for human consumption. These methods are not watertight, however, and can only be used for batches that are heavily polluted. Lastly, interesting tests have been run with a selective machine which uses a pressure method to shell healthy nuts. Pressure, at 6-7 bars, is exerted and then suddenly released, at which point the healthy nuts crack open, while those with holes in, because the air can escape, do not. However, this technique has not been put into practical use because of the high

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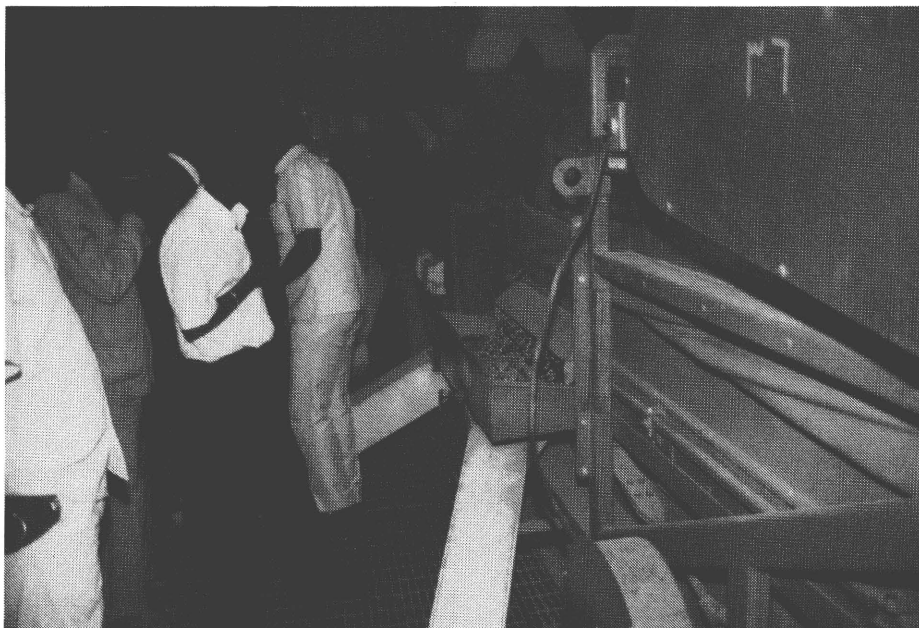
(1) Editorial subtitles

(2) In a letter dated 30 March 1984 addressed to the EEC Council of Ministers, the Secretariat-General of the ACP Group in Brussels protested to the Community against this directive, considering it to be "highly discriminatory" vis-à-vis "products from developing countries, including from the ACP States". (Ed. Note)

investment costs.

In view of the low efficiency of the sorting methods and the considerable waste they involve, the only possible way of reducing contamination is physical or chemical detoxification.

Aflatoxin B1 is very heat-resistant, so heat and pressure methods do not bring about a satisfactory reduction in toxicity. Since aflatoxins dissolve well in polar solvents, acetone, methanol and azeotropic mixtures of acetone, hexane and water or isopropanol and water have been the subject of much testing. However, none of the mixtures have proved efficient enough, even after repeated washing. And acetone-based solvents often leave a smell, making the product unacceptable to animals.



Groundnut processing plant in Sudan
The detoxicated cake is an excellent food for cattle

There are chemicals, including various oxidizing agents, that deactivate the aflatoxin molecules, but no practical application has resulted from research into this field, doubtless because of the high costs of the products involved, the possible danger entailed in working with them and the possible harmful effect on the nutritional value of the cattle cake. And the same goes for acids, which are only active at high temperatures and high rates of concentration.

Alkaline agents, which affect the lactone function, seem to be the most interesting proposition. Certain people's work suggests that a pH of 9.5-10 is required to destroy the molecule

completely. Soda, sodium carbonate, lime and cold ammonia can reduce contamination, but the reaction is slow because of the poor contact between the detoxifying agent and the rare aflatoxin molecules dispersed in the mass of cattle cake. So large quantities of reactive have to be added and heat must be applied to speed up the reactions. Lime and formaldehyde seem a much better proposition in association than separately. It is the volatile alkaline agents that seem the most satisfactory way of achieving rapid detoxification, if properly diffused through the mass being treated. Two processes have been the subject of particular study—treatment with a combination of lime and monomethylene and treatment with ammonia.

ments, as it is carried out at normal air pressure. But it does call for additional toxicological and nutritional studies to be carried out, particularly as regards the appetizing nature of the detoxified products and the passage of residual aflatoxin into milk.

However, there is a wealth of technical information on the use of ammonia as an aflatoxin deactivator and it includes many scientific data obtained during testing in France and elsewhere. This is the only process to have been used on an industrial scale so far and an outline of its history would, therefore, seem appropriate. Ammonia has been chosen for both technical and economic reasons and there is a bias in its favour because of its action on certain cellulose foodstuffs (straw and riceballs). The process requires no neutralization (which harms the mineral balance in the finished product) and any excess ammonia is fairly easy to eliminate.

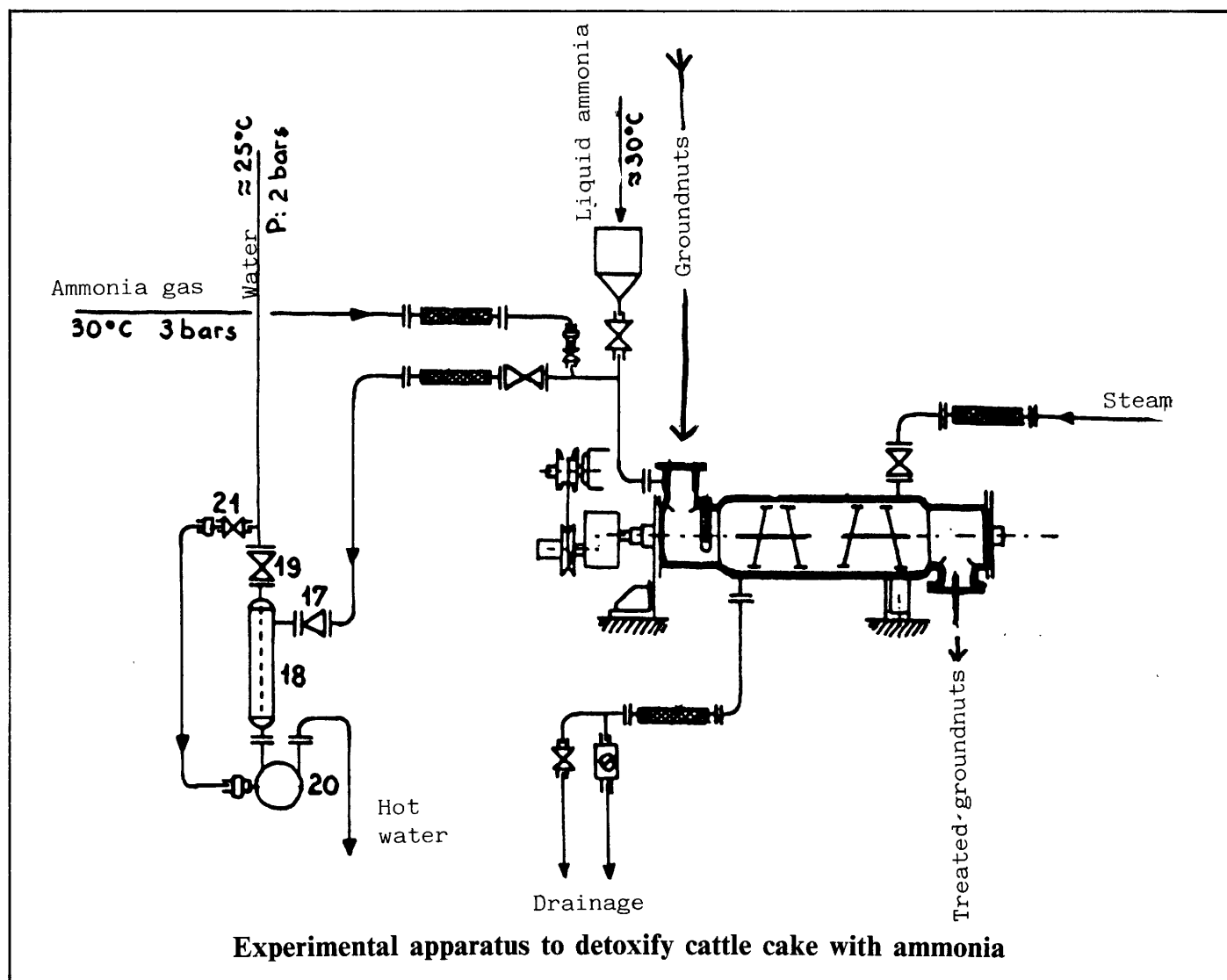
The action of ammonia gas under pressure was investigated in the USA 15 years ago and a patent was lodged for the method in 1969. A few years later, groundnut cattle cake treatment methods were perfected in a pilot unit in France and the products subjected to toxicological, biochemical and nutritional examination.

A detoxification unit in Dakar

During this recent testing, it emerged that an increase in the water content of the mass treated encourages detoxification, but loss of cystin, the only amino acid partially destroyed during treatment, is greater. So researchers opted for a fairly low water content (6-7%) and varied the pressure of the ammonia between two and three bars and around 95°C. This type of treatment reduces the quantity of chemically dosable aflatoxins by 95%. This has been confirmed by acute toxicity testing of fertilized eggs, baby rabbits on weaning and ducklings, all species that are particularly sensitive to aflatoxin.

Furthermore, long-term toxicity testing of rats showed no liver lesions after 18 months of ingestion of the treated product.

In view of these encouraging conclusions, Senegal's groundnut cattle cake producers decided to set up a first in-



Experimental apparatus to detoxify cattle cake with ammonia

dustrial detoxification unit in Dakar. During the process perfection procedure, it emerged that it was difficult to maintain ammonia at a pressure compatible with proper detoxification in an industrial unit. And the recuperation of excess ammonia posed many problems too. The decision taken in Senegal was to introduce just the right amount of ammonia but to increase the water content of the mixture.

The addition of a small amount of formaldehyde at the beginning of the process means that a mass in the reactor can be avoided. Pressure is between one and two bars, according to the degree of contamination. This yields cattle cake containing a small amount of residual aflatoxin (0.05 mg per kg maximum and usually less than 0.03 mg per kg). It increases the total nitrogen content in view of the fact that the ammonia is fixed, and it substantially reduces desolubility of the

protein, although it does slightly reduce efficiency in monogastrics because the cystin is partially destroyed.

Detoxified cattle cakes have no effect on the consumption of dry matter, the digestibility of the various nutrients or milk production in dairy cows. Tests of large numbers of animals in the laboratory and in the field have shown that only a very small amount of aflatoxin M1—no more than 0.1 mg per t of yield—finds its way into the milk.

Following this work, the French authorities agreed that groundnut cattle cakes, detoxified by this method, could be used in animal feed, provided stringent controls of the aflatoxin content were carried out.

Detoxified cattle cake seems particularly useful in feed for ruminants, as higher nutritional effectiveness, thanks

to the decrease in protein solubility, could be at least partial compensation for the cost of treatment. In the case of monogastrics, the attention of the technicians devising the feed formula should be drawn to the fact that:

- the nitrogen content of the product should be corrected because the treatment leads to nitrogen being fixed in a non-protein form;
- the sulfur amino acid systems should be rebalanced to take account of partial destruction of the cystin by the ammonia.

Detoxified groundnut cattle cakes will soon win back their place on the market in high class raw materials for animal feed, where it has always been appreciated by the farmer. This will be possible once other detoxification units, now being installed or planned in the producing and consuming countries, are operational. ○

J.D-L. and G.V.

Soya: possibilities of development in the ACP countries

by J. LARCHER, J.P. AUBIN, G. ROUANET (*)

Over the past decade, many people—not just agronomists, economists and nutrition specialists, but political decision-makers as well—have taken up positions on soya.

Where does soya come from? Why has it become popular in the USA and, more recently, in Brazil? What are the advantages and disadvantages of this plant, which is a source of both edible oil and protein and can it help provide an answer to malnutrition in the developing countries? How far can consumption and cultivation in the tropics be extended? These are the essential questions we shall attempt to answer.

Origins and expansion

Soya (*glycine max. L.Merrill*) originally came from northern China and is believed by some to be one of the oldest crops in the world. In 3838 B.C., Sheng Nung, the Emperor of China, wrote a book describing Chinese plants and in it he said that soya was the most commonly cultivated of the leguminous plants and that it was one of the five sacred grains of the Chinese civilization, along with rice, wheat, barley and millet. At that time, the sowing season was opened with pomp and circumstance by the Emperor every year.

Until the 18th century, soya was not grown outside Asia (China, Japan and Korea), but missionaries brought it to Europe, to the Jardin des Plantes in Paris in 1740, and to Kew Gardens in 1790.

It made its first appearance in American literature in 1804 and, in 1890, experimental stations in many states began to investigate the plant and tried to adapt it to their ecological conditions. US statistics for 1924 show that there were 722 000 hectares under soya and a production of 1.4 million tonnes at that stage.

J.P. Aubin

Present production

Brazil became the world's second biggest producer in 1980, behind the USA, pushing China and Argentina into third and fourth places respectively.

The rest of world production was as shown in table below:

Annual production of soya ('00 000 t)			
	500 000 t +	100 000 — 500 000 t	10 000 — 100 000 t
North America	Canada, Mexico		
South America	Paraguay	Colombia	Bolivia, Uruguay Ecuador, Peru
Europe	URRS, Romania	Bulgaria	Hungary, Yugoslavia, France, Spain
Asia	Indonesia, India	North Korea	Iran, Vietnam, Burma, The Philippines
Africa		Egypt, Zimbabwe	Nigeria, South Africa, Zaire
Oceania			Australia

Lastly, more than 20 other countries grow soya on a small scale and most of the rest are experimenting with it.

It is worth noting that annual production, which was up almost at the 100 m t mark in 1982/83, is mostly accounted for by countries in the temperate zones and that only a small amount comes from the tropics.

Soya and its uses

Soya makes a versatile contribution to diet in its area of origin—it is eaten as it is, it is made into flour and it is used to make sauces, soups and bis-



Mechanized methods of soya cultivation in Madagascar. Agricultural research and economic (i.e. price) incentives can help push up production in the ACP countries

(*) Researchers at IRAT (Tropical Agriculture and Food Crop Research Institute), France.

cuits, put in fresh milk and its derivatives (yoghourt and cheese), and much more.

In the industrialized world, the main use is for oil, which, after extraction, is widely used both as a table oil and in industry to make margarine, soap, lubricants and so on.

But it is its protein-rich meal, one of the basic components of animal feed in most countries, that is the secret of soya's success. De-oiled meal is used in almost every branch of the food industry, in baking, biscuit-making, the manufacture of babyfood and so on.

Lastly, soya is the basis for a variety of new industries of which we shall give two examples—soya steak is made from spun soya protein and, at the other end of the scale, soya is used to make explosives.

Special interest of soya as a source of protein

The value of soya has to do with its fat content (which makes it the world's first oilseed crop), but, above all, with its large high-quality protein content. Soya seeds contain more protein than the other main sources of animal vegetable protein, as the table above (top) shows, and they are to the fore, behind wheat, but ahead of meat and fish.

Soya also has a remarkable yield in protein per ha, far higher than other sources, animal or vegetable, as the following table shows:

Source of protein	Quantity (kg)
Soya	264
Maize	146
Wheat flour	81
Cow's milk	44
Beef	26

(Catron, 1975)

Soya protein is, therefore, undoubtedly, the cheapest to produce, although maize and wheat are still very important as priority sources of energy foods (starch).

Drawbacks of soya

The value of vegetable protein as

Sources of animal & vegetable protein	Proteins ¹ (%)	Lipids ¹ (%)	Glucides ¹ (%)	World protein production ² ('000 000 t)
Meat	17	16	0	21.9
Fish	16	0.5	0	11.8
Beef & veal	3.3	3.6	4.4	6.7
Eggs	13	12	1	—
Potatoes	2	0	16	—
Maize	9	4	74	23.5
Rice	7	1	80	23.5
Soya	40	21	32	24.9
Wheat	9	1.2	51	51

Sources: ¹ Allen, 1974. ² FAO, 1976.

compared to animal protein has long been a subject of debate. Nutrition experts now agree that vegetable protein "is not necessarily inferior, although it may be deficient in certain vital amino acids, which then become the limiting factor" (B. Favre et al., 1978). So sources of animal and vegetable protein must be varied to avoid any shortage of certain amino acids that could occur with a monotonous diet, even one based on soya.

Soya seeds also have a number of major drawbacks. They are thought not to taste as good as other leguminous vegetables (beans, cowpeas, groundnuts etc) and the antitriptic factor means they have to be cooked.

And, of course, the oil has to have the hydrogen removed if it is to be edible. Studies are currently being run in collaboration with various national and international food technology institutes with a view to finding products that can be directly used in food for animals and humans but that avoid the industrial process and consume a minimum of energy.

Soya as an answer to malnutrition in the developing world

FAO estimates taking the minimum energy requirements for survival as the critical limit suggest that 460 million people were seriously short of protein in 1970.

The situation is certainly worse now because of the drought that has prevailed in the developing countries for some years.

Soya could be one of the ways of cutting the protein deficiency in the Third World.

However, this plant, which is used in many ways, and has sometimes been used for many years, is still difficult to get established in countries where it is not a traditional crop. Bau and Debry (1980) suggest that, if soya is to be popularized in these countries, then soya-based products must be used rationally and the following rules adhered to.

— Production techniques must be simple and in line with the technological development of the countries in question.

— The food products on offer must be of excellent nutritional value and highly acceptable. Taste, flavour and texture are all essential features as far as acceptability is concerned, as is the quality of any cooking.

Many studies on introducing soya into traditional diets are being run along these lines in various developing countries.

Possibilities of developing soya-growing in the ACP States

It would appear to be a good idea to do this by making soya a preferential food crop that is processed on the spot and consumed at home rather than making it just a new export crop that goes to fatten animals in the developed countries in that "cynical bartering of the meat-laden western diet for the malnutrition of the Africans" (J. Latremolière, 1981).

The ecological conditions in many developing countries, particularly in Africa, are suitable for growing soya, and agricultural research institutes (IRHO (1), IITA (2)) have put a lot of

(1) Oil and Oilseed Research Institute, Paris.
(2) International Institute for Tropical Agriculture, Ibadan, Nigeria.

Region	Population (in 000 million)	Percentage receiving less than minimum requirements	Number of people receiving less than minimum requirements (in million)
Developed	1.07	3	29
Developing	1.75	25	434
• Latin America	0.28	13	36
• Far East	1.02	30	301
• Middle East	0.17	18	30
• Africa	0.26	25	67

(Source : FAO investigation of the world, present & future food situation 1974.)

work into adapting the crop, IRAT is doing its bit in a number of African countries and it now has viable methods of farming.

Soya is a "plastic" type of plant in relation to the soil and the weather (which must always be hot during the growing period). Only the late varieties, which can cope with short periods of daylight, are grown in the tropics.

The crop is very demanding as far as fertilizer is concerned and it is very sensitive to pests. Harvesting has to be done under strict conditions, as the pod is dehiscent in hot, dry climates and, in wet climates, mechanical harvesting is delicate and even impossible when the soya is ripe. Seed farms geared to certain ecologies that are too hot or always damp have to be set up if the germinative power is to be maintained.

The many things done by IRAT include creating cultivars ISRA (3)/IRAT 44 A/73, 26/72 and 22/72 in Senegal and these have proved to have excellent yields, seed quality and aptitude for mechanization.

If there is to be a decent, good-quality yield of the protein-rich soya, a large amount of nitrogen—around 200 kg per ha for a yield of 2.5 t per ha of seed—has to be applied. But soya is a leguminous plant and so it is able to live in symbiosis with an atmospheric nitrogen fixing bacterium, *Rhizobium japonicum*. Once inoculated, the soya plant can cater for its own considerable nitrogen requirements.

IRAT has made various contributions to solving the inoculation problem, by:

— collecting and assessing *Rhizobium japonicum* stock for various biotopes

that can survive from one agricultural year to another without annual inoculation;

— creating a fermenter that is easy to handle, cheap to produce and modifiable, so that inoculum production can be adapted both to small soya growing units and to major complexes with the best strains, according to the biotopes;

— developing a simple process for manufacturing inoculum-containing microgranules and a spreader that can be adapted to the current draft tillage equipment.



A large soya plantation 1 600 m above sea-level in Madagascar

Economically speaking, the quasi-monopoly of the USA and Brazil, plus the higher cost prices currently obtaining in various places (Senegal, Cameroon and Madagascar) often prevent the developing countries from being competitive on the international market and once again work in favour of a crop for home consumption. In this

case, soya becomes a substitute for imported food products, which helps improve these countries' trade balance.

This is a particularly interesting prospect in countries where land is available, where people want to improve the output of the livestock sector and where there is a shortage of oilseeds in the human diet. Regions with rainfall in the 1200-1500 mm bracket are most suitable for soya crops and the plant is generally sown after maize or rice or grown in association with maize (as at high altitudes in Cameroon).

In tropical areas where the rainfall is low (but higher than 700 mm p.a.), soya can be grown in rotation with a cereal crop, be it maize, sorghum or upland rice.

Soya can be grown in almost all the ACP countries. However, there must always be at least 500 mm of rain during the growing season, there must be a regular supply of water and a minimum temperature of more than 13°C during flowering if yields of at least 2 t per ha are to be obtained.

The aim as far as expansion of this crop is concerned must, in most of the developing countries, be to meet domestic demand for protein for human and essentially animal consumption.

There may be obstacles to development in various of these countries:

1. The problem of accepting soya and its derivatives in the daily diet. Food technology research has been and is being carried out. Remember that soya protein is cheaper and small quantities improve the nutritional quality of many foods.

2. Soya can be grown in a number of farming systems, but it is a delicate crop and a certain amount of input (phosphorus and potassium fertilizer and pesticides) is called for. In most ecologies, the soil has to be inoculated to ensure that the plant gets symbiotic nitrogen that guarantees yield and protein quality.

3. Soya, which is more fragile than rice, maize and groundnuts, has to be harvested in good time, as soon as it is ripe, and then stored at specific temperatures and humidity levels if its germinative potential is not to decline fast. This, of course, means organizing a rational seed production system. ○

(3) Senegalese Agricultural Research Institute.

The coconut palm and coconut products

by Richard CONSTANDUROS (*)

The coconut palm extends today over much of the coastal areas and islands of the tropics. In Africa, coconuts are found as far north as Cape Verde on the west coast and Djibouti on the east. To the south they extend to the Zambesi river area in the east and Moçamedes on the west coast. In the Asian Pacific cultivation is widespread, with the major producing countries being Indonesia, the Philippines, India and Sri Lanka. In the Caribbean region, coconuts are found from Guyana in the south to as far north as the Bahamas.

The origins of the coconut palm are unclear but are thought to be in the Asian Pacific area. Its present wide geographical spread has largely been due to man, who introduced it to West Africa and the Americas.

The expansion of coconut cultivation began some 100 years ago with a rise in demand, mainly in Europe, for coconut oil as a soap-making material. Until this time, cultivation had largely been for the nuts as a food source. As a result of the increase in demand, commercial plantings were developed throughout the areas where coconut production existed.

Today, the coconut palm is the predominant tree crop throughout the Caribbean region. Coconut oil is the only oil produced in the area from a now indigenous oil-bearing crop.

Current situation

From the early development of commercial production for soap manufacture, coconuts were also used as a source of edible oil, with the USA being currently the largest importer of coconut products. In Europe, Holland and Federal Republic of Germany are the largest importers followed by France and United Kingdom. Outside USA and Europe, Japan is also a major importer of coconut products.

(*) A director of Minster Agriculture Ltd, Richard Constanduros has recently completed a EEC-funded review of coconut production in the Caribbean, together with recommendations for the development of the industry.

Trade in coconut products began with copra as the most feasible way of transporting the oil. Copra is essentially the meat of the coconut which contains the oil, dried either naturally in the sun or by artificial means in driers fuelled either by the shells or by conventional fuel such as diesel. Once the copra reached its destination the oil was extracted from the meat, the residue being used as a livestock feed.

Since the initial expansion of commercial production, oil extraction facilities for edible oil production have been established in producer countries such as the Philippines, Indonesia and the Ivory Coast, still using copra as the raw material. The resulting oil is consumed in those countries, mainly in south-east Asia but also in the Caribbean region.

At the same time the development of annual oilseed crops such as soya-bean and oilseed rape in the Northern Hemisphere, and oil palm in the tropics, have meant that there are alternative vegetable oils available producing higher yields per hectare, up to 7 tons per hectare of oil from oil palm



Production of seedlings in Jamaica

as opposed to up to 3.25 tons from coconuts. This has meant that coconuts now only produce some 5% of the world's oils and fats.

The necessity for the production of copra as a prelude to the extraction of oil has further eroded the competitiveness of coconuts. Current world prices of the major vegetable oils are US\$825 per ton for oil palm, US\$327 per ton for soya bean and US\$1090 per ton for coconut oil. It is likely that in the future the competition between soya bean oil and palm oil for the world market for vegetable oil will continue to affect the position of coconuts as a source of vegetable oil.

In the Caribbean, near regional self sufficiency in oils and fats existed, based on coconut oil, until the end of the 1960s.

Since then, a combination of factors, such as the decreased supply of nuts for copra through natural disasters and other causes and competition from imported and regionally refined soya oils has depressed the output of the coconut industry.

The future outlook

Taken in broad terms, therefore it can be said that the production of coconuts is at a crossroads. The outlook for coconuts solely as a source of vegetable oil must be seen in the light of the lower costs of production and higher output per hectare of soya bean oil and palm oil. However, the major producers, Indonesia, the Philippines, India and Sri Lanka with a large investment in the crop are taking steps to ensure its future as a crop for their small farmers and the developments taking place in these countries are likely to have relevance for the countries of Africa and the Caribbean.

On the production side, the major developments which have taken place have been the production of hybrids which will come into bearing at some three years old, as opposed to local varieties which often will not come into bearing until 5 years after planting. The yields of these hybrids can be 50 to 100% higher than local varieties. These hybrids are usually dwarf in nature, being crosses between tall local varieties such as the West Indian or West African tall and Malaysian dwarfs. It is important to recognize

that these hybrids require higher levels of management and inputs if growers are to obtain their full potential over existing local varieties. Experience from Jamaica has shown that the Malayan Dwarf introduced as a lethal yellowing tolerant variety performs less well under management regimes of the farmer in Jamaica where little or no

processing unit and the separation of the meat and water from the husk and shell being undertaken mechanically.

At the same time, there is an increasing interest in the greater utilization of the shells and coir of the husks. The coir can be processed to produce a variety of finished products such as yarn and rubberized coir for mat-

within the coconut industries away from oil as the primary product. The products being developed are mainly food products such as cream, flour and skimmed milk which have a higher value than the oil. The trend towards producing finished products from the shells and husks rather than exporting an intermediate product for finishing elsewhere means that a greater value added element is being retained in the producing country.

There are potential benefits to be gained from these developments by the smaller producing countries in Africa and the Caribbean. At present, in these countries, coconuts are mostly grown as a smallholder crop in small units or as scattered plantings. The nuts are either consumed by the grower himself or sold through local markets. They are consumed fresh or used to produce cooking oil and other culinary products for local use. Processing is generally on a household basis or through small scale extraction for local sale. Many of these processes are inef-



Traditional sun dry method of copra production on the Island of Nevis

fertilizer is applied than the existing local tall varieties.

Processing developments are taking place also. The production of oil from coconuts still depends on copra as an intermediate step. In spite of recent improvements in the technology of copra production such as the Philippines-designed drier which uses shells as fuel in such a way that charcoal is also produced, it is still seen as one of the limitations to the production of oil from coconuts. The dehusking, cracking, extraction of the meat and its drying is a process difficult to mechanize and where costs can be high.

However, technology to produce oil and other products from coconuts through what is termed the «wet process» has been developed on a pilot scale. Recently, this work has been taken up in Asian Pacific region to produce a variety of products on a commercial basis. Among the developments planned or operational are plants producing milk-flavoured drinks, spray dried skim milk and oil extracted direct from the meat through centrifugal process. Developments are taking place which are likely to result in the whole nut being delivered to the



Coconut/coir fibre machine — Kenya

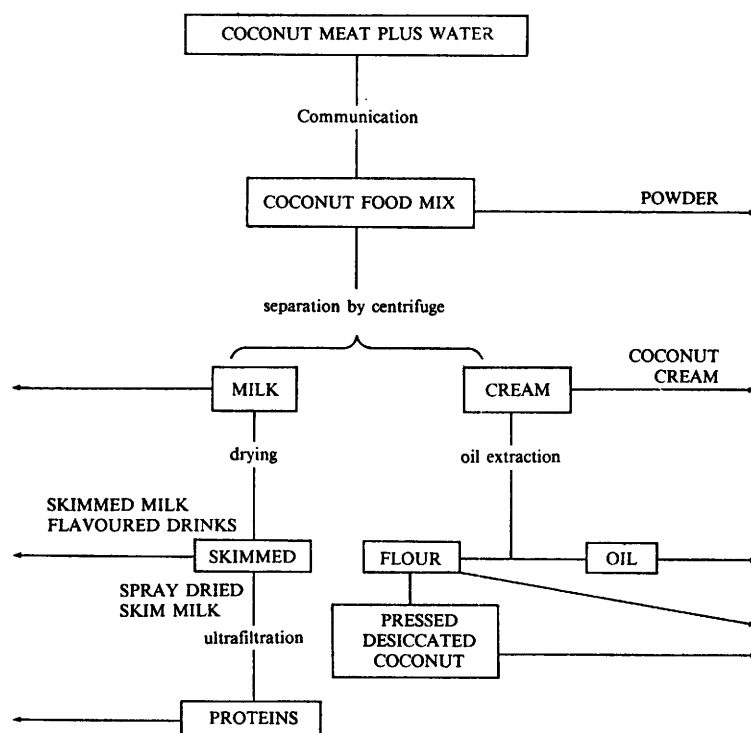
tresses, vehicle seats and air conditioning filters. The shells can be processed into charcoal and subsequently activated carbon which is used for the extraction of some metals, for water purification, sugar and oil refining. The trend (particularly with regard to activated carbon production) is to produce the finished product in the country of origin rather than to export the raw material, shells or charcoal, for finishing in the user countries.

These developments in the Asian Pacific area indicate a diversification

efficient or wasteful with some 30-40% loss of the oil. Some industrial oil extraction does take place in the larger producing countries such as the Ivory Coast, Tanzania and in the Caribbean, but processing costs tend to be high due to problems of scale with the resulting oil selling at a premium over world coconut prices and over lower cost imported palm and soyabean oil.

With the development of the higher yielding hybrids and the processing developments, there are potential ben-

WET PROCESSING OF COCONUTS FLOW DIAGRAM
FOR THE BASIC PROCESSES



Major producing countries — coconuts
1974-1982

	1974-76	1980	1981	1982
	<i>1,000 MT</i>			
World	32 368	33 955	35 244	36 530
Africa	1 494	1 499	1 512	1 532
Ghana	282	160	160	160
Mozambique	415	420	420	420
Tanzania	290	310	320	330
North and Central America	1 351	1 495	1 485	1 456
Jamaica	109	192	197	208
Mexico	848	890	853	800
South America	526	602	594	604
Brazil	241	263	252	270
Venezuela	156	159	160	155
Asia	26 819	28 043	29 228	30 632
India	4 365	4 500	4 500	4 500
Indonesia	9 294	10 900	10 800	12 075
Malaysia	1 294	1 219	1 207	1 196
Philippines	8 907	8 552	9 544	9 668
Sri Lanka	1 763	1 540	1 716	1 716
Thailand	809	735	829	836
Vietnam	128	311	350	355
Oceania	2 178	2 316	2 425	2 307
Fiji	242	225	210	210
Fr. Polynesia	138	150	125	130

FAO Production Yearbook 1982.
1980-82 figures FAO estimates.

efits for countries in Africa and Caribbean through greater utilization of coconuts to achieve import substitution in a number of areas.

By replacing the present small scale extraction with commercial plant, not only can the 30-40% wastage be reduced, but a higher quality product can be produced. Separation of the milk also enables a range of products such as oil, cream and skimmed milk to be produced. Products such as skimmed milk which has the same basic constituents as cows milk can make a valuable contribution to the dietary requirements of a population. Where tourism exists, milk-flavoured drinks can also be produced.

The utilization of the by-products can also result in import substitution benefits. The shells can be used for the production of charcoal for cooking or directly as a source of fuel. The fibres from the husks after twisting can be rubberized to produce rubberized coir. This product can then be further finished into mattresses and the requirement to import polyurethane foam mattresses can be reduced. This rubberising and mattress production process can be at varying scales, from small scale production on a cottage industry basis, using single moulds, to large scale continuous processes.

To take advantage of these developments requires the acquisition of new skills. The benefits, in terms of import substitution, the provision to the grower of a market for the largely under-utilized by-products and a higher price for the nuts, make this option very attractive.

It is likely that these developments could act as a catalyst and overcome the present problems of encouraging growers to switch to the higher yielding hybrids. The increased income potential would stimulate use of the necessary level of inputs, such as fertilizer and management, that are required for these hybrid to achieve their full potential.

In the Caribbean, because of the importance of the industry to the region as a supplier of oils and fats to the economies of individual states, and associated benefits of employment in the urban and rural sectors, the standing Committee of Ministers responsible for Agriculture and the Common Mar-

Coconut and copra production, ACP countries, Caribbean and Central American region 1974-1982

1 000 MT

	Coconut				Copra			
	1974-76	1980	1981	1982	1974-76	1980	1981	1982
Barbados	2	2	2	2	—	—	—	—
Belize	2	3	3	3	—	—	—	—
Dominica	17	18	19	19	2	3	3	3
Grenada	12	17	17	18	—	—	—	—
Guyana	37	29	25	20	5	4	2	1
Jamaica	109	192	197	208	7	7	7	7
St Lucia	32	33	33	34	5	6	6	6
St Vincent	20	23	24	24	2	2	2	2
Trinidad & Tobago	72	40	64	68	8	4	7	8
Suriname	5	4	7	5	1	1	1	1

FAO Production Yearbook 1982.

ket Council of Ministers decided that the rehabilitation of the industry should be given high priority and that a funding programme to assist with its future development should be devised, based on the current constraints facing the industry.

Currently under consideration, is the diversification of the industry away from a totally commodity-based industry to an industry with the flexibility to produce higher value food products as well as copra-based oil products. This could be of benefit to the region both in terms of higher value products for export and import substitution, and in terms of the improved nutritive value of products consumed locally. ○ R.C.

Cottonseed

Food and feed of the future

by J. BOURELY (*)

Cotton, the world's first textile plant also beats groundnut into fourth place as an oil-bearing plant, with more than 3 million tonnes of edible oil being produced every year, and it is in second place, behind soya, as a source of vegetable protein. The kernel accounts for 60% of the weight of the cottonseed and contains 38% oil and 35% protein. World cottonseed production is an estimated 26 m t — representing 10 m t meal which can be used to produce 5 m t of protein, enough to give 200 m people a daily ration of 65 grams each. The meal remaining after the oil has been extracted is 45-50% protein. The presence of a toxic polyphenolic pigment, gossypol, has so far restricted cottonseed meal as feed to polygastric animals, as monogastrics are much sensitive to the toxicity of the gossypol.

A large number of cotton-producing countries are developing ones which, because there are no local outlets, export cottonseed meal, in spite of the fact that they may well have a serious protein shortage at home. Yet cotton seed can be a major source of food for man and it has already been used, sporadically and after the appropriate



treatment, in various food products. Researchers have, in fact, devised technological processes to neutralize or eliminate the toxic pigments and produce meal and protein suitable for human consumption, while geneticists have created gossypol-free glandless varieties, derivatives of which can be directly consumed by man.

Products derived from the kernel (shelled seed) of classic varieties used in foods for human consumption

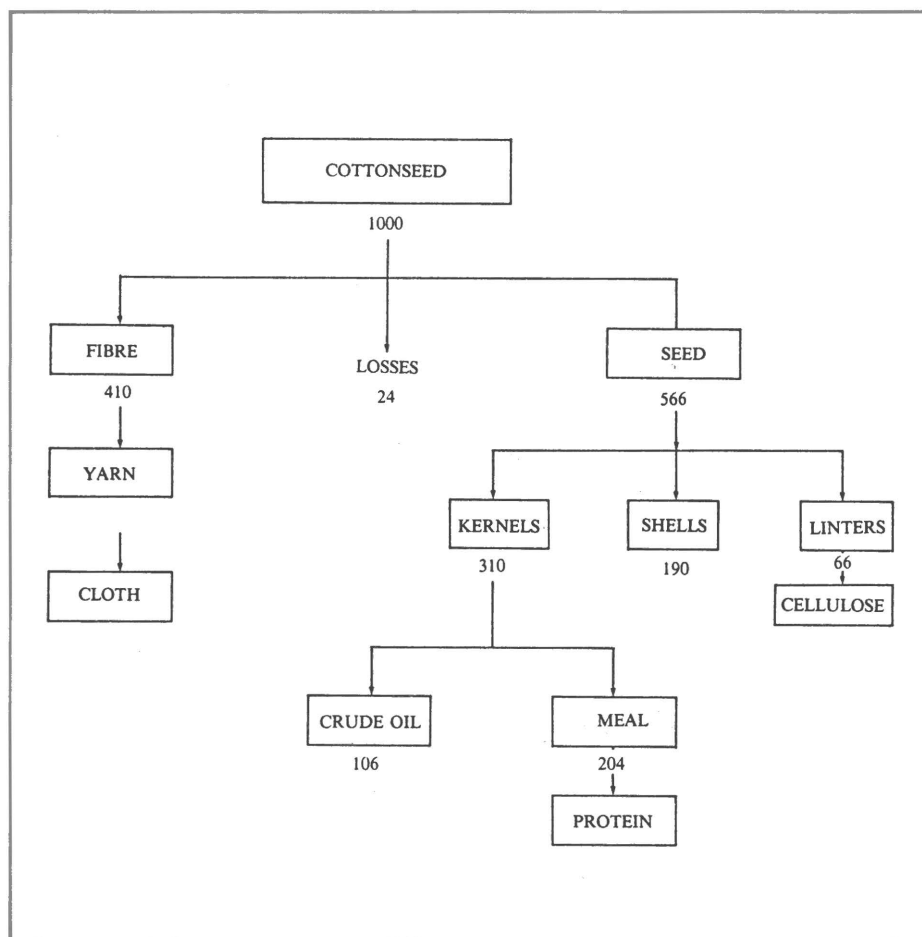
It was in the USA in 1876 that someone suggested using protein from cotton seed to complement human diets that were low in starch, but nothing much came of it.

An American firm marketed Profio and Cinacoa, two cotton meal-based foodstuffs, for more than 30 years, until 1976. If these products were used in breadmaking, they improved certain functional characteristics, such as ease of kneading and control of rolling, and reduced the absorption of fat. In the making of chocolates, they reduced oil loss during the coating process and improved the colour of the product.

Another foodstuff, incaparina, created by the Institute of Nutrition in Central America and Panama, was a

Cotton, known mostly as a silky coir, contains seeds that, by processing, produce a foodstuff rich in protein, excellent food both for man and for livestock (gossypol)

(*) Head of the textile plants chemical laboratory, IRCT/GERDAT, Montpellier, France.



at the Texas Agricultural and Mechanical University in the USA, uses acid hydrolysis of de-fatted meal to destroy most of the gossypol and produce liquid protein and a factory based on this principle, able to turn out 2000 t of beef cubes made solely from protein from classic varieties of cottonseed, was built in the Ivory Coast in 1982.

In 1956, Vaccarino (Sicily) perfected a technique to extract gossypol with acetone in a factory that could handle 60 t of seed per day. It produced meal containing only 0.03% free gossypol and less than 0.5% total gossypol, with between 0.4% and 0.7% residual oil, but only limited use was made of this in industry.

Since 1979, the Israelis have been producing de-oiled meal with a 50% protein content in a plant near Haifa. It can be used as such for cattlefeed, but it can also be processed in such a way as to raise the total protein content to 60-62% and reduce the free gossypol content to below 0.05% and be supplied for human consumption, in the preparation of breakfast foods, diet bread and textured foodstuffs. Another common use of this meal is as the fermentation support in the manufacture of antibiotics such as penicillin.

In Mexico, a factory using the Israeli principle will be turning out more than 30 000 t of cotton meal — 6 000 t with a 60% + protein content for human consumption (protein complement in tortillas) and the rest, with a 50% protein content, for cattlefeed.

An experimental detoxification process is used in China to extract both the fats and the gossypol to yield edible meal. This involves extraction by solvents, with a mixture of 80% hexane and 20% ethyl alcohol.

Gossypol gland separation processes

The toxic gossypol is in ovoid glands which harden and become resistant to apolar solvents (such as hexane) when they are kept at below 2%-3% humidity. In this case, they stay whole and do not liberate any toxic gossypol during the Kernel treatment and hexane oil extraction process. And the tiny particles of crushed kernel are deposited far more slowly in the hexane than the pigment glands. American researchers have capitalized on

great success. This one contained 38% cotton (with a 50% protein content), 58% maize and sorghum meal and 3% calcium carbonate and vitamin A 4500 UI.

In Guatemala, incaparina went on the market in May 1961 after a series of market surveys. It spread to Columbia (where 3000 t were consumed in 1966), El Salvador, Nicaragua and Mexico and by 1965 there were five factories producing it for sale in these various countries.

Foodstuffs containing 30% cotton meal concentrate were successfully tested over a 12-month period on Peruvian school children and their families.

Classic varieties of seed used in food after detoxification (destruction or extraction of gossypol)

A number of gossypol destruction and elimination processes are in use in industry today.

One process, devised by researchers

Cottonseeds covered with linter



these two phenomena and devised the liquid cyclone process (LCP) whereby de-fatted meal, gossypol-free, is separated by centrifugation and differential decantation.

An experimental plant, able to produce 25 t of gossypol-free meal per day, was opened in Lubbock (Texas) but is no longer operational. A small factory was also built in India.

Table I gives the average chemical content of LCP meal.

The gossypol-free meal thus obtained never amounts to more than 35% of the raw material, so the process has never been used on a large industrial scale. There was a recent attempt at developing the gossypol-rich base fraction, which remains after treatment in the cyclone. If the gossypol is removed chemically, with solvents, the result is an edible meal that is suitable for human consumption. A patent was recently issued for this process in the USA.

Another process to separate the gossypol glands involves flaking the kernels (which contain as much as 2% gossypol) and then drying them and de-fating them with hexane. In this case, the pigment glands remain intact and they can be removed dry, by turbo-separation. This yields an edible meal containing less than 0.16% total gossypol and 0.045% free gossypol, rates which are compatible with the authorized levels for foodstuffs for human consumption in America (i.e. 1.2% total and 0.045% free gossypol). This process, covered by a patent (1980) has not so far been used in industry.

Gossypol-free cotton meal has very interesting rheological and nutritional characteristics. It has a pleasant taste and flavour, it absorbs water more easily than soya and it is an excellent emulsifier. The nutritional value is very high — in five batches of LCP meal, the protein efficiency ratio (PER) varied between 2.51% and 2.67%, whereas the figure for the sodium caseinate control was 2.5%.

If meat and sausages contain 6-8% of this kind of meal, the flavour and texture will be excellent and less will be lost during frying.

Diet bread can be fortified with as much as 18% cotton meal without any adverse effect.

Table 1
Average chemical content of LCP Meal
(gr per 100 gr meal)

(H. Gardner, 1974) (Vix et al., 1971)

Humidity	3.66	3.20
Lipids	0.62	1.20
Free gossypol	0.030	0.020
Total gossypol	0.120	0.065
Nitrogen (%)	10.54	10.57
Proteins (N × 6.25)	68.40	66.10
Solubility of nitrogen in soda 0.02 N	99.49	99.50
Lysin (g/16 gN) EAF	3.94	3.96
Crude fibre	2.40	2.30
Ash	7.54	8.90
Hexane (ppm)	35	

Genetic elimination of gossypol glands and use of glandless varieties

The most elegant solution to the problem of eliminating the toxicity generated by gossypol and gossypol glands has undoubtedly been provided by the geneticists who have created varieties containing no toxic gossypol glands. In 1958, the American, McMichael, discovered the first cotton mutant of which just the stalk was free of gossypol glands. He managed to eliminate the glands from the kernels by genetic means and thus create the first glandless varieties.

IRCT geneticists, who have been working on this programme for more than 20 years now, have developed a whole range of high-performance

glandless cultivars, which are particularly well-suited to the African environment, from a large number of crosses. Their seeds have a considerable advantage over the classic varieties, as the products derived from them (kernels, cattle cake, meal and oil) can be consumed directly by humans and monogastric animals. One imperative in growing glandless cotton plants alone is that the seeds treated for the production of animal protein must be absolutely genetically pure. And very strict controls must be run during production (growing and harvesting), processing in the factory and the preparation of edible meal to ensure that any seeds containing gossypol are not included by accident.

As soon as the first glandless varieties were available, nutritional re-



A ginning machine, the first stage of cottonseed processing

search was run in the USA in particular, with a view to determining how they could be used.

In 1961, for example, 5200 lb of glandless Acala cotton seed from Shafter (California) was used in nutrition experiments at the Texas Agricultural and Mechanical University (Tamu). Gossypol-free kernels can be consumed directly, once the seeds have been shelled. Kernels that have sprouted can be used in a very subtletasting salad. In 1968, roasted glandless cotton kernels began to be marketed, under the name of Tamanut, at Tamu. They can be used fresh or partly roasted in a large number culinary preparations, and the University issues a useful cookery list for housewives.

Glandless varieties in the form of meal made from de-fatted kernels, are an efficient protein complement in diet bread, rolls, cakes, sausages and other meat preparations.

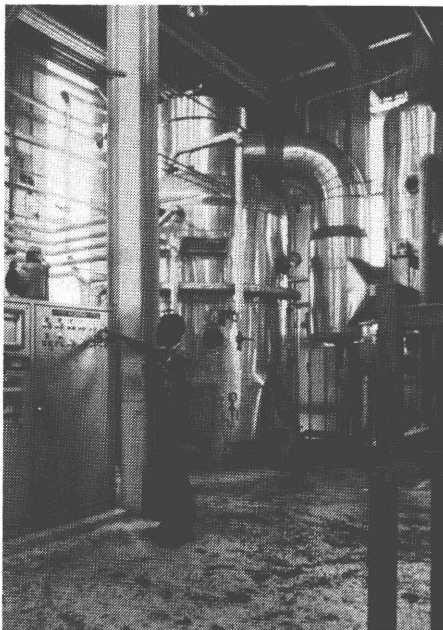
In 1970, the human nutrition research laboratory at the Texas Women's University in Denton began nearly 10 years of work on cottonseed protein. All the biological parameters recorded showed that this protein is perfectly suitable for human consumption. Recent work at the Texas AMU shows that glandless cottonseed meal has remarkable natural antioxidant properties. A 3% dose in beef hamburger will go a long way to preventing lipid oxidation and discoloration of the fresh meat.

There are technological processes whereby de-fatted meal can be used to prepare concentrates, containing more than 70% protein, and isolates, containing 95% protein, which are used in the manufacture of a wide range of foodstuffs. They can be extruded and textured to reproduce the consistency of meat. The isolates, which are white, have the same property as egg-white, in that they can form a very thin emulsion when beaten, and they can therefore be usefully substituted in many recipes.

A variety of isolates, containing different proteins and having special rheological characteristics, can be produced. Each isolate can therefore be used in a way that is suitable for the particular foodstuff in question. Acid-soluble isolates, for example, can be added to fish and fruit juices that con-

tain citric acid, to which they impart their organoleptic properties. As well as having exceptional functional and nutritional qualities, concentrates and isolates present the following interesting characteristics — they have fewer vegetable pigments than the meal from which they come and far less sugar, raffinose and stachyose, which cause flatulence. The amino acids they contain are no different from those in the meal and the kernel (table 2).

But in spite of the exceptional nutritional qualities of the products derived from their seeds, the glandless varie-



Cottonseed oil plant in the Ivory Coast

ties are still grown on what is only a very small scale in the world today. In the USA, for example, they account for less than 0.5% of the land under cotton plants. It is, of course, true that the USA produces enough vegetable protein with soya to meet the demands of domestic consumption and it does not bother to extract cotton seed protein for human consumption, so cottonseed cake is much sought after for cattle. Researchers, primarily in various universities in Texas and in New Orleans, are the only ones to be interested.

The Cotton and Exotic Textile Research Institute (IRCT) has run an important programme, developing the production and use of glandless varieties, and it has carried out scientific research into various (agronomical, genetic, technological, etc) aspects of them.

The first nutritional studies run on glandless meal from IRCT began in Senegal, in Orana and then at Le Dantec hospital in Dakar, in the 1960s. They showed that this meal is a food with a very high protein content that is of very great value as a complement to low-protein diets, particularly in the case of young children when they are weaned.

Here is the formula for feed for weaned babies developed in the pediatrics department at Le Dantec hospital in Dakar:

millet meal	45 gr
glandless cotton meal	25 gr
semi-skimmed milk	10 gr
sugar	20 gr

In Africa, children with kwashiorkor were fed with a mixture of skimmed milk powder and glandless cotton meal and their oedema disappeared after between four and seven days, following which they gained 42-200 gr per day in weight.

A group of one-to-three-year olds in Mali had glandless meal added to their diet for a fairly long period and nutrition experts at the Malian Health Ministry, which ran the experiment, concluded that cotton meal was of considerable nutritional value. This experiment was followed up by the Laure study of 1973 and 1974.

In 1975, nutritional researchers at ORSTOM ran acceptability tests on glandless meal with a 56% protein content in Chad. The meal was much appreciated, particularly in the making of sauces and the main local dishes. Young children grew better when they were given a millet and cotton flour gruel for six months and 4.5 t of glandless kernels were soon sold, at the same price as sorghum, and eaten as they were — proof of lively interest on the part of the Chadian consumer.

Cottonseed cattle cake

Cottonseed cattle cakes only came into use in France in 1872, whereas English farmers used them in large quantities much earlier on and they were already to the fore as animal feed in the USA.

Nutritional tests were run in 1890, in Egypt, with non-shelled cattle cake from Alexandrian oil mills. They involved 160 oxen, buffaloes and mules

eating 1.1-2.2 kg of cottonseed cake each per day for several months. No digestive upsets were reported and the results were deemed to be excellent.

In 1901, nutritional tests were run in Seine Maritime (France), using shelled cottonseed meal from America, groundnut cake, sesame cake and bran, and 16 cows, which had calved two to three months previously, were fed 3 kg cake per head per day for 14 days. Only the animals which were given cottonseed cake put on weight and the experimenter concluded that "for milk production, shelled cottonseed cake from America, in the form of meal, seems to be particularly recommended. It ensures abundant production of top-quality milk and keeps the cows in peak form" (Quote by Létard and Heim de Blazac, 1931).

Studies carried out in schools of agriculture in Scotland in the winters of 1911, 1912 and 1913, used a batch of 12 two-year old oxen each year and showed the very favourable influence of shelled cottonseed cake when fed to the animals at the rate of 1.8 kg per day.

An experiment run at Auburn University in Alabama in the 1970s on 24 Holstein cows showed that, if the animals ate too much cottonseed cake (say 10 kg per day), they in some cases had too high an intake of free gossypol and serious accidents could occur. Gossypol was found in the tissue of the affected animals, but never in the milk, whatever the dose absorbed.

Cottonseed cake containing gossypol can be used for cattlefeed and more generally, in the feedingstuff of pluri-gastric animals, which are much more tolerant than monogastrics to gossypol — provided that the amounts ingested do not exceed the natural detoxification potential of the rumen (where free gossypol combines with soluble protein). Above this threshold, the gossypol gets through to the bloodstream, lodges in the tissue and the liver and creates serious problems.

A nutritional study was run in Chad in 1975 when a number of IEMVT veterinary surgeons tested local breeds of pig that were reputed to be tolerant to gossypol. This showed that it was quite pointless to try to achieve interesting results with pigs if they were fed rations that contained gossypol, as



Cottonseed oil tanks in the Ivory Coast

even doses of 50 ppm halted growth. So only glandless cake can be used.

Promotion and use of cottonseed oil

Cottonseed is commonly used for oil. The seeds are shelled mechanically and the classic process is then to press them to remove the oil and then to extract any residual oil with a solvent (hexane). Before grinding, 10-13% shells are added to the crushed kernels to facilitate the extraction of the oil and this also increases the crude cellulose content of the cake. Raising the humidity and the temperature during pressing will bring about important chemical changes in the protein content of the cake and the toxicity of the gossypol will be reduced (as free gossypol combines with lysin). This process is used to produce a low-gossypol oil which costs less to refine. In order to keep the nutritional value of the cake and the functional and alimentary characteristics of the proteins to a maximum, the oil is extracted directly from the crushed kernels (no shells) with hexane, at a low temperature, instead of the double extraction method being used. This is the process envisaged for the seeds of glandless varieties.

Cottonseed oil refining involves a series of operations — elimination of the residual solvent, neutralization of the soda, centrifugation, bleaching and

filtering. The gossypol is completely eliminated during the neutralization process and it forms an insoluble compound with the soda.

Refined cottonseed oil is considered to be one of the best of the edible oils. It is used in many places — the USA, the Americas, the Middle East (Egypt, Sudan, Lebanon, Turkey, Syria, Iran and Israel), the USSR, China and India. Its nutritional value comes mainly from its fatty acid content, the high unsaturated fatty (linoleic and, above all, oleic) acid content. It is used as a table oil, in the canning industry and in the manufacture of margarine. It is also used to produce acetoglycerides, the dampeners and emulsions in drip feeds, in the preparation of suet and palmitic acid substitutes and as a plasticizing agent. One interesting by-product of the cottonseed oil mills is lecithin, a energetic antioxydant with high emulsifying powers.

Use of linters and shells

Linters are a source of virtually pure cellulose which has many industrial uses — in the making of cotton wool, smokeless powder, cotton powder, nitrocellulose (explosives), writing paper, stuffing, varnish, plastics, films, artificial silk, collodion and so on.

A recent American delinting process, which uses acid, leads to hydrolysis of the cellulose in the linters and the formation of glucose, which fer-

ments and generates ethyl alcohol, which can be used for industrial purposes.

The shells which contain a special sugar, xylose, are often added to the feed of larger animals.



Gossypol-fed cattle — gossypol which has been detoxicated in the manner described in this article

Production and use of gossypol

In July 1962, a Paris daily (1) put a two-column heading—Moscow Congress Sensation—over one of its articles. This was the first time that a vegetable product had proved active against cancer of the stomach, it said. There has been no confirmation, as far as we know, of the effectiveness of polyphenol in the treatment of stomach cancers, but this spectacular item of news proves that researchers are very interested in this molecule.

Another Paris newspaper (2) made a splash in 1981 when it reported that the Chinese were interested in gossypol as a male contraceptive. Testing, which began in 1972, lasted for six years and used more than 10 000 volunteers, apparently proved that gossypol was effective in 99.89% of cases. The dosage and period over which the gossypol was administered were given. The effectiveness of the method came from the way the gossypol acted on the spermatozoa and, normal production would only be resumed three months after the treatment was stopped.

(1) Le Figaro, 25 July 1962.

(2) Le Monde, 18 November 1981.

However, in 1982, another French publication (3) warned the public against using gossypol as a male contraceptive. Not only is the contraceptive effect not obtained in 100% of cases, but there is no proof that there

is total recovery of spermatogenesis. Furthermore, we still do not know how gossypol acts on the human organism. We know that when it is absorbed for contraceptive purposes it leads to hypokalaemia (reduced blood potassium), which itself causes tiredness and muscular fatigue.

These observations, and the fact that gossypol has been seen to induce skin tumours in mice when applied locally, should lead to considerable caution as regards its use in medicine.

Gossypol is toxic to mammals and to insects. This naturally suggests that it could be used, combined with an oil and a dampener, as an insecticide.

Gossypol is known to be a powerful anti-oxidant and this property makes it suitable for use in a whole series of products (oils, paints and rubber) in industry.

* *

In an article whose title we have used, "Cottonseed: Food and Feed of the Future", which was published in 1983, the American review, "Cotton International" called on a certain

(3) Le moniteur des pharmacies et des laboratoires, 1506-6-3-82.

number of experts, research workers, nutritionists, technologists and heads of firms to look into their crystal ball and predict the future of cottonseed as a food for man over the next 50 years. Here are some of their most pertinent remarks:

— "Most of the areas planted with cotton in the world will be growing glandless varieties, both in the USA and in the majority of the producing countries which, historically speaking, will have experienced protein shortages... Mixtures of cottonseed and soya meal will provide the bulk of the protein intake of the animals on this earth — and that includes man. Cottonseed protein, which tastes pleasant and has a low fat content, will be able to be included in a wide range of foods. It will be the basis for diet preparations for the control and treatment of metabolic disorders... It will be part of the food rations of space travellers.

— Supermarkets will sell all sorts of products derived from cottonseed — roasted nuts, "cotton butter", "cereal flakes", energy bars, ice cream and confectionery, protein enriched baking products, sausages and meat-type preparations. Cottonseed protein will also be used in textured foodstuffs, children's foods, soft extruded products and beverages.

— Lastly, in the year 2033, cottonseed will have gained its rightful place as the first source of vegetable protein in the world and the cotton plant will be the queen of crops."

Although we share the fine optimism of this last statement, we cannot but regret that cottonseed protein is still so little and so badly used. The meal is used, at best, to feed ruminants and only in very rare cases does it go for human consumption. Yet it is an extremely important source of protein.

Paradoxically, however, some countries suffering from protein deficiency produce cottonseed cake but are unable to use it. Yet we now know how to make a better job of eliminating the gossypol or destroying its toxicity. There are appropriate techniques for this. The production of cotton meal for human consumption can and must make an effective contribution to the campaign against hunger in the world. It can be done now. ○ J.B.

Oilseeds and man's protein intake

by Marcel AUTRET (*)

It seems surprising to put two, apparently contrasting, expressions in the title, as oilseeds automatically conjure up the idea of lipid nutrition. But it will only surprise the uninitiated. Animal husbanders, herdsmen and farmers have known that oilseeds are also a very good source of protein for some time —to the point where they could just as well be called protein-rich seeds. Sunflower contains almost three times as much oil as protein and groundnut twice as much, but cottonseed has equal quantities of each and soya, which is used more widely than all the other oils put together, has twice as much protein as oil. The table is convincing:

Protein content of oilseeds

Oilseed meal (table 1) has a very high protein content and that protein is of good quality. Without insisting on the amino acid spectrum (Table 2), it is clear that the biological values are fairly good as compared to whole egg and that protein efficiency is good in the case of soya, cottonseed and sunflower. In spite of their relatively low sulfurated amino acid (cystin and methionin) content and thanks to their good lysin content, they can be a (physiological) complement to cereal protein. Herdsmen who use computers to work out the best amino acid mixtures according to the price of different cake are well aware of this. And lastly, the digestive utilization ratios are around 90%.

(*) Former head of Nutrition at the FAO.

Table 1
Composition of some oilseeds and meals

	SEED		MEAL	
	Lipids	Protein	Lipids	Protein
			(a) (b)	(c)
Soya	18	35	1 - 6	50 - 55
Groundnut	46 - 52	25 - 30	2 - 8	45 - 50
Cottonseed	20	18 - 22	0.8 - 8	20 - 30
Sesame	50	20 - 25	2 - 10	35 - 40
Sunflower	40	15	0.8 - 8	40 - 50
Rape			0.4 - 9	30 - 35
Copra (dry)	55	6.6	0.7 - 8	19 - 23

(a) solvent extraction
(b) pressing
(c) meal

Thirty years ago, in 1953, I wrote an article to promote the use of oil by-products in the fight against protein deficiency—the frequency and seriousness of which has just been revealed—in Africa:

“After the first world war (when *Fetthunger* was so common in Germany), the West needed oils and fats—hence the expansion of tropical oil-bearing plants, groundnuts, oil palms, coconut palms and soya, and, even later, the expansion and revival of sunflower and rapeseed.

The unfortunate thing is that, at the beginning and for a good time, the industrialized nations only saw the point of producing oil. Meal, initially at least, was subjected to barbaric treatment to extract as much oil as possible and it was turned into by-products that were barely any use for animal feed.

Had we realized the potential value of this meal and the effect of protein deficiency 60 years ago, the work on seed selection and methods of storage and processing would have been guided by a desire to capitalize on the proteins as much as the fats”.

And then I added:

“It is by no means too late to steer research towards full exploitation of oilseeds as a source of protein for human consumption and first and foremost in the Third World, which is both undernourished and a producer of these plants”.

The FAO, WHO and UNICEF applied themselves to this. I shall return to this later. Various governments in the developing world were already taking an interest in the idea, but in their case with a view to animal feed. Zoo-

Table 2
Essential amino acid content of oilseed protein (mg per g nitrogen)
Sources: Orr & Watt and the FAO

	Iso-leucine	Leucine	Lysin	Phenyl-alanyne	Tyrosine	Sulfurated amino acid	Threonine	Tryptophane	Valine	Protein efficiency	Biological value
Whole egg	428	565	396	368	274	342	310	106	460	4.7	100
(Skimmed) cow's milk	407	630	496	311	323	211	292	90	440	3.2	95
Soya	333	484	395	309	201	197	247	86	328	2.3	72
Groundnut	258	376	217	315	226	150	169	70	306	1.6	58
Cottonseed	236	368	269	325	164	188	221	74	308	2.3	67
Sunflower	296	402	195	275	149	197	209	78	313	2.1	56

technicians, quite naturally, had greater success than nutritionists, as herdsmen offered more for these products than mothers of badly-off families. However, the specialist in these products at the US Ministry of Agriculture wrote, in 1965:

"Cottonseed protein is currently being developed almost as much as oil. The time is perhaps coming when it will be more to our advantage to process this seed industrially, looking upon it primarily as a source of protein for human consumption, with oil as only a second string product".

Soya got past this stage years ago, as the table shows:

Table 3
Comparative values of
soya meal and soya oil
(% of total value)

	1947	1962	1965
De-oiled soya meal	27%	40%	66%
Soya oil	60%	46%	30%

Although the oil goes for human consumption, almost all the protein goes to animals in the industrialized countries!

Lastly, in 1965, Jacquot wrote: "To my mind, the government propaganda and campaigning to boost sunflower crops is justified more by the production of high-quality protein than by the production of a new table oil".

I remember that, in 1940, the French in Indochina, who were used to foods decently preserved in olive oil or groundnut oil at least, only looked upon fish in soya oil as ersatz, in spite of the shortage. Today, soya oil is the commonest table oil in the world, as it represents more than a third of all edible oils, 8 m t. And it was world protein requirements, mainly for livestock, that led to the rapid and constant rise of soya oil.

Oilseed production

In this article, we shall only deal with the oilseeds used in human (and animal) foodstuffs, meal from which could be used under certain conditions that will be set out later.

There are two main things to note in this table.

Table 4
World oilseed production % protein equivalents, 1982
('000 t)

Oilseed	1970	1982	Growth 1970 = 100	Protein (1982)	Protein as % of total
Groundnut (*)	18 144	18 590	102	4 710	9.3
Rapeseed	6 502	14 472	223	2 670	5.8
Cottonseed	22 066	27 692	125	5 520	10.9
Sesame	1 986	1 870	94	370	0.7
Soya	46 521	92 982	200	35 200	69.3
Sunflower	9 653	16 046	166	2 330	4.6
Total	104 872	171 652	163	50 800	100

(*) In the shell.

Source: FAO.

(Production yearbook, 1982, Vol. 36) for oilseed tonnages only.

1. The total production of these six oilseeds increased by 63% in 12 years. This was particularly due to (a) rapeseed (123%), coinciding with the introduction of genetic varieties yielding oil containing no erucic acid at all; (b) soya (100%), primarily the demand for meal from the farmers and, to a lesser extent, for high-protein de-oiled meals for human consumption; (c) sunflower (66%), probably because of consumer demand generated by a fear of cardio-vascular disease and a consequent desire for highly unsaturated fats. There is cause for rejoicing here, as sunflower protein is of excellent quality.

2. A very large amount of protein—more than 50 m t— was produced. A large percentage of the soya, sesame and groundnut production was consumed in the countries where it was

produced, either in the form of seed, as with groundnut and sesame, or in a variety of forms (milk, cheese, fermented sauces etc), as with soya. But a fair amount went to the industrialized countries, as Table 5 shows, and particularly the countries of the EEC (Table 6).

World oilseed cake imports stood at 28 m t in 1982. Because of their nutritional value, the five cakes listed in Table 5 and 6 accounted for 23 m, or 83% of the total. Europe imports virtually all of it and the countries of the EEC 17.7 m t—or 77% of total European imports.

These five oilseeds represent 10 m t protein and soya alone accounts for 90% of it. In fact, with soya, sunflower and groundnut alone, which are commonly used in foods for human consumption, we have 9.6 m t good quality

Table 5
Imported meal and cake,
('000 t — 1982)

World	28 560	%	Protein	
<i>including</i>				
Groundnut	704	3	300	300
Rapeseed	715	3	200	
Cottonseed	757	3.2	207	
Sunflower	974	4.1	270	270
Soya	20 509	72	9 018	9 018
Sub-total	23 659		9 995	9 588
<i>Other</i>				
Coprah	1 049			
Palm kernel	612			
Not specified	2 685			

Table 6
Imported meal and cake,
('000 t — 1982) (*)

		%
World	28 560	100
Europe	22 968	80.4
EEC	17 773	62.2
<i>including:</i>		
Belgium-Luxembourg	1 171	
Denmark	1 995	
France	3 540	
Germany	4 778	
Greece	18	
Ireland	405	
Italy	1 324	
Netherlands	2 858	
United Kingdom	1 684	

(*) For the five oilseeds in Table 5.

ty protein distributed primarily for consumption by animals every year!

Oilseed protein in the Third World

Oilseeds make up only a very small percentage of the average human diet, even in the producing countries. Be it soya in Asia or groundnuts in Africa, consumption is only a few kg or so a year. It is 5-8 kg in the Sahel and 10-20 kg in tropical Africa, but in the humid equatorial regions, a good percentage is coconut, which has very low-protein pulp. This is also the case in other countries, Sri Lanka, for example, where the consumption of coconut can go as high as 72 kg per person per year. Oilseeds make only a small contribution to protein requirements—around 5 gr per day, although with extremes of 2.1 and 13 gr. Nevertheless, in view of what can be a very low protein intake, the contribution made by oilseeds is far from being negligible. It

averages 5-7% and, in eight of the 18 countries, it is an important factor, reaching percentages of 11-17% of the daily protein intake (see Table 7).

Consumption of oils and fats

This is low in the developing countries and very high in the high-income countries (Tables 8 and 9).

In the African countries and Vietnam (Table 8), availability varies from 6 kg p.a. or 16 gr per day in Rwanda to 26.5 kg p.a. or 72 gr per day in Tunisia. These, of course, are the two ends of the scale. The averages are 15 kg p.a. or 40 gr per day and the most common figures are 11-18 kg p.a. or 30-50 gr per day.

In these countries, the percentage of calories from fats in the food ration varies between 6.4-26%, with an average of 16%. So we are well below the recommended nutritional levels (25-30%) and well below the levels carry-

ing a risk of cardio-vascular disease. In fact, a number of countries (table 8) are underfed and producing and consuming more vegetable fats is the best means of reducing the calorie shortage. Indeed, it is the only means where cereal production has reached a ceiling and there is already too high a dose of glucides in the diet. There is a certain trend in this direction in Africa. A comparison of the figures for 1962 and 1982 is striking, as are the figures for consumption in the urban centres, which are well above the national averages (98 gr in Dakar and 103 in St Louis). The coefficients for elasticity of demand are, at between 1.2 and 1.5, high. We have proof that the percentage of lipids in the diet increases with, although faster than, income. Graph n° 1 (page 75), published by the FAO, illustrates this. Lipid calories rise from 12% where GDP is \$ 50 to 40% and more where GDP is \$ 2 600 (1962). This increase is due to the increase in free lipids and animal lipids (i.e. those in animal tissue) at the same time as a decrease in the associated vegetable lipids. This goes hand in hand with the replacement of vegetable protein by animal protein and the decrease in glucides is very pronounced, even if complex, slow digestion glucides are replaced by so-called fast sugars. However, there is one point on this graph, which was produced at a time when there were few data on the developing countries and a high percentage of developed countries figured on the list of 85 countries studied, that no longer directly reflects the situation in the developing countries, more particularly those in Africa, and that is the respective proportions of the various forms of lipids. In Africa, it is obvious (Graph 2, page 75), for example, that lipids of vegetable origin will decrease more slowly and those of animal origin will increase more slowly than is suggested by the graph. The growth of total lipids will be very considerable, but it will be more due to the free lipids than the bound ones and for obvious reasons linked to production, the free lipids will be primarily vegetable ones. This means that more meal will appear on the market. And what will become of it? Will it be used for domestic consumption or will it be exported? That will depend on the quality of the cake or meal and therefore

Table 7
Protein contributed by oilseeds per person per day
in certain producing countries, (1975-77)

Country	Oilseeds kg per year	Oilseeds gr per day	Protein per day	Daily protein ration	Oilseeds contribution (%)
Benin (*)	10.4	28.5	6.3	48.7	13
Cameroon (*)	21.1	57.8	13.0	60.2	22
Congo (*)	11.5	31.4	5.3	40.0	13
Ivory Coast	23.1	66.2	2.8	53.3	5.3
Gambia (*)	11.4	31.2	6.7	57.0	11.8
Ghana (*)	20.6	24.3	5.1	45.8	11.1
Guinea (*)	5.2	14.4	2.3	32.1	5.5
Upper Volta (*)	5.8	16.0	3.6	64.2	6.0
Mali (*)	6.9	18.8	3.6	55.6	6.0
Madagascar (*)	4.6	10.9	1.3	57.9	2.2
Niger (*)	3.2	8.7	2.0	61.6	3.2
Nigeria (*)	3.3	9.0	2.9	51.0	5.6
CAR (*)	19.5	53.3	12.1	43.7	27.7
Senegal (*)	8.7	24.1	4.9	65.8	7.5
Sierra Leone (*)	4.5	11.4	2.1	44.7	4.7
Togo (*)	8.7	23.8	3.6	47.3	6.1
Uganda (*)	14.1	38.4	6.5	56.4	11.5
Zaire (*)	7.3	19.9	4.5	36.4	12.6
China (***)	5.8	15.9	4.9	61.7	8.0
Japan (***)	18.0	48.5	7.5	86.1	8.7
India (*)	4.4	11.8	0.6	46.8	1.3
Indonesia (*)	6.5	17.4	5.7	43.0	13.2
Sri Lanka (**)	71.9	22.1	3.7	51.7	8.9
Vietnam (*)	1.1	3.1	0.7	51.7	1.3
Brazil	2.3	6.6	1.1	60.9	1.8
Colombia	1.8	4.7	0.1	48.7	0.2
Mexico	3.0	8.0	0.6	66.1	1.0

(*) Groundnut predominant.

(**) Coconut predominant.

(***) Soya predominant.

Table 8
Available lipids, free and bound, of animal and vegetable origin
(Africa and Vietnam — 1975-77)

	Total calories	Total lipids (g)	Lipids as % of calories	Lipids		Free lipids			Free lipids as % of total lipids
				Animal (g)	Vegetable (g)	Total (g)	Animal (g)	Vegetable (g)	
Algeria	2 357	44.4	17.0	14.8	29.6	27.8	5.3	22.4	62.6
Morocco	2 570	46.1	16.1	10.9	35.2	29.3	4.8	24.6	63.5
Tunisia	2 658	72.5	24.5	16.3	56.3	47.5	4.5	43.0	65.5
Benin	2 154	55.9	26.0	6.4	49.4	28.7	0.8	27.9	51.3
Cameroon	2 412	61.8	23.1	7.6	54.2	19.4	0.8	18.6	31.4
Congo	2 228	33.1	20.3	4.7	26.3	13.0	0.5	12.5	39.3
Ivory Coast	2 466	50.2	13.3	2.2	42.0	22.7	1.3	21.5	45.2
Mali	2 116	41.0	17.4	8.9	32.1	13.5	1.5	12.0	33.0
Madagascar	2 480	28.4	10.3	11.8	16.6	7.3	1.9	5.4	25.7
Niger	2 051	30.7	13.5	9.3	21.4	7.0	2.6	4.4	22.8
CAR	2 174	51.3	21.2	8.0	43.3	16.4	1.1	15.3	32.0
Upper Volta	2 002	33.1	14.9	5.2	27.9	5.6	1.0	4.6	16.9
Senegal	2 239	57.5	23.0	11.4	46.0	28.6	1.6	27.0	49.7
Zaire	2 312	35.2	13.7	3.6	31.6	17.8	0.4	17.4	50.5
Rwanda	2 277	16.2	6.4	2.6	13.5	2.9	0.3	2.6	17.9
Burundi	2 259	20.3	8.1	4.3	16.0	5.9	0.5	5.4	29.0
Uganda	2 071	32.8	14.3	8.8	24.0	5.9	0.8	5.1	18.0
Kenya	2 141	36.0	15.1	15.1	20.9	7.7	2.8	4.9	21.4
Vietnam	2 102	24.4	10.5	13.0	11.4	4.6	1.2	3.4	18.8

Table 9
Available (*) lipids, free and bound, of animal and vegetable origin
(countries of the EEC), (1975-77)

	Total calories	Total lipids	Lipids		Free lipids			Lipids of calories (%)	Free lipids as % of total lipids
			Animal	Vegetable	Total	Animal	Vegetable		
Germany	3 361	154.6	112.2	42.5	67.9	34.6	33.3	41	44
Belgium-Luxembourg	3 559	171.2	124.7	46.5	88.7	49.1	39.5	43	52
Denmark	3 430	161.0	122.7	38.3	74.7	44.1	30.6	42	46.4
France	3 458	147.5	105.2	42.4	69.8	34.3	35.5	42.7	47.3
Greece	3 441	133.2	53.6	79.6	68.1	3.3	64.8	35	51.1
Ireland	3 537	134.9	110.2	24.7	47.4	31.2	16.5	34.3	35.1
Italy	3 469	122.3	60.8	61.5	61.7	11.5	50.2	31.7	50.4
Netherlands	3 362	157.6	97.2	60.5	73.0	51.1	21.9	42.2	46.3
United Kingdom	3 311	139.7	102.6	37.1	62.6	32.7	39.9	38.0	44.8
USA	3 539	163.9	98.3	65.5	65.1	11.0	54.1	42	40
USSR	3 443	100.4	71.1	29.2	38.9	18.7	20.2	26	38.7

(*) This is what is available on the market. It includes oilseeds that are eliminated in butchery and cooking, lost during marketing and left on the edge of the plate. It is not therefore representative of actual consumption. Family surveys suggest lower figures.

on how suitable the oil mills are for turning out meal for human consumption, on the demand from and purchasing power of the local populations and on a return to an attitude shaped by a concern for the health of consumers who eat too much meat, as they do in the developed countries. There is every point in reminding the reader that the countries of the Common

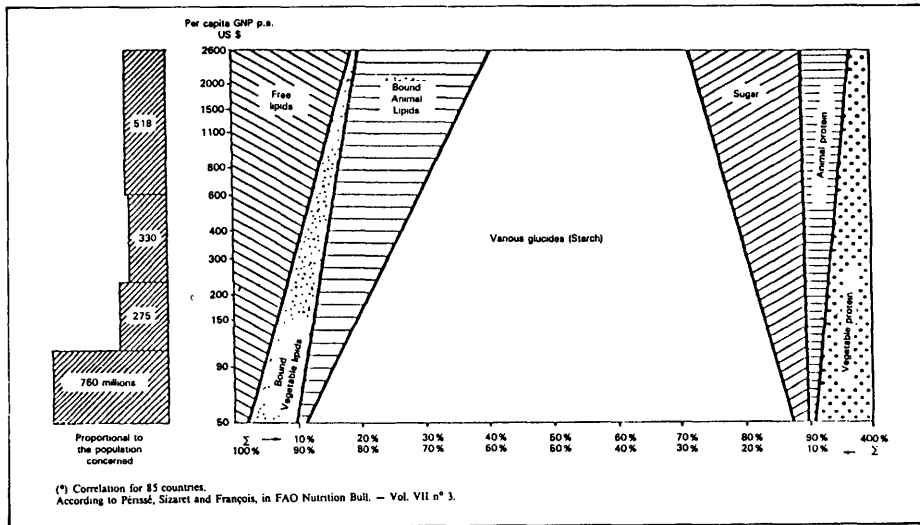
Market, for example, have from 122 gr (Italy) to 171 gr (Belgium and Luxembourg) total lipids per day, that the proportion of animal lipids in the total lipid content is between 70-80%, except in the case of Italy (where it is 50%) and Greece (40%) and that lipids make a more than 40% contribution to total energy output in six countries out of 10. Doctors and nutrition ex-

perts are calling for a drastic cut in our consumption of fats, particularly those that are heavy in saturated fatty acids (animal fats)—free, as in butter, suet and pork, and bound in animal tissue. This is found in Italy and Greece, for obvious reasons of production and traditional eating habits, particularly for free lipids.

The governments are concerned

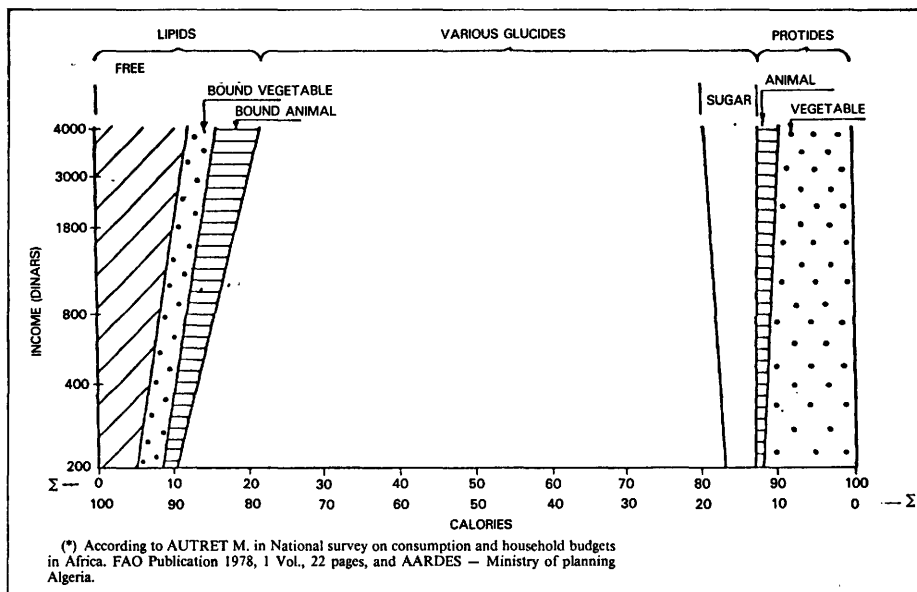
Graph 1

Calories supplied by lipids, glucides & protein as a % of total calorie intake, by income of country (1962) (*)



Graph 2

Calories supplied by glucides, protides & lipids as a % of total calorie intake, according to income (Algeria), (1968) (*)



about the incidence of cardio-vascular disease, which is the main cause of death in the West. As there is no longer any doubt, that there is a correlation with the consumption of fats (particularly those which are rich in saturated fatty acid, i.e. animal fats), health campaigns are being run to bring the percentage of lipid calories down to 30% (USA) and 35% (France) and the share of animal lipids down to 50% at a first stage. This would be for a 2700-calorie diet and it brings the desirable intake per person down to around 100 gr per day. The aim is also to have a third of the fatty

acids in saturated form, a third unsaturated and a third polyunsaturated. But we are far from having achieved this goal and it will take a couple of decades to do so. It is all a question of educating the public and altering its eating habits. It is not an impossible task if the relevant means—i.e. cash—are used. Researchers in the USA have been working on atheroma for 40 years now, education campaigns have been run for 20, fat consumption has levelled off since 1975 and is dropping today. The most typical thing is that free lipids—those used at table and in the kitchen—are 83% oil or margarine

with highly unsaturated fatty acids. This shows the effect of the campaigns the government and the trade have run, with the help of the ministries of health, agriculture and education, the insurance companies and various private organizations.

In the long term, vegetable oils and their derivatives (margarine) should replace free animal fats to a greater or lesser extent in the developed world and there should also be a moderate decline in bound animal fats, either through a search for less fat meat or through a drop in the consumption of animal protein, which is currently at a level that makes no physiological or economic sense. The governments of the developing countries should both back up the production of leguminous seed vegetables for domestic consumption and put the development of oilseed production and consumption, a source of both proteins and lipids of good quality, at the top of their list of priorities.

Oilseeds in food for human consumption and as a source of protein

Human oilseed intake can be increased in three ways, by:

- increasing consumption in the developing countries;
- introducing de-oiled meal into feed formulae for young children and families;
- creating new foodstuffs.

We shall now deal with these three possibilities in more detail.

1. Although consumption is currently on the increase, it is not, in all but two or three cases, high. It is irregularly distributed by socio-economic group and is higher in urban than in rural areas. Higher income leads to higher consumption in the form of pounded seeds in sauces accompanying the staple cereal or root, or in the form of oil. However, oilseeds, as seeds, could well go the same way as leguminous seeds and their consumption stabilize or even decline when income reaches a level where the household's purchasing power is such that it can buy oil on the local market. And in Africa, seeds (groundnut, karité etc.) are sought after in cooking as a source of fat.

Lastly, the developing countries

consider oilseeds as export crops, so the price is determined by external demand and it stays at levels that are high compared to local purchasing power. When groundnuts and coprah are selling badly, domestic consumption increases and, while prices on the external market are good, domestic consumption suffers.

2. Tests which Sénécal, Dupin and I began in 1955 with a view to using groundnut meal in food for young children (more particularly on weaning) were very encouraging. They were a follow-up of tests run in France during the last war and others, run even earlier, in 1930, by chemists and pediatricians who wanted to use sunflower meal for babies who were allergic to cow's milk. Over the decade 1955-65, at the instigation of the FAO and WHO and with the help of UNICEF, many researchers recommended various formulae comprising cereal (wheat, rice and maize) or de-oiled meal (soya, groundnut, sunflower and cottonseed), sometimes with skimmed milk and sometimes with amino acid (lysine and methionine). Results as far as the health and growth of the child were concerned were comparable to those obtained with cow's milk, and a certain number of factories producing these compounds sprang up in India, Indonesia, Vietnam and China, in Turkey, Egypt, Ethiopia and Iran, in central America (Guatemala and El Salvador) and in Latin America (Brazil, Colombia, Guyana and Peru). Soya is almost always the raw material. Sunflower is rare (once), as is cottonseed (once) and groundnut (once, in India). This list does not include the countries of Black Africa, in spite of the fact that fruitful tests were carried out in Senegal, Mali, Chad, the Ivory Coast, Nigeria and Uganda. The reason in the case of groundnuts is that the firms concerned (Nestlé and Grands Moulins de Dakar) backed out after the discovery of aflatoxin in 1960. Today, everyone knows that the aflatoxin produced by the mould *Aspergillus flavus*, which has an ideal host (from the point of view of environment, humidity and temperature) in the groundnut, are extremely powerful carcinogens. The International Cancer Centre in Lyon has shown a sound correlation between the ingestion of contaminated foodstuffs (groundnuts, cereal etc) and primary

cancer of the liver in Black Africa, where it is a 100 times more common than in Europe. Groundnut meal users are very careful nowadays about the non-toxicity standards laid down for these products in the livestock trade. In the cottonseed sector, the well-known problem of gossypol is still an absolute obstacle to the use of the product for human consumption and in the feed given to young animals. Encouraging genetic selection tests on glandless cottonseeds (i.e. without gossypol glands) have not been followed up at production level, as these new varieties, which are sensitive to many predators, have to be sprayed as many as three times per harvest.

Tests have also been run with a view to introducing de-oiled groundnut meal into the family diet by including it in bread (Senegal, South Africa), in couscous (Senegal and Morocco) and in millet and sorghum flour (Niger). This has not been taken up industrially because of the problem of finding a reliable, regular supply of commercial, aflatoxin-free groundnuts.

Cake and meal can obviously be detoxified, as aflatoxin, gossypol, goitrogens, antienzymes and glucosides can all be removed. But treatment pushes up the cost of production and, as far as we know, no industrial detoxification is currently being carried out, except in the case of soya (which is steam-heated or roasted). As genetic research aimed at producing non-toxic varieties that are robust and yield oil or textiles that are equal to the best varieties we have not so far been successful, cottonseed and groundnut meal are still virtually unknown in human foodstuffs. Almost all the world production of children's foodstuffs based on protein-containing seeds amounts to no more than 25 000 t p.a.

However, large quantities of CSM (corn-soya-milk) and WSB (wheat-soya blend) have been distributed as emergency food aids.

3. Boosting consumption means developing new foods.

Industry is developing meat substitutes obtained by spinning and texturizing very pure protein (isolates) derived from soya. Processes using groundnut and cottonseed have also been perfected and products are also

prepared from soya and cottonseed protein concentrates by extrusion. Milk and cheese substitutes have been prepared from soya, cottonseed and groundnuts (using seeds in which the aflatoxin was below the permitted US and European levels). But here again, it is really only soya that is used industrially. Soya-based surrogate bacon, ham and chicken were first marketed in the USA 15 years ago! Products that taste like beef have been devised and are used primarily in "sausage-meat" and "mincemeat". Soya-based products sold in the USA increased from 7000 t in 1969 to 18 000 t in 1970, 60 000 t in 1972 and 300 000 in 1975.

This seems a promising path to take in the industrialized countries, where the production and marketing of products that can be induced in a whole range of foodstuffs (sauces, soups, biscuits, beverages etc) is apparently only limited by the imagination of the businessmen. In the developing countries, things will be different, as poor purchasing power still holds back the success of highly sophisticated products.

In these countries, any hope of increasing the contribution that protein-rich oilseeds make to covering protein requirements will lie in:

- (a) greater direct consumption of (groundnut) seeds harvested at the right moment in proper conditions after drying to remove the risk of aflatoxin;
- (b) the consumption of derived products (milk and cheese) in the case of soya, produced by simple means in the village or the home;
- (c) the industrial production of de-oiled meal prepared from healthy seeds (groundnut), non-toxic seeds (glandless cottonseed) or simply-processed seeds (soya and sunflower). This meal will be used to make traditional foodstuffs (soups and sauces) in the home. They may also be mixed with cereal to make couscous, tortillas or chapatis.

But all this will require highly coordinated nutritional education campaigns that are properly orchestrated, continued for a number of years and given the backing of the relevant governmental measures to create a favourable cultural and economic climate at both national and international level. ○ M.A.

Leguminous vegetables in the tropics

by J. PICHOT (*) and R. TOURTE (*)

For more than 2000 years, peasant farmers in the temperate and Mediterranean regions have recognized, appreciated and been capitalizing on the fact that leguminous vegetables improve the fertility of the soil, and the Latin writers who told of the beneficial effects of growing beans on land where cereals are to follow were only relating a very common opinion borne out by long-standing peasant tradition.

In the tropics, and Africa in particular, the opposite is said about some crops, such as groundnuts, which, although belonging to the *Leguminosae* family, do in fact drain, deteriorate and harm the soil.

So are the effects only beneficial down to the Sahara and no further?

Before attempting to answer this question, we should stress that there is a wide variety of tropical leguminous vegetables and an exhaustive list of just the seed types destined for human consumption would still contain several dozen plants (grasses, bushes and trees).

It is possible, with considerable simplification, to point to various broad geographical trends:

- the major role played by beans (*Phaseolus vulgaris*) in Latin America in traditional farming systems and the recent development of soya (motorized methods) in Brazil;
- the importance of the groundnut as an export crop in tropical Africa and of niébé (*Vigna unguiculata*) as a food crop;
- the diversity and importance of the Asiatic leguminous crops (chick peas, Angola peas, mung beans, soya etc), reflecting the diversity of the agrarian civilizations that developed thousands of years ago in India and south-east Asia.

Let us also underline the part which leguminous seed vegetables play in balancing the diet of people in the tropics

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A variety of tropical Kedney: Dark red Kedney Rhizobium phaseoli in Greenhouse at Montpellier (France). Scientific research, a breakthrough in the hunger problem of the Third World



Combined groundnut and maize production in Senegal. The system, commonly applied in Africa, helps reduce losses of soil nitrogen

and, in particular, of those whose staple foods are roots (manioc, yams and sweet potatoes) that are very low in protein. In parts of Africa and Asia where the staple diet is primarily small-seeded cereals (millet and sorghum), the main problem is considered to be malnutrition and protein requirements tend to be covered if there is enough calorie intake — which is increasingly rare.

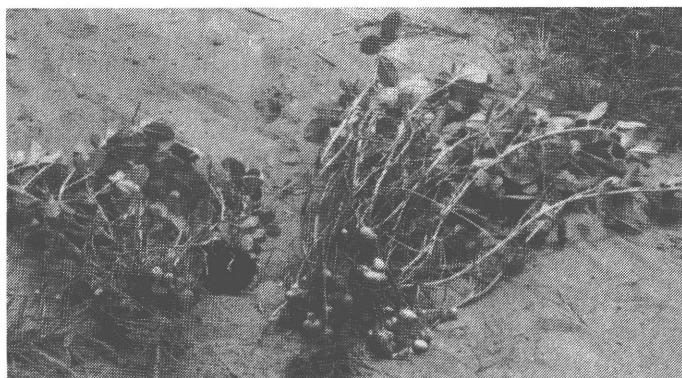
So how do leguminous vegetables figure in the present farming systems?

First of all, attention should be drawn to the fact that arable land in the tropical countries of Africa and Asia is used in a much more diversified way than it is in Europe. This is due to the variety of agrarian traditions, the standard of equipment (manual, draft or motorized methods), the density of the population and the eating habits which are still found in the tropics but which the arrival of motorized, intensive farming and rural exodus have reduced in the temperate zones.

One example of this diversity can be taken from the vast field of crop association. In traditional systems, edible leguminous vegetables tend to be planted together, on the same piece of land, with cereals and/or tubers (or roots).

In these systems, the different parameters — number of crops planted side-by-side, density of planting, use of space and dates of sowing—vary very much from one region to the next. They also take the family diet and the fertility of the soil into account.

Leguminosae have some quite remarkable characteristics. Because of their symbiotic association with nitrogen-fixing bacteria, they can develop normally in soil that is very poor in organic matter and mineral nitrogen. This means that they are pioneering plants in some cases, regenerating in others and, above all, very suitable for association with cereals that consume large quantities of nitrogen in low-input systems. So in regions where intensive land exploitation results in a reduction in the organic content of the soil, with no serious acidification, leguminous crops are a way of maintaining agricultural production when cer-



eals would be unproductive on their own.

— An appreciable number of tropical leguminous vegetables develop very fast and can bear fruit in a very short period (45-60 days). This is very useful at the ends of seasons and in places where the rainy season is short and irregular (parts of the Sahel south of the Sahara).

These favourable characteristics should not, however, lead to the idea that the plants can solve all the problems of soil deterioration, replace nitrogen fertilizer, feed the livestock etc on their own.

For example, it seems highly unlikely that leguminous plants grown alongside graminaceous ones would pass on part of the nitrogen fixed symbiotically.

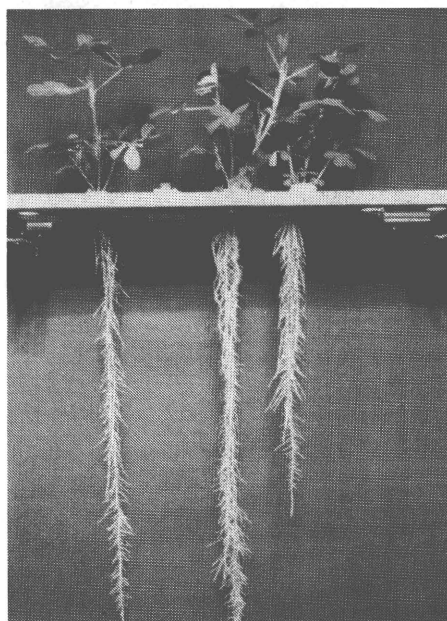
It even seems unlikely that a leguminous crop really can enrich the soil with nitrogen, whatever the growing and farming conditions.

Recent work with methods using stable nitrogen isotopes has made it possible to put a figure on how much nitrogen in the plant comes from the soil and how much from symbiotic fixing, in a variety of conditions. This showed that:

1. The nitrogen fixing symbiosis is fragile. As soon as the plant has any problems with supplies of water or minerals or light, the production of photosynthetates declines and symbiosis, which requires a lot of energy, stops.

In Senegal, for example, it has been found that, in favourable conditions, 70% of the nitrogen in harvested groundnuts came from the atmosphere through symbiosis and 30% from the ground. When water is short (as has often been the case, alas, over the past 10 years), the proportions are reversed and 70% comes from the soil and 30% from symbiotic fixing.

Above (left) groundnuts planted at the same period. Proper and late weeding: effects on growing of leaves and Lusks; (right): combined cultivation of groundnuts and maize. Below suspended cultivation of groundnuts



This is also true in the case of soil that is poor in phosphorous or molybdenum and in the case of soil that has become acidified due to continuous cultivation with no mineral or organic replacement.

2. The net nitrogen content of a leguminous crop depends on which parts of the plant are taken out of the field and the farm on harvesting.

With groundnuts, for example, where the production of stalks and leaves is often the same as the production of shells, if the stalks and leaves are used as forage on the farm and returned to the soil as manure, it is possible, when symbiosis is satisfactory, to obtain a positive nitrogen balance. If, on the other hand, the stalks and leaves are sold, then the balance is bound to be negative.

With soya beans, the situation is often unfavourable because the *Rhizobium Japonicum*-Soya symbiosis often tends to be less productive than the cowpea-groundnut symbiosis (weakness of *Rhizobium Japonicum* populations and sensitivity of soya to drought), but above all because the useful part of the soya plant represents almost 80% of the nitrogen contained in the plant when it is harvested. In these conditions, the nitrogen balance is practically always negative if the soya seeds leave the farm.

3. The net nitrogen balance of a leguminous crop also depends on how much nitrogen is lost during cleaning.

Precise measurements of loss in nutritional elements and, in particular, nitrogen (carried out in Senegal) have shown that this loss is substantially higher with groundnuts than with cereals (*Mil pennisetum*). This is a clear indication that cereals and leguminous crops should be alternated or associated — the traditional solution in subsistence farming, but one which has been the subject of only a small amount of study in the context of cash crops.

This brings us back to the question about groundnuts—do they deteriorate the soil or not?—which we posed at the beginning of this article.

The above remarks suggest that the plant itself cannot be to blame and that the problem is much more one of production or agrarian systems.

A lot of research has been done into (drought-resistant) varieties, fertilizer, calcium and organic improvements and methods of cultivation and it has led to technical solutions whereby groundnuts can be grown without risk in both the short and the long term.

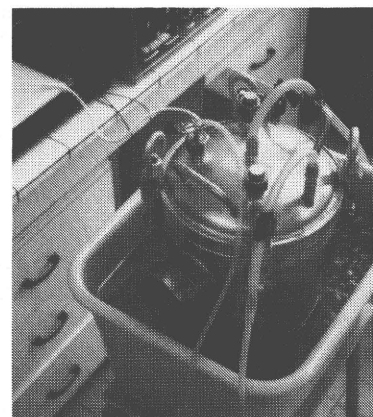
However, there are a number of

Seed leguminous crops — areas under cultivation

($\times 1000$ ha)

	Africa	Latin America		Asia		
		Total	Brazil	Total	India	China
Dried whole beans	2 048	5 293	4 568	17 689	9 109	7 223
Dried shelled beans	748	261	200	8 773	—	8 700
Dried peas	520	160	—	8 239	683	7 500
Chick peas	346	46	—	9 864	8 253	—
Lentils	132	111	—	1 529	927	—
Soya	271	9 213	7 779	16 173	160	14 336
Groundnuts in the shell	6 118	777	252	11 232	7 200	2 455

FAO Production Yearbook 1978 — ('000 ha).



IRAT fermenting machine at work

very real difficulties attached to applying these technical solutions, for although the farmers often see the point (particularly of selected varieties and fertilizer), getting the methods actually used in traditional systems and transforming those systems pose problems far beyond technology.

That is another question—that of the transfer of the results of research—to which the conventional descending researcher-developer-producer chain has failed to provide a satisfactory answer.

A more global approach, where there is more room for initiative and for the peasants to take decisions, seems likely to be more promising. However, the perfection, with the help of the producers, of technical units that take the protection of the land into account, will never succeed unless input such as fertilizer is used to compensate for the elements that are taken out and this will only be possible with logistical, educational and institutional help (credit, producer groups and supply and marketing cooperatives).

The disappearance of subsidies for fertilizer and credit systems in some tropical countries recently, combined with catastrophic climatic events, leads, on the contrary, to an extreme concern about the future of their agriculture — and, of course, their economy.

It seems highly unlikely that these countries will be able to cope with the increasing domestic demand for food products and keep up their agricultural exports without maintaining or even intensifying the present level of production on the land. ○

J.P. and R.T.

The groundnut industry in Africa particularly in the Member States of the AGC

By Omadi A. DIARRA (*)



Groundnut pyramids in Nigeria in the 1960s and early 1970s. Nigeria was the biggest African producer 15 years ago. Today it has declined considerably (600 000 tonnes in 1981/82 compared with 878 000 tonnes in Senegal)

Groundnut is a food and cash crop grown by small-scale farmers, under rainfed and irrigated conditions in East, West and Central Africa. In order to bolster their position in the international market, the leading producer/exporting countries came together to establish a common organization called the African Groundnut Council (AGC), in 1964.

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The Convention establishing the AGC was signed, in Dakar, on 18th June, 1964, by Upper Volta; Nigeria; Niger and Senegal.

The preoccupation of the participating countries in clearly revealed in the preamble, which reads: — Recognizing the important place of groundnuts in the economy of many producing countries in Africa, — Further Recognizing the existence of substitutes of groundnuts and its by-products, — Believing that joint international action by producers of groundnuts is necessa-

ry to ensure a reasonable price for their produce, — Desiring to contribute by means of adequate action to the stabilization of prices of groundnuts in the world market, at a remunerative level, Have decided to create an “African Groundnut Council”.

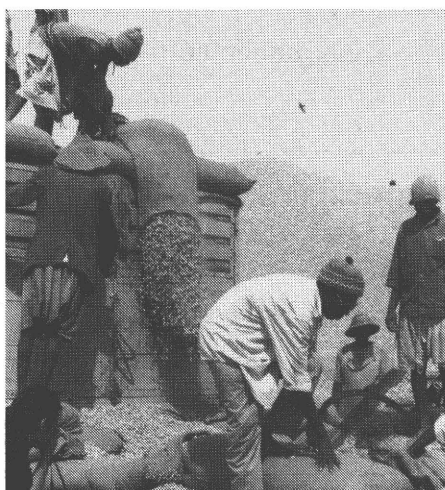
Until the severe drought which affected the Sahel region, in the early 1970s, groundnuts enjoyed a relatively good period of expansion and stable markets, largely in Western Europe, since the end of World War II. To varying degrees, groundnuts became an important factor in the economic development of the AGC States. In some instances, sales of groundnuts and groundnut products accounted for about 80% of the GNP of certain member states.

The drought of the 1970s was not just an ecological disaster. It brought, in its train, a multiplicity of problems, technical, social and economic, that still beset and threaten the industry. Successive droughts, uneven distribution of rain, adverse environmental conditions, pests and disease infestation, depressed yields and discouraged farmers from growing the crop. Unattractive pricing encouraged farmers to turn to other food crops and, in some cases, gave rise to urban drift. The result is that fewer and fewer farmers cultivate groundnuts, despite Government subsidies in the form of high producer prices and the provision of agricultural inputs, like fertilizers, farm implements, training programmes, etc.

As a result of the foregoing, the marketing of groundnuts and groundnut products entered a new and difficult phase, characterized largely by the following features:

1. Difficulties brought about by the EEC policy of self-sufficiency in the production of oilseeds, oils and fats. To this end, Europe started to produce sunflower, soya bean and rapeseed. To enhance the competitiveness of these products and encourage the housewife to turn to them, various subsidies were established, thus making these oils relatively cheaper to the consumers and, by the same token, making groundnuts one of the most expensive oils.

2. Difficulties attributable to production shortfalls took the form of creating a vacuum in the market. This va-



Collecting groundnuts in Senegal. A poor handling of harvest that leads to losses

cuum was quickly filled by cheaper, competitive oils, not only from within the EEC, but mainly from the USA, Canada, Latin America (Brazil and Argentina) and from Asia (Malaysia and Indonesia, in particular). Once a market is lost, it is not easy to recover it, since, for a variety of reasons, consumer habits might have changed in the meantime.

3. Difficulties arising from the worldwide economic recession — one is even tempted to say depression. The effects of the recession on groundnuts is very harmful, as is to be expected. Consumers eat less and, invariably, buy cheaper wherever possible. This atmosphere resulted in very sharp falls in the sales of groundnuts and groundnut products, throughout Europe and in the EEC, in particular. The continued effect of the factors cited above was that, in 1982/1983, groundnut oil hit the floor price of US \$ 450 per ton,

from an average price of US \$ 900 per ton in the 1970s.

4. Difficulties of access to market, in the form of tariff and non-tariff barriers.

In the light of the numerous problems confronting the industry, it was decided to hold an international symposium on the production, the world oilseeds market and intra-African trade on groundnuts and groundnut products. This EEC-sponsored gathering took place in Banjul from 7-11 June, 1982 and brought together experts from various international bodies, such as the FAO, ITC, FOSFA, USAID, BCEAO and other eminent professionals of the trade. The meeting ended with the adoption of what became known as the “Banjul Plan of Action”, which made the following recommendations:

1. It would seem that the most essential requirement for groundnuts and groundnut products not to lose further ground and possibly to regain the ground lost in the past, is to improve their competitiveness. This would make it possible to dispose of the additional supplies that would become available, as a result of measures envisaged in the section under production.

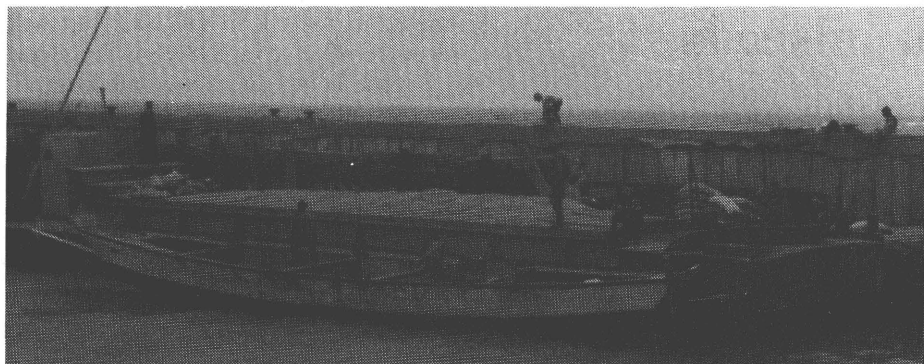
A higher degree of competitiveness and production stability would be achieved, as a result of the measures recommended above for production improvement.

2. Substantial improvement would be needed in some member countries in infrastructure, including transportation and storage facilities.

3. However, lower production costs

Table 1
AGC production of groundnut (1) 1976-1982
in '000 metric tons

Countries	1976/1977	1977/1978	1978/1979	1979/1980	1980/1981	1981/1982
Nigeria	500	300	450	540	600	600
Senegal	1 192	441.7	774.5	393.4	845	878
Niger	79.2	82.3	96.8	81.9	116.8	—
Sudan	705	1 021	829	834	799	462
Gambia	123.6	84.9	119.3	65.8	44.8	81.8
Mali	160	102.4	101	90	66	54
Total	2 759.8	5 092.1	2 370.6	2 005.1	2 471.6	2 075.8
(1) In shell.						



Transport of groundnuts by barge in the Gambia, a small country whose production (82 000 t) is higher than that of Mali (54 000 + in 1981/82)



A Benin girl carrying groundnuts harvested in a WFP farm designed to encourage young people to take up agriculture.

Table 2
AGC export of groundnut (1) 1976-1982
in '000 metric tons

Countries	1976/1977	1977/1978	1978/1979	1979/1980	1980/1981	1981/1982
Nigeria	—	—	—	—	—	—
Senegal	120	—	3	—	2.5	15
Niger	—	—	—	—	0.1	—
Sudan	130	155	35.9	20.8	66.6	70
Gambia	44	24.8	53	19.9	12.1	34.2
Mali	—	5.4	—	—	—	—
Total	294	185.2	91.9	40.7	81.3	119.2

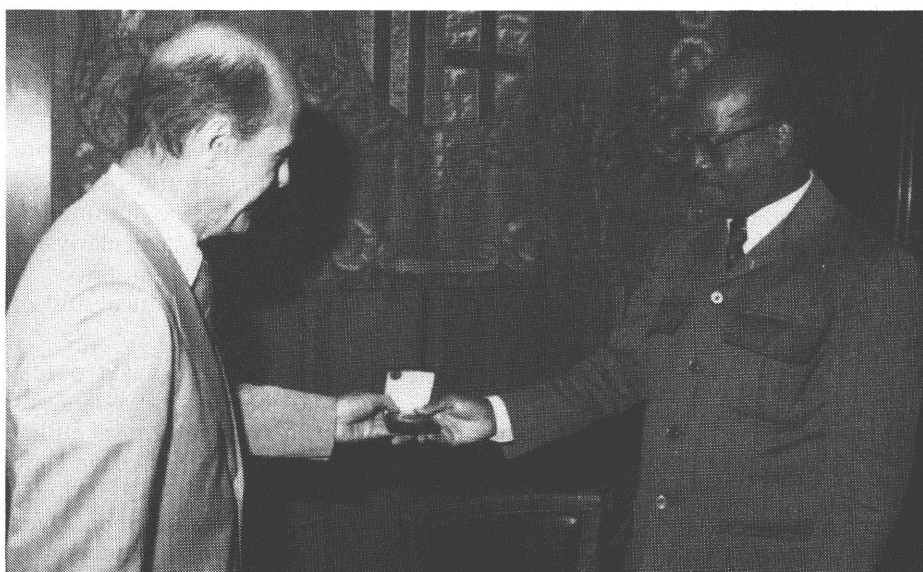
(1) Shelled.

and increased competitiveness can also be achieved through the rehabilitation and modernization of the processing industry, which is, in many cases, inefficient and outdated in many AGC member countries. A survey to ascertain the extent of improvement required should be undertaken, where appropriate, in AGC member states.

4. Efforts should be intensified to use more efficiently the by-products of groundnut production, such as the haulm (for animal feed) and shell (for animal feed and fuel).

5. To overcome the aflatoxin problem, both preventive and curative measures should be taken. Preventive measures during harvesting, storage and processing will minimize aflatoxin in groundnuts. More effective and economical methods of detoxification should be explored for groundnut cake, at the industrial level.

In conclusion, the Symposium recommended the development of intra-African trade, by removing tariff and non-tariff barriers in the sub-region, initiation of a market survey to deter-



AGC participated in the Barcelona Trade Fair where it was awarded a medal. Omadi A. Diarra, Director of the European Bureau of AGC receives the medal from the Barcelona Fair director

mine the import requirements and supply availabilities and, also, methods of settlement of payments. With regard to the outlook, one would have to consider the problem in three phases: the short, medium and long term remedies available to us.

tate our activities, so that instead of making Europe the focal point of the industry, we will make Africa the focal point, since the industry will then be geared to supply this new and steadily growing market. ○

A.O. DIARRA

Protein-rich oilseeds

Soya — International situation and regulations

by Jean-Pierre BERTRAND (*)

The international markets in protein-rich oilseeds (1) have been dominated by two closely-linked factors of some 10 years' standing—the importance of soya and the effect of supply policies, particularly in America and Brazil, on the way the markets are regulated. The international crisis certainly leaves its own stamp (greater instability, slower and less regular growth) on the markets and it has an undeniable effect on the calls made on the sector, i.e. it reduces the growth of the demand for oils and fats and even animal products, which were the driving force behind development in the 1960s and 1970s. But the change in production capacities and prices has more to do with agricultural and agro-industrial policies and the strategy of firms in the sector than with any trends in consumption—which is why, in this short article, we shall be insisting on the essential features that shape world supply, starting with a brief reminder of 1983/84, which is instructive on more than one count.

Soya and American policy dominate the situation in 1983/84

World production of the nine main oilseeds (2) will be around 158 million

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(1) This term covers seed and fruit which contain both oil and protein—soya, groundnut, rapeseed, sunflower, cottonseed, coconut and palm kernels, palm oil and olive oil. Protein-rich products also include fish and meat meal, milk powder, by-products of the food and agriculture industry (such as corn-gluten feed, a by-product of the starch-from-maize extraction process) and surrogate products such as synthetic urea and amino acids (lysin and methionin).

We have just mentioned products in which the international trade is significant. But it would be wrong to overlook local usage (sources of protein: leguminous vegetables such as peas and beans, sources of oil: different types of palms, such as the Babassu in Brazil) and things, such as the lupin, which have been featured in recent development tests.

(2) This paper uses Oil World's figures for September-October 1984. The nine oilseeds in question are soya, cottonseed, (shelled) groundnut, sunflower, rapeseed, sesame, coconut, palm kernel and linseed.

tonnes in 1983/84, as against the 176 million t of the previous year. This 18 m t drop is entirely due to the soya harvest (which was only 78.2 m t in 1983/84 after the 94.5 m t in 1982/83), particularly in America, where the reduction was from 60.7 to 42.2 m t. This drop will be only very partially compensated for by what are predicted to be satisfactory harvests in Brazil (around 15 m t) and Argentina (around 4.8 m t).

Can this decline in American production (down 20 m t or as much as the combined production of Brazil and Argentina) be explained by the climate? Only partially. The drought in the summer of 1983 did bring the average soya yields in the USA down to 17 quintals per hectare, as against 21.6 the previous year, and the system of payment in kind introduced to limit cereal production did the rest. Although soya was not directly concerned, the fact that land used for maize and/or wheat was left in reserve had an indirect effect and more than 3 million hectares were not planted with soya.

American soya milling and exports should drop considerably in 1984, with an attendant decline in milling in the rest of the world, particularly Europe and Japan, and... a price rise and a reduction in soya meal and oil consumption.

The first estimates brought out by Oil World (10 February 1984) suggest a reduction in American soya milling of something like 4.5 m t and the country's soya bean exports should drop by an equivalent amount. Overall, this will lead to a reduction of about 7 m t in world availability of soya meal and 2 m t soya oil, and this will only be partially compensated for by Brazilian and Argentinian production and recourse to substitute products.

The combined production of the oilseeds (groundnut, rapeseed, cottonseed, sunflower, sesame, coconut, palm kernel and linseed) that are in direct competition with soya was up at

the 82 m t mark in 1982/83, but will drop to 80 m t in 1983/84, the slight decrease being due above all to rapeseed, sunflower and coconut.

Palm oil should be added to this list. Malaysian production, an important factor in the search for substitute products in the years which preceded, stagnated in 1982/83 and no substantial improvement is expected in 1983/84 (2.9 m t exported in 1983/84, as against 2.8 m t in 1982/83).

So it would appear that the international adjustment of protein-rich oilseed production to demands has been based on just one product, soya. Hence the interest of taking a closer look at the main features of the policies of the USA and Brazil, the two main producers in recent years.

Brazil's soya boom runs out of steam

The sector has undergone undeniable changes over the past few years with the rise of Brazil as a new partner-competitor for the USA on the international soya market. We have described this expansion in full elsewhere (3) and we shall only give one or two details here.

Soya was being grown over something like 200 000 ha in Brazil in 1960 and somewhere short of 2 m ha in 1970 and the figure this year, 1983/84, is almost 9 m ha (i.e. nearly 18% of available arable land). It was introduced in the southern states (Rio Grande do Sul and Parana) first of all and then spread northwards (Mato Grosso, Goiás, Minas Gerais and even southern Bahia). Production has risen from 500 000 t in 1975 to more than 15 m t today and the country's share of world production has gone from 5% to almost 20%.

But the most remarkable thing is no doubt the very rapid expansion of the processing capacity of the soya industry. In less than 10 years, Brazil has created soya milling facilities (about 20 m t) that are of greater capacity than those in Europe, which is why Brazil's exports today are primarily made up of soya meal and oil and even of products of further processing

(3) J.P. Bertrand—Le "boom" du soja au Brésil—*Economie Rurale* No 147-148, January-March 1982 and J.P. Bertrand, C. Laurent, V. Lerclerq—*Le monde du soja*—Repères—La Découverte, Paris, 1983.

of the same raw materials—most spectacularly maize and soya meal-based poultrymeat substitutes, which are exported to the Middle East.

These developments are certainly due to the considerable decentralization of the big transnational firms of the food and agriculture industry, which are all represented in the various activities (supplying seeds, machinery and fertilizer, milling and grinding, manufacturing oil and margarine, producing animal feed, processing animal products etc.) (4) that have grown up around soya.

But powerful local firms (private and public-funded undertakings and cooperatives) have also made their contribution to these developments, which have been very strongly encouraged by the policy of the state. Highly incentive credit facilities, attractive soya support prices, research (particularly by the state) and extension services are the essential features of this policy, which is extremely selective and very favourable to businessmen (sudden "stabilization" of wages) (5).

Since 1967, soya has been among the agricultural products in the Brazilian government's all-out export drive and its development has been a product of the Brazilian miracle. But they are both marking time today. Problems of financing combined with the country's mounting debts are a serious brake on the policy of modernization and the soya-growing industry is feeling the pinch (less land was planted with soya for the first time in 1981, although things took off again in 1983). But soya is still one of Brazil's biggest assets and it should mean it can show a \$3 000 m trade surplus in 1984, in a much more difficult economic and social situation.

American reaction

Faced with Brazil's remarkable rise, the producers, industrialists and authorities of America tried to organize a response. But they all had different interests. For the American producer, of course, Brazilian soya is a direct

(4) See work of Geraldo Muller, Cebrap, Sao Paulo, Brazil.

(5) J.P. Bertrand—les trois grands axes de la politique agricole brésilienne: modernisation de l'agriculture, développement du commerce extérieur et l'agro-industrie—Documentation Française—PAL, No 4567-4568, April 1980, pp 62-100.

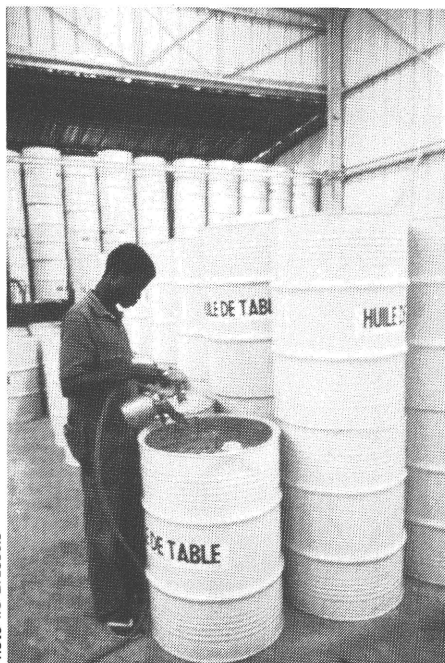


Photo IIC Brussels

Filling cottonseed oil stocks



Photo FAO

Selling palm oil in West Africa

competitor and such spectacular progress was not welcome. For people in the milling industry, however, the situation was different. The possibility of transferring some of their installations to take part in the Brazilian developments was an opportunity not to be missed, particularly since supply costs were lower in Brazil and new markets for oil, and to a lesser extent meal, were in the offing. The Brazilian gov-

ernment's export encouragement policy also enabled these firms to broaden their bases as regards activities that were highly profitable on the international markets.

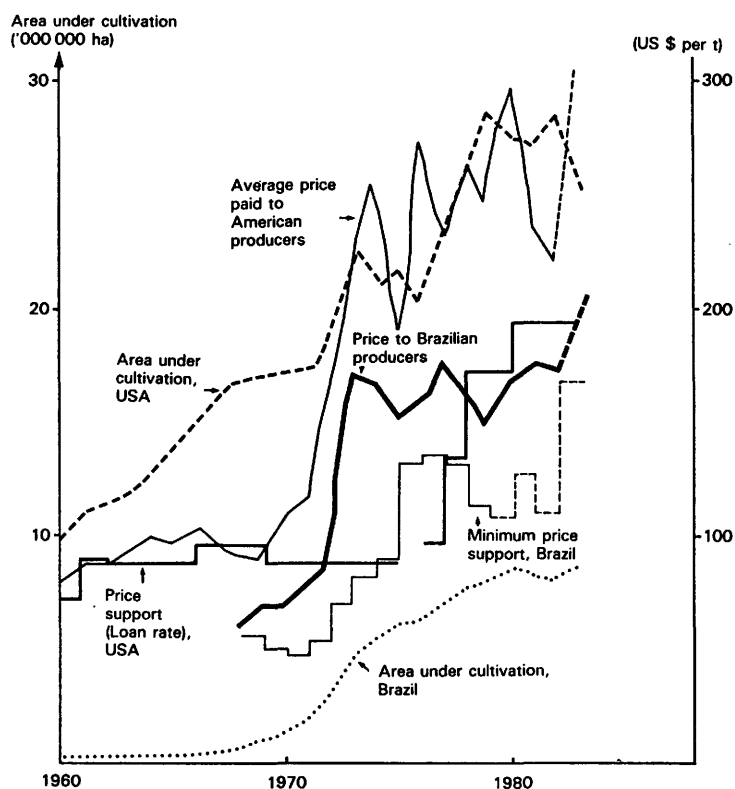
So two new factors made their appearance in the American soya policy:

— The rise in the support price which President Carter decreed in 1976 enabled new American producers, particularly in the southern States, to enter the soya complex that had hitherto been dominated by the producers of the Corn Belt. Their production costs were higher, but the possibility of a double crop (wheat and soya grown on the same plot the same year, using the same equipment), along the lines of the system used in southern Brazil, made for reasonable returns on this new production on farms that were bigger, on average, than those in

the Mid-West.

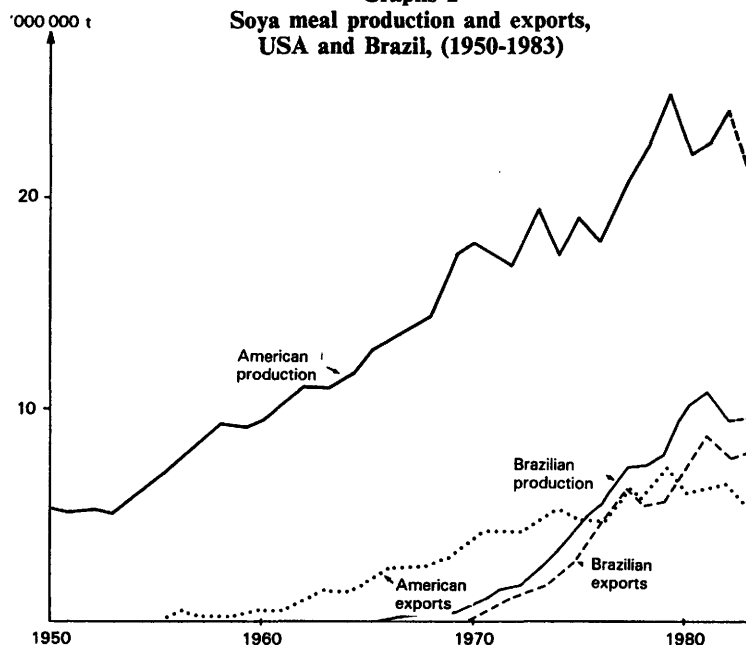
— But the biggest effect of Brazilian competition was larger and more frequent adjustment of American production and milling capacities, a method of regulation that generated very considerable price instability, as the two graphs—on competition by area under cultivation and price support levels and on soya meal production and export figures—show.

Graphs 1
Area under cultivation, price support & average price to the farmer
USA and Brazil



Based on USDA, Oil World, SIBGE & Agro-analysis figures.

Graphs 2
Soya meal production and exports,
USA and Brazil, (1950-1983)



Based on USDA & Oil World data

Adaptation strategies in countries importing and/or producing substitute products

The countries importing and producing substitute products (palm oil producers, such as Malaysia, and rapeseed producers, such as Canada and the EEC) tried to devise strategies to adapt to the new situation brought about by the 1973 crisis and the famous American soya embargo.

The European Community has developed a timid support policy for certain oilseeds (particularly rape and sunflower), but since it is still the world's biggest importer of seed and seed cakes, it has so far failed to do any fundamental rethinking about the compromise with the USA on the 1967 regulation, whereby soya seed and meal get free entry in return for protection for the cereals sector.

Japan essentially sought to diversify its sources of soya supply and is proving very active in Brazil and South-East Asia.

Eastern Europe and China

The Iron Curtain countries, headed by the USSR, which has sources of oilseeds (sunflower and cottonseed) of its own, have taken an increasing interest in the international soya market, bringing about spectacular changes in the traditional patterns, mainly to the benefit of Argentina and Brazil.

Even China, a traditional producer of soya, cottonseed and rapeseed, is now importing vegetable oils, particularly soya.

The situation is probably giving most cause for concern in the countries of Africa as a whole. The countries which produce groundnut and coconut oil (Senegal and Nigeria, in particular) have been in a state of crisis since the mid-1960s and no country has been able to stand up to competition from soya on the international market since the protection that existed during the colonial era finally disappeared (6). The EEC policy enshrined in the Lomé agreements (export stabilization via Stabex, with oil-

(6) J.P. Berlan, J.P. Bertrand, L. Lebas & M. Marloie—Les Conditions de la concurrence internationale entre arachide, soja et colza—*Economie Rurale*, No 116, 1976. (The Conditions of international competition between groundnuts, soya and colza.)

seeds accounting for as much as 40% of the financing) has not so far managed to do away with a phenomenon that also has its international causes (inadequate support for the agricultural sector, poor marketing techniques, recourse to imports which seem an easier proposition in the short term and so on).

Only South East Asia (Malaysia, the Philippines, and Indonesia on the production side and South Korea and Taiwan on the processing side) seems to be making any headway. Higher consumption and export production seem to go hand-in-hand in the case of palm oil in Malaysia and coconut oil in the Philippines. Many countries are going in for intensive animal production (in some cases based on imported cereals and meal).

In conclusion, in the coming years, the international market will continue to be dominated by one product, soya, and by the one or two countries that are organized to produce, process and adapt it to the various eating habits on the different continents. A soya complex, where producers, industrialists, dealers and researchers are organized in an attempt to reproduce and enlarge the production-consumption model on which their wealth and power is based, undeniably exists in the USA.

There is another focus of activity in Brazil—it is partly a competitor and partly a complement—and another, to a lesser extent, in Argentina. Provided soya prices stay reasonable, these complexes leave little room for the development of competing rapeseed and sunflower (Canada and Europe) or palm oil (Asia) complexes elsewhere. This is apparent whenever there is a crisis. Excessive rises immediately create counter-attacks and palm oil and even derivatives of its processing into elementary raw materials (fatty acids) can be very serious competition for soya oil. Exaggeratedly high soya meal prices discourage the farmers and they may find a partial replacement in other protein-rich products (by-products of maize processing and the food and agriculture industry in general, synthetic amino acids etc.). In any case, the international economic situation is such that the people involved are now more careful. What other explanation is there for the 1983/84 shortage having so far only generated a relatively modest price rise? ○ J.-P.B.

Vegetable oils and fats, raw materials for the chemical industry⁽¹⁾

The worldwide production of natural fats and oils is estimated at about or more than 60 million tons, up from 40 m tons or less in 1970 and an increasing part of the world's fats and oils supply is coming from tropical countries. This handsome increase in production clearly shows that natural fats and oils are worthwhile products.

Their applications as food products—margarine, salad oil, etc.—are widely known. These are in fact responsible for the major part of the increase in production.

Less generally known is that another healthy growth sector is the use of natural oils and fats as raw materials for the chemical industry. They are excellent sources of hydrocarbon chains and these chains are non toxic and biodegradable. Moreover, nature's biological cycle guarantees that their supply is constant and inexhaustible: natural fats and oils are renewable raw materials.

Traditional examples of non food uses are the production of soap and the production of alkyd resins for the paint industry. For these applications the chemical industry can start from the fatty material itself. Another possibility, that is favoured in many cases, is to use fatty acids.

Fatty acids, are derived from natural fats and oils through hydrolysis: under the influence of water pressure (about 55 bar) and temperature (about 250 °C) the fatty materials are broken down into their component parts. The crude fatty acids are taken out at the top of the hydrolysis tower, the aqueous glycerine at the bottom.

This apparently simple but in practice very complex procedure, is the start of an industry that in Western Europe represents nearly 9% of the total consumption of natural fatty materials.

Fatty acids are essential in modern industry. They have an enormous range of applications. They are widely used as such or under the form of derivatives—esters, salts, alkanolamides, dimer acids, amines, quaternary ammonium salts, etc.—as ingredients or raw materials in various

industries. Their list of applications could go on almost endlessly. Just to mention a few of them: soap, detergents, laundry softeners, processed foods, cosmetics and pharmaceuticals, textile treatment and leather working, plastics and rubber manufacture and processing, paints and protective coatings, deinking of paper, flotation of minerals, etc.

The applications of glycerine are perhaps better known to the general public and are no less ubiquitous. For example, glycerine is used in large quantities in pharmaceutical and cosmetic applications, in food production, in tobacco manufacture and in the production of alkyds for paints and of intermediates for plastics.

Another important chemical end use of vegetable oils and fats is the manufacture of fatty alcohols. These are obtained through the hydrogenation under high pressure of either fatty acids or methyl esters of fatty acids. This segment of industry accounts for roughly another 2% of Western Europe's total consumption of fats and oils.

Fatty alcohols are mainly used as raw materials for the synthesis of surface active agents for the formulation of detergents. The future of that part of the chemical industry in Western Europe that transforms natural fats and oils into "oleochemicals" looks good.

One should however note that alternative routes to oleochemicals exist, routes that do not start with natural fats and oils. Glycerine is also made from propylene, fatty alcohols also from ethylene and the technology to produce fatty acids from petroleum exists. Today some very specific fatty acids in Western Europe are made petrochemically.

The "renewable" and the "non renewable" oleochemistry exist side by side. To a large extent, the competition between both is decided upon by the price structure of their respective raw materials. ○

⁽¹⁾ Article provided by "OLEOFINA" S.A., 37, rue de la Science, B-1040 Brussels. Tel.: 233 91 11.

Vegetable oils and fats

The Common Agricultural Policy and the ACP States⁽¹⁾

Regulation arising from the Common Agricultural Policy

The principles governing imports of oils and fats into the Community are derived from regulation N° 136/66/EEC which established a common organization of markets in these products. This regulation was established taking into account the particular situation of the Community in this sector, a situation which already existed in 1966 and which has hardly changed since then. Indeed, the Community currently produces about 15% of its oilseeds, 20% of its vegetable oils (olive oil excluded) and 6% of its oilcakes.

For this reason, the Community adopted a particularly liberal import policy on oilseeds, oil and oilcakes in

(1) Article supplied by DG VI (Agriculture), Commission of the European Communities.

1966. Indeed, there are no restrictions on the import of these products into the Community, in terms of either quantity or taxes. Import is subject only to one custom duty, which, in any case, is equal to zero for all seeds and cakes. Duties on oil range from 4-15% depending on their intended use (alimentation or technical) and their degree of process (unrefined or refined).

As far as the Community production of oilseeds is concerned, this is encouraged in order not to allow the Community's deficit in seeds and oilcakes to grow. Community policy is centred mainly on two traditional crops: colza and sunflower, to which soya has lately been added.

For the first two products, the regulation provides, on the one hand, for an indicative price and intervention system, and on the other, for a system of assistance (deficiency payment)

which ensures the Community trituration industry a cost price of seeds in the Community which is on the same level as that of the world market.

EEC-ACP trade

Under the generalized system of preferences (GSP), the Community accords imports from developing countries considerable concessions in the form of customs duty reductions.

In the Lomé Convention, the Community made the further concession of exempting imports of oils from ACP countries from all customs duty.

As said above, oil seeds, vegetable oils and fats and oilcake are very much deficit items in the Community's balance sheet which is accordingly very markedly in the ACPs' favour. Prominent among ACP countries' exports to the Community are those oil products of which they are big producers: groundnuts, palm, palm kernel, copra, cotton, etc.

The period covered by the two Lomé Conventions—i.e. 1975 onwards—has seen a significant, steady fall in imports of ACP seeds and fruits for vegetable oil production from

EEC — Seeds, oils and oilcakes import from ACP states

(tonnes)

	1976	1977	1978	1979	1980	1981	1982	1983
	Seeds and oilseeds							
1. Groundnuts	373 018	195 032	130 633	40 108	34 295	48 143	85 117	39 716
2. Copra	59 513	32 416	28 726	63 420	60 490	46 968	57 581	53 861
3. Coconut	292 727	243 640	128 115	117 953	125 625	117 708	36 201	81 132
Total	830 261	561 261	371 021	264 535	302 200	267 064	278 720	199 745
	Vegetable oils							
1. Groundnuts	216 872	211 597	124 769	153 714	108 299	68 782	141 343	168 754
2. Copra	14 825	24 791	27 996	32 964	41 407	32 569	39 414	37 229
3. Palm	101 457	118 812	100 112	94 152	152 004	118 957	165 821	134 183
4. Coconut	56 910	48 759	79 485	89 037	102 660	68 313	51 011	57 375
Total	480 000	464 498	377 038	401 854	448 569	297 174	453 323	438 454
	Oilcakes							
1. Groundnuts	503 309	425 588	258 332	323 304	263 827	104 647	204 870	276 642
2. Copra	13 215	23 958	27 101	26 490	33 636	27 911	32 427	35 810
3. Coconut	103 107	80 076	95 603	132 429	125 436	108 655	92 156	86 702
4. Cotton	203 279	154 623	117 655	125 219	106 906	98 425	104 434	114 479
Total	918 845	744 720	342 806	669 352	558 963	396 147	459 961	551 029

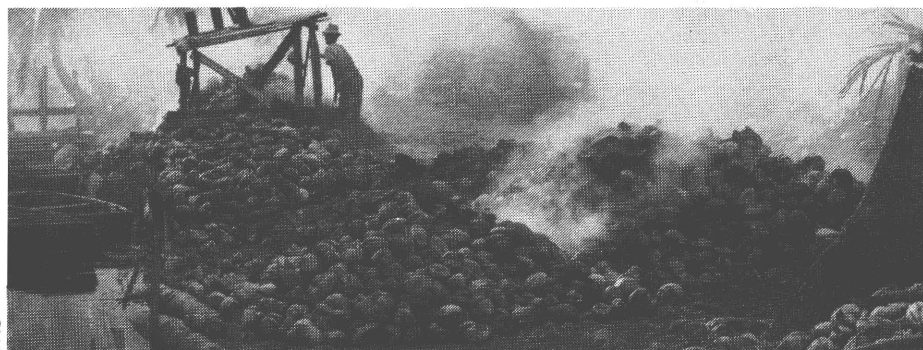
Source: Nimexe.

EEC — Import of refined palm oil for alimentary purposes

(tonnes)

Country of origin	ACP	Malaysia	Other countries	Total third countries
1976	422	838	0	1 260
1977	1 048	5 658	327	7 033
1978	1 474	12 486	297	14 257
1979	526	17 164	1 004	18 694
1980	292	40 576	1 091	41 959
1981	1 497	184 339	2 684	188 520
1982	244	158 678	901	159 823
1983	921	141 773	2 439	145 133

Source: Nimexe.



A coconut-processing plant in Suriname: the industry needs improved plants if output is to increase

830 261 tonnes in 1976 to 199 745 t in 1983 (see Table).

Groundnuts—at 373 018 t—number one among ACP oilseeds exports in 1976—have been hardest hit (39 716 t in 1983); import levels for groundnuts have at almost all times since 1979, stood below those for the other two main oilseeds, palm kernels and copra. Only copra has maintained its levels—which, however, were in 1971 the lowest of all; palm kernel imports fell from 292 727 t in 1976 to 81 132 t in 1983.

The ACP country whose groundnut exports have dropped most markedly is the Sudan which alone, in 1975, supplied 30% of Community needs. It has, on the other hand, considerably increased its exports of groundnut oil, evidence of a successful development policy in this sector.

However, its annual groundnut production has remained in the region of 800 000 t and was as high as one million in 1977.

The fall in groundnut imports from the ACP has been made up in part by a substantial increase in imports from the USA (especially) and Argentina.

Community imports of vegetable oils from the ACP dropped slightly in the same period from 480 000 t in 1975 to 438 454 t in 1983, owing mainly to a fall in groundnut oil imports from 216 872 t in 1976 to 168 754 t (provisional figure) in 1983.

Imports of the other oils, e.g. of palm and palm kernel oil, remained at much the same level, or rose, as was the case with copra oil. While the Sudan significantly increased its groundnut oil exports to the Community, Senegal, which supplied 66.5% of Community needs in 1975—saw its exports fall considerably, mainly owing to inconsistent groundnut seeds production. These two countries are still the Community's largest ACP suppliers; imports from Brazil and Argentina, meanwhile, have increased significantly. These countries imposition of taxes on exports of seeds and unrefined oils means their refined oils now come on the market at competitive prices compared to those of the ACP States which have not improved their productive capacities in any way.

Lastly, Community imports of oilseed cakes from the ACP states fell from 918 845 t in 1976 to 551 029 t in 1983, various fluctuations—according to oil import levels but also due, in this case, to crop vicissitudes—being recorded in between.

Here again, as with the oils, copra is the exception, copra oilcake showing a clear and steady increase.

However, the ACP countries have never supplied more than a minimal percentage of Community oilcake, owing to the importation of soyoil cake from the USA.

Trends in the sector generally show very clearly that the ACP states have an underproduction problem which is not only further impoverishing their economies but also causing serious difficulties to the Community processing industries which have had to switch to imports from the temperate zones or from countries with rising production levels.

Production of oilseeds has risen, for example, in Brazil, Argentina and Malaysia, with the United States still holding first place in this sector.

The production of African countries, in particular, has failed to keep pace with that of other developing countries and they have consequently been gradually losing their traditional markets to other, especially Asian, suppliers.

Research now plays a very important role in these countries, effecting significant advances both in the improvement of varieties through genetic selection and the extension of oilcrop growing to areas traditionally regarded as unsuited to such cultivation.

The oil palm sector, for example, has seen an increase in yields from 0.5 to 4 t a hectare and the introduction of new varieties with greater drought resistance and lower saturated fatty acid levels in their oil.

The groundnut sector, too, has seen the introduction of both new drought-resistant varieties and varieties suited to humid regions and an increase in productivity from 700 to 5 000 kg/ha.

Finally, mention should be made of the role played by plant breeding in considerably reducing production costs and in improving plant resistance to the harmful effects of parasites and diseases in general. ○

Community interventions

The Member States' policy with regard to oils and fats is defined by a series of Community regulations. This policy is commented on in the preceding article, provided for us by the Commission's Directorate-General for Agriculture, which is responsible for its administration.

Within the framework of the Lomé Convention, oleaginous products from ACP countries benefit from certain EDF programmes or from Stabex payments. Oil palms and groundnuts have, in particular, received substantial financial assistance from the Community.

Taken together, the ACP represent only 40% of Community imports of palm products, as against 60% for Asia (Malaysia in particular). The Ivory Coast, Zaïre, Cameroon and Benin constitute the principal ACP producers of palm oil. Nigeria, formerly a major producer (475 000 tonnes in 1975) no longer exports, due to high and unsatisfied domestic consumption.

It is believed that the demand in Africa for oils and vegetable fats will increase rapidly in the years to come and that the ACP could be in a position to satisfy this demand.

With this in mind, the Ivory Coast has set up a major oil palm development programme (see page 000).

As far as groundnut products are concerned, here also the ACP are not in a position corresponding to their potential. Nigeria, one of the world's foremost producers in the 1960s, has since experienced a significant drop in production and now ranks behind Senegal (see article by the African Groundnut Council, page 000) which currently appears to be well placed to boost production, thanks to scientific research and to financial incentives to its farmers.

Stabex is also an important back-up for Senegal's groundnut development policy.

In 1981 and 1982 (years of application 1980 and 1981), Senegal received ECU 56.62 m for groundnut products and ECU 8 853 832 for oil cakes, i.e. a

(continued p. 89 col. 1 below)

Position by type of operation (3rd EDF)

Country	Name of operation	Expenditure in '000 ECU
Benin	Agonvy oil mill study	4
Benin	Technical Assistance to Mono oil mill	29
Benin	Construction of palm oil mill at Qonader	3 276
Congo	Selected palm groves Congo basin	29
Niger	Supply of groundnut seeds	2 908
Senegal	Extension groundnut production at Sine-Saloum	2 219
Senegal	Organization of groundnut producers' meeting	22
Senegal	Technical Assistance to creation of groundnut seed services	0
Chad	Oil/soap mill study	61
Togo	Palm oil mill extension	828
Togo	Oil mill construction study	7
Togo	Study of organization of palm groves and oil mills development	29
Togo	Study of extension of 3000 ha of palm groves	42
Togo	Agou Palm at mill study	37
Zaïre	Gosuma palm grove extension	400
Zaïre	Special loan to Gosuma oil mill	1 787

Position by type of operation (4th EDF)

Country	Name of operation	Expenditure in '000 ECU
Cameroun	Subsidy to village oil palm plantations	220
Cameroun	Loan to villages oil palm plantations	553
Ghana	Loan to Pretsea oil palm dev. project	1 910
Ghana	Oil palm development study	187
Liberia	Buto oil palm plantations	34
Sao Tomé & Principe	Oilseed cultivation	52
Senegal	Continuation of table groundnut operation	4 040
Togo	Conditional loan (risk capital) for Agou palm oil mill	71
Zaïre	Extension of Gosuma (Ubangi) palm groves	12 422
Zaïre	Oilseed cultivation study, Gemena region	117

Position by type of operation (5th EDF)

Country	Name of operation	Expenditure in '000 ECU
Benin	Stabex — Palm oil	199
Benin	Stabex — Palm kernel oil	426
Benin	Stabex — Palm oil	1 615
CAR	Bossongo palm grove	336
Ivory Coast	Replanting and extension of oil palm plantation	0
Fiji	Stabex — Coconut oil	510
Fiji	Stabex — Coconut oil	788
Gambia	Stabex — Oil cake	414
Ghana	Pretsea oil palm plantation	74
Ghana	Suppl. financing Pretsea oil palm plantation rehabilitation	0
Guinea-Bissau	Stabex — palm kernel nuts	361
Liberia	Buto oil palm plantation	455
Liberia	Buto oil palm mills	700
Mali	Stabex — Groundnut oil	3 549
PNG	Stabex — Copra	1 083
PNG	Stabex Copra oil	906
Sao Tomé & Principe	Oilseed cultivation	507
Senegal	Stabex — groundnut products	20 526
Sierra Leone	Stabex — palm kernel products	846

IVORY COAST: The Palm Plan

Agriculture dominates the Ivory Coast's economy and the national authorities have always considered it to be an absolute priority.

However, the dominance of two products, coffee and cocoa (which between them accounted for more than 60% of total export earnings in 1962), makes agriculture vulnerable because it means it is dependent on external markets.

This is why a crop diversification campaign has been going on for some years now, with a view both to helping the country towards self-sufficiency in food and introducing other cash crops.

The Palm Plan is a particularly good example of successful diversification, from the point of view of both the country's oil and fat supplies and export of an agricultural product that has been processed and given added value on the spot.

It was launched in 1963 with the initial aim of setting up 75 000 hectares of palm plantations to produce 200 000 tonnes of oil. This area was to be divided into high-yield industrial plantations that would ensure that the operation was a profitable one and keep the processing plants (11 in all) supplied, plus a number of village plantations within a 20 km radius of

these processing plants where they could benefit from the logistical backing of the industrial units.

Alongside this, the project provided the economic and social infrastructure to stabilize the population.

This vast palm programme, which even exceeded the initial target (almost 100 000 ha were brought under cultivation) — took a considerable fi-

nancial effort, something like ECU 120 million in all, over the years. The Ivory Coast itself produced 12 m of this, the EEC contributed 59 m, the World Bank 35 m and the CCC (Caisse Centrale de Coopération) 13 m.

The Community's contribution to the Palm Plan

Assistance from the EDF and the EIB enabled the operation to get off the ground remarkably successfully. Over a period of 15 years, starting in

Subject	Source	Type of financing	Amount (ECU '000 000)	Implemented
2500 ha village plantations 2200 ha industrial plantations 2 oil mills Infrastructure	EDF	Grant	5.1	1963 - 1969
32 000 ha industrial plantations Equipment and infrastructure	EDF	Grant	31.5	1965 - 1973
5420 ha industrial plantations	EDF	Special loan	3.2	1969 - 1973
5 palm oil mills	EIB	Ordinary loan	10.3	1969 - 1972
1 palm nut oil mill	EIB EDF	Loan with interest rebate	7.5 1.2	1977 - 1978 1977 - 1978
Total			58.8	

Position by type of operation (5th EDF) (Continued)

Country	Name of operation	Expenditure in '000 ECU
Solomon Islands	Stabex copra	565
Solomon Islands	Stabex — copra	1 727
Togo	Study of potential value of waste matter from Agou oil mill	70
Togo	Technical assistance to pilot oil palm nursery	310
Togo	Grove and Mill Development Corporation (SONAPU)	39
Tonga	Stabex — copra	1 685
Tonga	Stabex coconut oil	392
Tuvalu	Stabex copra	44
Tuvalu	Stabex copra	63
Western Samoa	Stabex copra	809
Western Samoa	Stabex copra	877

total of more than ECU 65.47 m for various oleaginous products.

In the space of two years (1980 and 1981), Senegal will have received almost as much in Stabex payments as under the Lomé II indicative pro-

gramme (ECU 69 m).

The tables give details of the Community's actions in the field of ACP oils and fats under the 3rd, 4th and 5th EDFs up to mid-November 1983. (See p. 88).

1963, 39 620 ha of industrial plantations, 2 500 ha of village plantations, seven palm oil producing plants, one palm nut oil plant, considerable social infrastructure (housing, infirmaries, water and electricity supplies, tracks etc) for plantation and oil mill staff and various other facilities and equipment (vehicles, trucks, generators and so on) were installed.

Results of the Plan

The palm plan has seen three main periods, each with different performances.

Until 1974-75, the palms were very successful and remarkable progress was made.

In 1962, prior to EDF intervention, the Ivory Coast, which had only a thousand or so hectares of selected palms at that stage, imported more than 5 000 t palm oil every year.

Trends in oil production and export (t)					
Year	Area (hectares)	Production		Oil imports	Oil exports
		Bunches	Industrial oil		
1962/63	1 051	n.a.	n.a.	5 250	0
1966/67	2 000	4 000	0	n.a.	0
1970/71	20 000	123 800	24 460	0	11 174
1974/75	55 000	615 000	128 640	0	84 520

Year	Area (ha)	Production (t)		Oil (t)	
		Bunches	Industrial oil	Exports	Domestic consumption
1975/76	58 000	512 600	104 688	75 032	31 868
1976/77	62 000	664 775	135 316	93 785	48 515
1977/78	64 400	564 100	118 253	68 174	53 289
1978/79	67 800	626 240	128 717	63 054	55 931
1979/80	70 800	563 302	116 623	38 588	67 564

The increase in the area under cultivation, the yields and the production and the complete change (exports took the place of imports) in the vegetable oil sector was particularly significant.

Yield increased as anticipated:

— On the village plantations, it went from 3.7 t per ha in 1966 to 5 t per ha in 1970 and reached 7.8 t per ha in 1974;

— On the industrial plantations, it rose from 1.13 t per ha in 1966 to 6.8 t per ha in 1970, reaching 11.7 t per ha in 1974.

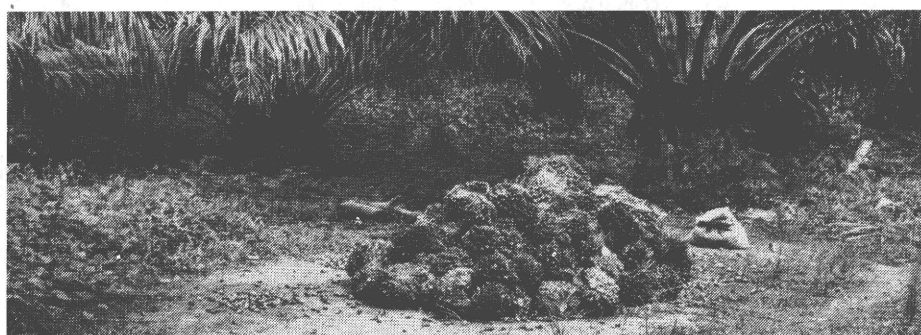
There were many reasons for the success of the operation, in particular the choice of the areas for planting, adherence to the budget while the programme was being run, the fact that the project could attract and keep a large labour force because of all the social infrastructure (housing, schools etc) it provided and, lastly, stringent management by the organizations responsible for running the scheme — helped, it is true, by a surge in world prices over the period.

The 1976-80 period, however, saw a deterioration in the situation on both the production and the financial sides. From 1976 to 1980, only 116 000 t of oil were produced from what had by then become 71 000 ha of plantations, 10% less than five years previously from an area 23% larger.

The main reasons for this were a

show of investments from external loans going beyond a capacity which the management group could absorb, a series of legal changes in the group and poor climatic conditions for three consecutive years (1976, 1977 and 1978), which wiped out any profit from the palm programme.

Since 1981-82, the financial situation of the association of management firms, particularly Société Palmindustrie, has recovered, thanks to massive state intervention. The group has been reorganized and all management and marketing responsibilities taken in hand and high level technical assistance has been called in, so it has been possible to relaunch the Palm Plan. The (50%) increase in the price paid to the village growers and the return of extension services have made for great improvements, as the following overall figures (as of end 1982) show:



Cutting palm nuts in the Ivory Coast. The Palm Plan should substantially increase the Ivory Coast's production, already the highest in the ACP states

Area planted (ha)	Oil palms	Coconut palms
— industrial plantations	51 617	19 135
— village plantations	37 901	8 503
	89 518	27 638

— private plantations outside the Palm Plan 9 640

Factories and other industrial installations

— palm oil mills	12 (*)
— grain oil mills	1
— coprah and coco plants	3
— storage stations	2

(*) +3 in the private non-plan sector

Social facilities and general infrastructure

— equipped villages	48
— medical-social centres and infirmaries	46
— plantation tracks	1500 km
— maintained tracks	4500 km

Production 1982 (t)

Palmindustrie group only

— palm oil	147 527
— palm nuts	32 837
— palm nut oil	13 485
— palm cattle cake	13 008
— coprah	34 486
— coprah oil	19 230
— coprah cattle cake	9 455
— livestock raised on palm plantations	6 965

Staff (including the coconut sector)

— supervisors and managers	429
— labourers and daily workers	14 288
— village planters provided with back-up from the scheme	8 456 + 1980
— villages involved	360

These remarkable results show there

	1985	1990	1995	2000
<i>Without a second Palm Plan</i>				
- national tonnage (t)	822 155	617 515	278 848	105 562
- rate of utilization of existing oil mills	60%	52%	23%	9%
<i>With a second Palm Plan</i>				
- anticipated tonnage	774 996	647 967	716 380	899 529
- rate of utilization of existing oil mills	56%	54%	60%	76%

was an undeniable need for the scheme — which enabled the Ivory Coast to become Africa's leading palm oil producer and the world's third exporter in 1974-75 and which not only involved creating a large number of jobs, but providing important social facilities in the form of housing and other services (water and electricity supplies, dispensaries, schools, stores etc) of which the recipients make full use.

The second Palm Plan

The Ivory Coast's five-year (1981-85) development Plan stresses agricultural development, particularly better coverage of food requirements and the diversification of agricultural exports. This means oil palms, which can help with both these targets. Over the past 20 years, the consumption of edible oils and fats, both natural and processed, directly (in table oil and margarine) and in the manufacture of foodstuffs, has expanded rapidly, rising from an estimated 27 000 t in 1969 (6.9 kg per inhabitant) to 47 000 t in 1970 (8.5 kg per inhabitant) and 98 000 t in 1981 (11.6 kg per inhabitant). Anticipated trends in demand from the domestic market in the Ivory Coast suggest that, if the older plots (more than 55% of the plantations) are not replanted and extended, the country's shortfall will be 250 000 t in the year 2000. The alternative, more precisely, is as follows:

The government is aware of what is at stake and has, therefore, devised a replantation and extension plan for both industrial and village plantations. This, the second Palm Plan, involves:

- replanting 23 000 ha of the village plantations (61% of the area currently under cultivation) and 37 620 ha of the industrial plantations (73%);
- extending the palm plantations by

bringing a further 33 700 ha under cultivation in the villages and 1 200 ha on the industrial units.

The Community's contribution to the second Palm Plan

With a view to helping get the Plan off the ground, the Community has just approved a project that will enable the country to preserve its production potential and ensure self-sufficiency in oils and fats in the coming



A new 3 200 ha oil palm plantation in Ivory Coast financed by the EDF

years. This involves planting 12 517 ha with oil palms during the first three years of the second palm plan. Palmindustrie is in charge of implementing the programme, which involves both industrial and village plantations.

These first three years will cost ECU 17 m, 10.3 m of which will come from the EDF, 3.4 m from the state and 3.4 m from the village planters. The programme should enable the Ivory Coast to be self-sufficient until 1990, but further investments should be envisaged for the period after that, in the light of the situation at that stage.

The project is not only expected to meet this primary objective. It should also:

- ensure that the processing industry, which has a capacity of about 125 000 t of oil and makes a vast range of finished products with high added

value (soap, washing powder, table oil, margarine, sauces, perfume etc), has regular supplies;

- avoid any negative effects on the balance of payments. If there were no second Palm Plan, the local processors would be forced to import their oil from 1990 onwards and an estimated 1 250 m t (representing almost CFAF 170 000 m or ECU 496 m) would have to be purchased abroad. The supplies that will have to be imported for the project are negligible in comparison.

There are three aspects of the efforts made to develop the Ivory Coast's oil palm sector that are worthy of particular note:

- Community aid was a forerunner that led to the subsequent mobilization of other external resources in both the first and second Palm Plans which enabled one of the biggest agro-industrial units in the world to be set up.
- These joint efforts led the national authorities to think thoroughly and

constantly about the problem and this made it possible to define a coherent, long-term policy (involving a planting programme, price fixing, the constitution of reserves and an accompanying social policy) for the sector. This real effort that was ploughed into planning successful development is one of the indirect assets of the programme.

Lastly, it is particularly interesting to see how the aim of the project changed over the years from diversification, the original intention, to the internal development of the country, the prime objective as things stand. Following population expansion and changes in consumer habits, the programme has emerged as vital when it comes to self-sufficiency in oils and fats in the Ivory Coast and to the regular supplies without which the industrial sector could not develop. ○

ERNST KRÖNER

The groundnut industry in Senegal — nuts for confectionery and the table⁽¹⁾

Senegal, a major producer of groundnuts for oil (more than one million tonnes per annum under normal rainfall), has been taking an interest in producing nuts for confectionery and the table, particularly the very large ones which could make a contribution to crop diversification similar to that of market gardening.

The fierce competition between the different oil-yielding plants, often leading to a slump in the price of groundnut oil, is a source of considerable loss to Senegal, a basically agricultural country and a Sahelian one as well.

The country is trying to trim the part of the crop used for oil by developing the confectionery side of the industry (the nuts are shelled, sorted and graded in size) in certain cases. Although almost a dozen varieties are grown in Senegal, many of them could not be sold for the table, so the first thing was to select new varieties that could be used both for oil and for confectionery and the table.

The selection programme, which is being pursued, has already made it possible to spread a small-seed Spanish-type variety throughout northern Senegal and a Virginia type, with medium-sized seeds in the centre of the country. These two varieties, which have all the requisite qualities (regular-sized seeds, pleasant taste, easily peeled and grilled) for sale as confectionery, are now being grown over about 200 000 hectares each.

Senegal's table groundnut project, which began with 3rd EDF financing and continued under the 4th EDF, was in two main and complementary phases.

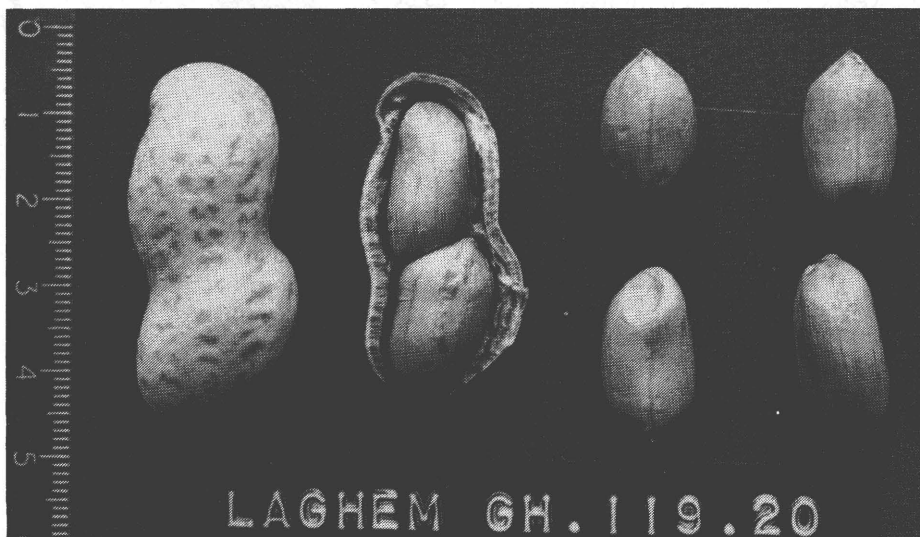
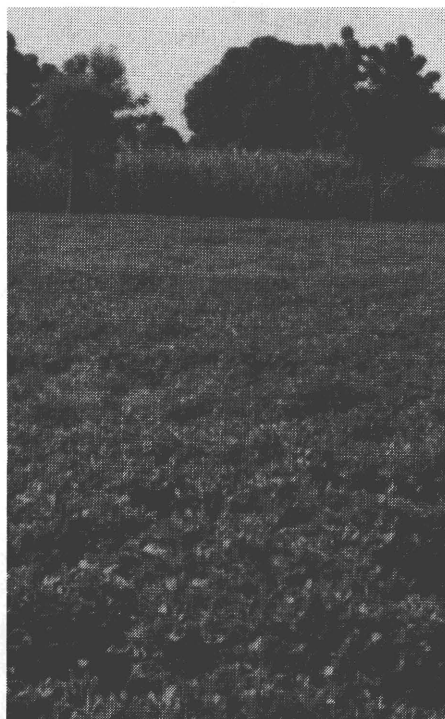
Phase I, 1969-1975. The sole idea here was to develop the growing of large Virginia-type confectionery and table-nuts in the central region of Senegal (Sine-Saloum), bringing the area under cultivation up from 4000 ha in 1975.

The aim was to:

— diversify by introducing a new crop (1-3 ha per farm);

⁽¹⁾ Article supplied by Mr Dimanche, Engineer at IRHO, Dakar, Senegal.

- Make for maximum development on the farm (using family labour to sort the nuts for export);
- diversify the peasant farmers' earn-



ing and provide them with cash incomes earlier than before (sale a month earlier than groundnuts destined for the oil mill);

— create a regional processing industry;

— diversify the country's revenue and guarantee foreign exchange earnings.

In spite of the hazards of climate, the targets were reached and the area

under cultivation rose to 21 600 ha in 1975 and production to 18 081 t.

Phase II, 1976-1983. The idea of this phase was to bring the areas on which the large Virginia-type nuts were grown up to 33 200 ha (and start growing them over 3 300 ha in Casamance and 1 400 ha in Eastern Senegal) and to provide backing for and maximum development of the 42 000 ha in northern Senegal where 30 000 t of the recently introduced small Spanish-type nut was grown.

The aim in this case was primarily to improve the quality of the peasant farmers' yields (by separating foreign varieties and immature products) and to diversify Senegal's exports.

Although the phase two targets were not over-ambitious, it did not prove possible to achieve them fully, essentially because of poor climatic conditions and ill-adapted production and processing structures.

The project came up against extremely difficult climatic conditions in 1976-1980 and the effects were cumulative, particularly in the south where

Combined groundnut and maize production, and a new type (GH 119.20) groundnut obtained by IRHO (Senegal)

the large Virginia nuts are grown. The drop in production, which began with the exceptional drought in 1977, continued in 1978, when exceptional rainfall at the end of the season wiped out more than 50% of the crop and made a more than 50% cut in the germinative potential of the seeds. In 1977-1981, the large Virginia nuts were grown mainly for seeds and output did



Another category of IRHO groundnut

not really reach an appreciable level until 1982, when 13 600 t were produced. Over that same period, a quota of between 5 000 t and 15 000 t p.a. of Spanish nuts went for confectionery purposes. The limiting factor on development of the Spanish variety was essentially, the small capacity of the Louga factory rather than the effects of the drought.

Nevertheless, phase two was not a complete failure, as it did, in fact, provide an opportunity to analyze all the constraints and develop new technology (vacuum seed preservation) and, above all, it led the Senegalese authorities to take the necessary steps to set up a coherent, integrated production-processing chain for table nuts.

Alongside this, a full study of the table and confectionery sector was run by the IRHO (1) and the SEDES (2) in 1980 at the request of the Senegalese authorities. It was financed jointly by the EDF and Senegal and it enabled the authorities to get a better grasp of the size of the market in this particular product.

Estimated demand in the main consumer countries is as follows (t):

(1) Institut de Recherches pour les Huiles et Oléagineux (Oil and oilseed research institute) Paris.

(2) Société d'Etudes pour le Développement Economique et Social (Economic and social development Association) Paris.

	Shelled & graded (t)	Unshelled & graded (t)
EEC	184 000	38 000
Other countries of Western Europe	25 000	21 800
North Africa	4 800	4 800
Canada	57 000	5 200
Japan & other Asian countries	88 900	10 700
Eastern Europe	79 000	n.q.
	439 000	80 500

The groundnut market in the EEC has stabilized following very steady growth in 1972-76 when shelled nut sales increased by 60% and unshelled nuts by 12%.

The EEC is unable to find other regular sources of good quality groundnuts and so imports 60% of its requirements from the USA.

The USA's predominant position on the market shapes the main data of that market and ensures high prices that reflect the cost of American production.

Outlook for Senegal

In view of the prices and the size of the market, Senegal has decided to use at least 100 000 t (unshelled nuts), or one tenth of national production, in the table and confectionery sector from 1985/6 onwards.

Price comparison (CFAF per kg, cif Europe, January 1984)

<i>Oil</i>	
• Franc zone, Africa	485
• De-oiled cattle cake, Senegal ..	86
<i>Table & Confectionery nuts</i>	
• <i>Large Virginia</i>	
Graded pods 14/16 (1)	290
Graded nuts 24/28	696
Graded nuts 28/32	612
• <i>Medium Virginia (USA Runner type)</i>	
Graded nuts 38/42	482
Graded nuts 40/50	439
• <i>Small Spanish 50/60</i>	
70/80	398
	336

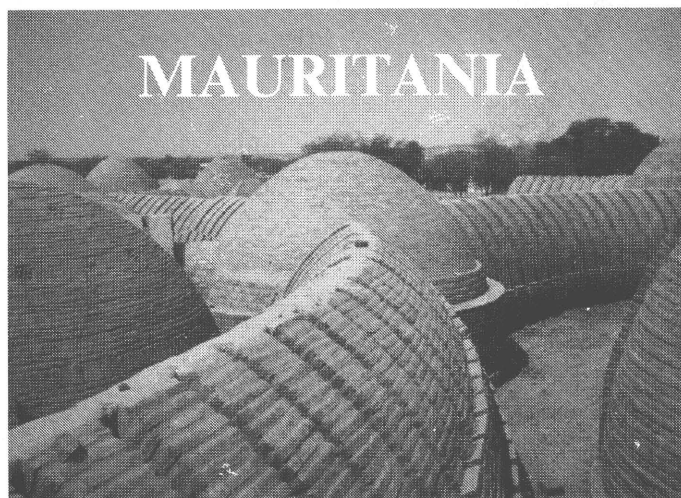
(1) Number of pods or nuts to the ounce (28.35 g).

Some measures have already been taken and others will follow with a view to making this sector both coherent and viable. This is essential bearing in mind that it has to help make the groundnut industry in general a better economic proposition.

The main measures that should make for success are:

- integration of the basic collection, industrial processing and export of confectionery and tablenuts into the SONACOS, Senegal's national oilseed marketing board. This should minimize costs and avoid any competition between the oil and confectionery sectors;
- SONACOS' gradual financial involvement in extension services for groundnut farmers and the supply of input;
- the construction (by 1986) of two plants containing high-performance equipment that will enable the maximum number of whole nuts to be obtained and ensure health standards that are up to market requirements. The plants will have an initial capacity of 35 000-50 000 t and will be built at Louga in northern Senegal and Kaolack in the centre.

The creation of a table and confectionery sector will mean that major industrial investments will have to be made — but they will enable the target to be reached, develop Senegalese production and provide the peasants with a better living than they make at present. ○



The domes and oval cupolas, with their different shapes, sizes and decorations, make the hospital look like a whole village

Extensions to Kaédi Hospital: Architecture rings the changes

Kaédi, Mauritania's third largest town and the capital of the Gorgol region, is on the banks of the Senegal River. It has a small, 58-bed hospital, but a financing agreement worth ECU 1 925 million (in the form of grants from the EDF) was signed in 1979 with a view to upgrading it to a regional and inter-regional hospital with a total of 114 beds. The agreement also included supplies of medical equipment. The point of the project is becoming even clearer, here in 1984, now that drought is forcing an increasing section of the unsettled population of Moorish nomads towards the river and thus towards Kaédi, too.

Right from the design stage, the accent was on

Capitalizing on local materials

Since the Directorate for Buildings, which was in charge of the project, was unwilling to have the Public Works Department actually implement the scheme, SOCOGIM, a mixed company, was invited to take it over and it, in turn, concluded a contract with ADAUA (Association for the natural development of African town planning and architecture) for the design of architectural modules and the construction work proper. ADAUA thus contacted Fabrizio Carola, who was already familiar with the Association's work from what he had seen at Rosso, where local materials and brick domes had been used. Carola researched both the materials and architecture of the new buildings with

a view to enhancing the reputation of the local materials traditionally in common use in the Kaédi area.

This involved both building the kiln and running test bakes to produce proper bricks and lime—i.e. creating the means of production of the project on the site.

The essential technological innovation as far as the bricks were concerned was the use of rice husks (locally available from the nearby rice mill) as fuel for the kiln and then the recuperation of the ash for addition to the paste to give greater resistance during the baking process. The point of using bricks, which are unknown to the Kaédi builders, was not just to use locally available resources, but because they were much cheaper than imported ce-

ment and avoid the drawbacks of concrete, which is a strong conductor of heat. "I made three changes to the traditional method", said Carola. "First, I decided to produce the bricks on a smooth cement base rather than on the ground, as this makes them neater and cleaner. Then I replaced straw with rice husks to give a mixture that is more homogeneous and easier to handle. And third, I baked the bricks and made them water-resistant, thus solving the whole problem of erosion that crops up in traditional constructions."

What was unusual about the project was that the project leader imposed a phase of experimentation with both architecture and equipment as an integral part of the scheme, right from the word go, with the aim of setting up a system for producing building materials out of materials found locally and training masons and other craftsmen who could perhaps spread the new techniques to other people.

The lime testing was less conclusive, as the quality of the product was not good enough to be used to stabilize the bricks and it will be used later on to whitewash the interior walls of the

hospital.

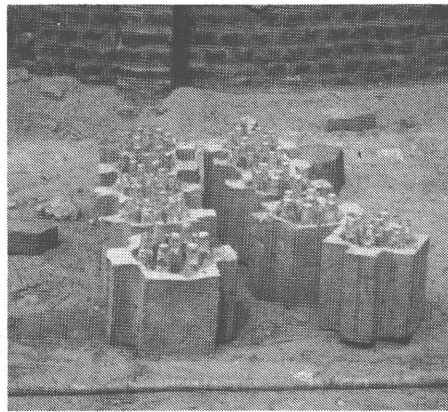
A series of on-site tests has led to the building of kilns (more than 5 metres high and producing temperatures of upwards of 1000°) that are so simple that local craftsmen could easily make them if they wanted to.

The plans, original in both conception and design, covered the vast area available for the hospital extensions and Carola experimented with materials while they were being drawn.

Originality of the project

There are a certain number of original features, firstly the architectural design—the domed brick buildings are in the form of a sort of tree or flower with many stems, which are the corridors, with rings of wards off them. Seen from the ground, the domes and oval cupolas, with their different shapes, sizes and designs, make the hospital look like a whole village. Although the initial reaction was one of bafflement, in view of the design and the materials, the staff and the local inhabitants now seem to accept the extensions.

Then, of course, the materials are unusual. The baked bricks, which are not in traditional use in Kaédi (where buildings tend to be rectangular banco constructions), are cheaper than cement and better from the point of view of insulation. There is no need for a join between roof and wall, as the worker builds the two together, so the work is perhaps easier for him and he



Windows are expensive and they focus the heat, so, in this hospital, they have been replaced by pottery openings. Light also filters through the locally collected bottleglass set in the cement

can grasp the techniques and pass them on more easily. Maintenance is also kept to the strict minimum, as the bricks themselves constitute a finish.

There is functional and organizational originality too. With its layout and circular rooms, the hospital is aiming at making it easier for patients' families to get to the wards and at keeping them separate from the rest of the hospital, particularly the areas reserved for staff. This facility for the families, who can also pitch their tents in the (walled) grounds, reflects the African tradition, whereby families stay with their sick so they can help them. It also means that the patient can go and join his family in the hospital grounds as soon as he is well enough.

This system could well be an inspiration to other hospitals in Africa, even where imported materials are used.

The domes in this project are easy to copy and economical. The vaulted design means that there is more room inside and it rules out the need for wood or steel in construction. The arched corridors are light and airy and windows, which are expensive and focus the heat, have been replaced by earthenware openings and skylights in the domes.

One essential advance as far as the use of local materials is concerned is the production of project input, as follows.

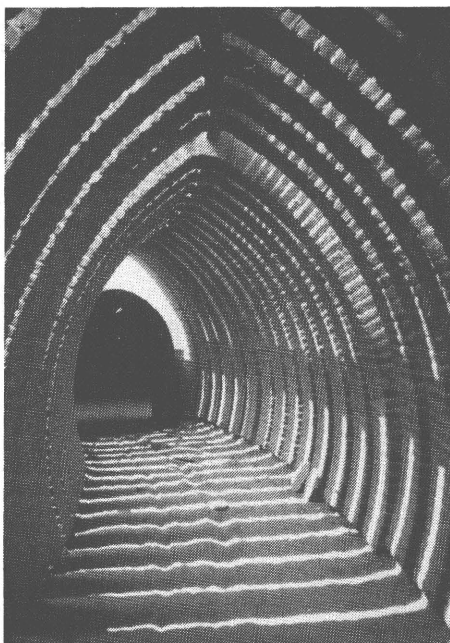
First of all, tools have been developed and improved, the most important example of this being a compass which has been modified so the workman can mark off where each brick in

the dome will go. The idea of this compass was taken from the Egyptian architect, Hassan Fathi, but it was altered for use in the construction of oval cupolas and placed on wheels so it could be turned round a central axis and two circumferences, forming the crest of the cupola.

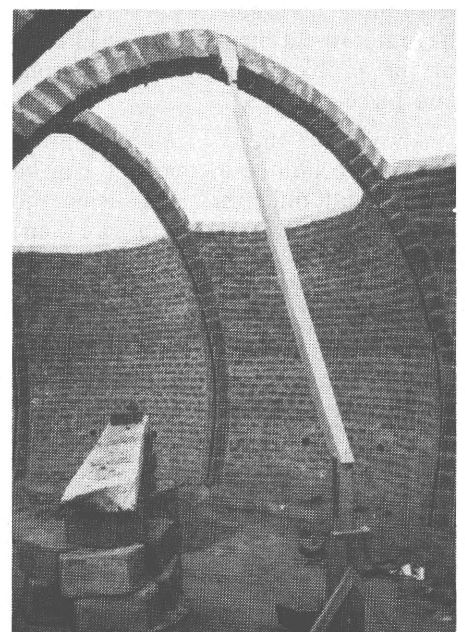
Orders were then placed with various Kaédi artisans for:

- earthenware, with a unit initially run by two Italians and now in the hands of people from Kaédi who sell in Nouakchott and supply the hospital with such things as coat-hangers, lamps etc;
- wooden articles (doors and surrounds), under the supervision of an artisan who imports his own wood;
- metalwork, from a boilermaker in Kaédi, who uses old diesel containers to make waste water tanks (for toilets, showers and so on) and collapsible toilet syphons.

Then comes the most important new feature—the construction and opening of the brickworks. There are 10 brick kilns at the moment, two lime kilns, a flat area for mixing, drying and moulding the bricks prior to kilning, three wood stoves, a well and windmill, a tile-making area, sheds to store rice husks and make tiles, a domed house for the watchman and two clay quarries, all of which are on the banks of the Senegal very near the site of the hospital. The requisite sand comes from the river, as does the clay for the tiles. The brickworks use no



Arches form light and airy corridors



Tools are developed and improved. This compass has been modified to enable the workmen to build oval cupolas

electricity and the works and the wood stoves between them turn out 25 000 bricks per (five-day) week at the moment, which is barely adequate to keep the site supplied.

Besides being able to be reproduced at all levels and managed by an extremely small number (two) of expatriates, the brickworks and the hospital have, in fact, created a large number of relations with local economic agents and the only imported things are electricity, wood, plumbing equipment, cement, vehicles and petrol. These agents include:

- about a hundred workers and jobbers trained on site;
- suppliers of sand and cement;
- the rice mill, which will provide exclusive free supplies of rice husk for the hospital until the end of the project;
- the donkeymen, who carry the bricks and tiles from the brickworks to the site;
- a series of transporters;
- tradesmen (supplying planks and ironmongery);
- potters, boilermakers etc, bound by contract to the site and having priority of supply.

The technology of the project can be copied and economic links have been created, but in addition to this, a number of teams of workers 100 in all (45 wage-earners and 55 piece-workers), mainly Mauritians, have been trained. Practically all the woodwork and ironwork has been done with project money. Many local craftsmen have improved their situation, in spite of the problems of training masons and piece-workers.

Above all, there is already proof that the technique in question can be spread and other projects, using the achievements of the scheme, are coming to light:

- At Foug Gleita, on the site of the first village built for farmers in the Gorgol Noir project (UNDP financing), a young architect, trained on the hospital site, is drawing up the construction plans, while the ex-head of the brickworks and two masons, also trained on the hospital site, are training other masons.

- In Kaédi, SOCOGIM proposes to build 50 units of cheap housing with terracotta bricks from the brickworks.

- Two granaries are being built for SONADER along the same lines.



Brick kilns between the Senegal River and the hospital site. The sand and clay used to make the tiles come from the river

- The regional governor hopes to have a social centre, a shopping centre and an amphitheatre built.

- Many individuals have asked if they can build homes along the same lines, although the financial viability of this still has to be demonstrated.

- Inhabitants of Kaédi are building a group of houses (Mother and Child Welfare Service).

An architectural and social success

Right from the start, this project was designed as an experiment. It is the result of a threefold search—to find a creative style of architecture, to do so with the use of local materials and to create new techniques that can be spread and will generate employment locally. From this point of view, then, the project is on the way to success.

Although the project uses local resources and labour, it has not mobilized them and this is where its reproducibility is limited. This is not intended as a criticism, bearing in mind the social and architectural advantages. It is a finding related to the nature of project, which is a “monumental” one centred essentially on architecture and techniques.

As it stands, and leaving aside the architectural and social success which it represents, it does in fact contain a large number of ideas that can be used on other sites where hospitals and other public buildings are going up. They include:

- the ground plan, offering direct access for the families, which has already been used in other Third World hospitals;

- the input production technique and the use of local resources and, by way of consequence, the partial use of project money to create or boost small local businesses and craftsmen.

This could well be an inspiration to other EDF projects in countries and sectors where it is essential to use a maximum of local resources, where they can be mobilized and where they fit in with the socio-cultural environment of the users.

It shows the point of having an experimental phase, particularly in projects designed to extend the public services—the health service in this case—for the benefit of the people. This experimental phase is the opportunity to bring local abilities into play. It may mean that the original design has to be altered or completely transformed to take account of the actual situation in the region in question.

It also shows the point of creating a production line as a guarantee of the “developing” nature of the project in relation to its environment.

We must now hope—since the project has not yet been completed—that the scheme will yield a hospital that works to the satisfaction of the users and the people of Kaédi as a whole. ◊

JEAN-PIERRE DUBOIS (*)

(*) Principal Administrator, Commission of the European Communities.

Treasures of ancient Nigeria: the Paris exhibition

A book entitled "Treasures of ancient Nigeria" has just been published to coincide with an exhibition at the Grand Palais in Paris (16 May to 23 July), an exhibition that has been all over Europe, from London to Lenin-grad, from Oslo to Florence.

Mr Hubert Landais, director of the Museum of France, writes in the fore-ward: The Grand Palais is particularly honoured to host this exhibition of the "Treasures of ancient Nigeria". The exhibition is of major importance, and doubly so. First of all, because it pre-sents "treasures" which represent 100 of the most beautiful works of Niger-ian museums, many of which were discovered barely a decade ago and had never left their sites of origin. Their technical perfection and artistic refinement place them among the world's major works of art.

Secondly, the exhibition is impor-tant because it concerns ancient Niger-ia. It is, in fact, a past that covers more than 2000 years that we are real-ly discovering. This is important be-cause, if some international exhibi-tions of African art have already taken place in Paris—for example, "100 tribes", "100 masterpieces" at the Marsan pavilion in 1964 and "Negro art" in 1966—they were above all de-voted to wooden sculptures, within the "tribal" framework and therefore in general less ancient. One discovers instead in this exhibition, beyond the relatively known Benin and Ife arts, bronze works that date back to 9th and 10th centuries B.C. and terra-cot-tas of the 5th century B.C. They are, however, as Mr Jean Devisse empha-sizes in the preface, only a small por-tion of an archeological harvest at its beginning.

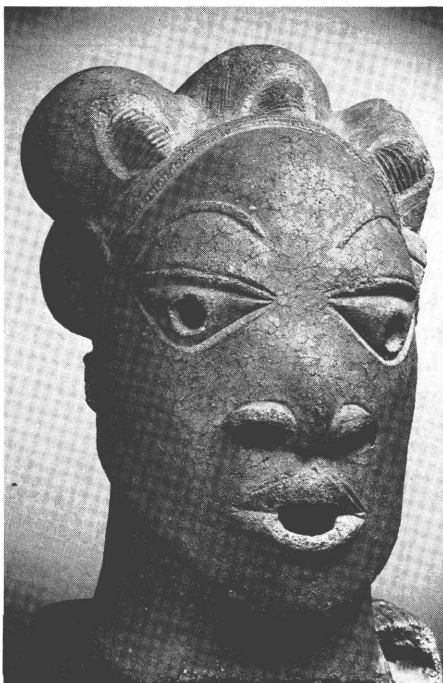
Thanks to this exceptional exhibi-tion, it is the European view of the African art that is shaken. The immut-able "primitivism" dear to modern western artists gives way to the history of a civilization and of works of art and nothing less".

Mr Jean Devisse, professor of Afri-can history at the University of Paris I, adds in the preface:

"This exhibition brings together only a small number of works, chosen for their beauty in the harvest of ob-jects of all kinds that the habits of col-lecting, buying and selling or of the most noble scientific research, have

NOK ART

Nok terra-cottas are the oldest sculp-tures known in Nigeria. They date back at least to the first millennium before Christ



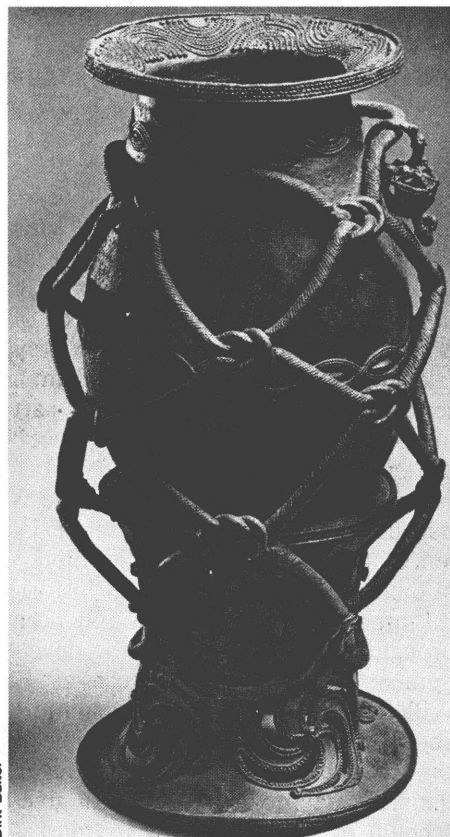
A head



A foot

IGBO-UKWU

During the digging of a reservoir at Igbo-Ukwu in 1938, a series of bronzes was discovered. They came from a place where ritual objects were deposited and among these were works of art which date back to between the 9th and 10th centuries



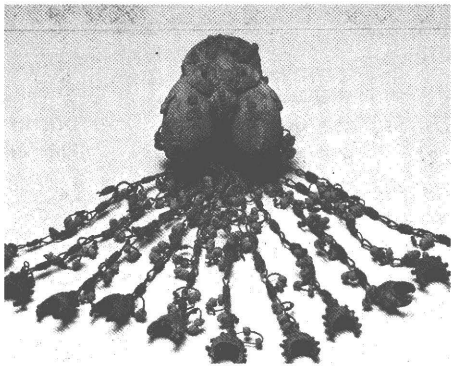
Pot with stand in a net

The presence of the stand reflects per-haps a tradition which has continued to this day in this part of Nigeria accord-ing to which sacred water must not touch the ground before it is used in ritual ceremonies



Receptacle in the form of a shell surmounted with an animal

With its jewel-like decorations, it is a complex cast well executed



Dirk Baker

Pendant with two eggs
This unusual necklace shows a bird perched on two big eggs joined together by a decorated bow

brought to light over the past 30 years in Nigeria. Like others before it, this exhibition aims at seducing and at striking the imagination, by placing before visitors exceptional works of art. However, these objects have been taken out of their contexts, and from a series through which they lose a part of their meaning. The "masterpiece" evidently denies the notion of "cultural production"; isolated, it suggests but does not demonstrate the existence of "styles". The artistic interest of these works is evident; their historical importance has not yet totally been brought to light in spite of the development of research. Ife, such as F. Willette restored it, says much more about its past than the 20 objects shown in this exhibition. Nothing in the stand devoted to Igbo-Ukwu gives account of Thurstan Shaw's remarkable excavation and the laboratory works that followed.

In fact, beyond their beauty and oddity, these objects are, like all those that archaeology provides, socio-cultural indicators.

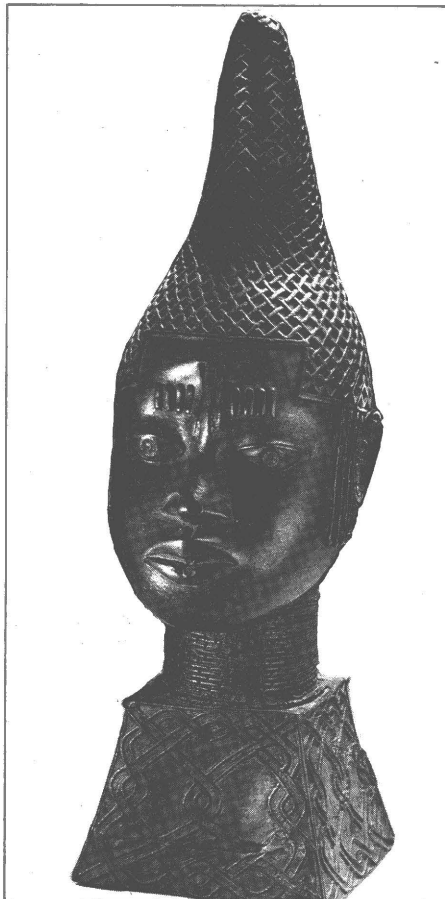
These heads from Ife, by the nature and quality of their metal, are important signs of a technology, symbolized also by the decoration: vertical stripes about which it is still being asked whether they are lines carrying pearls attached to a crown like those that the Oba of Benin still wears or whether they are scarifications, corporal writing often boasted about but little studied. The head-dress and jewels have their own language and values which we hardly know how to interpret today.

Appearing in very sedentary agricultural societies, are these objects the expression of an "art" in the modern European sense of the word? Or are

they, on the contrary, parts accompanying major rituals, ceremonies as the tomb found in one of the three excavations at Igbo-Ukwu would suggest? Are they meant for the pleasure of the living or, like with the ancient Egyptians, in memory of the dead and their retinue? Do they constitute portraits of the deceased, realistic portraits on which an anthropological analysis can be based or portraits responding to the canons of a court art? Do they constitute, as nearly all researchers now think, a very closely watched and aulic production in the hands of highly qualified specialists? Are they, on the contrary, no matter what, popular expressions? The number and weight of our questions are a measure of our current ignorance". ◦

BENIN ART

Capital of people who speak Edo, Benin City is situated at about 300 km east of Lagos. These works in bronze date back to the 15th century. It was under the reign of Oba (King) Esigie that, thanks to trade with the Portuguese, metal became available for the first time, which seem to have led artists to invent new forms of art



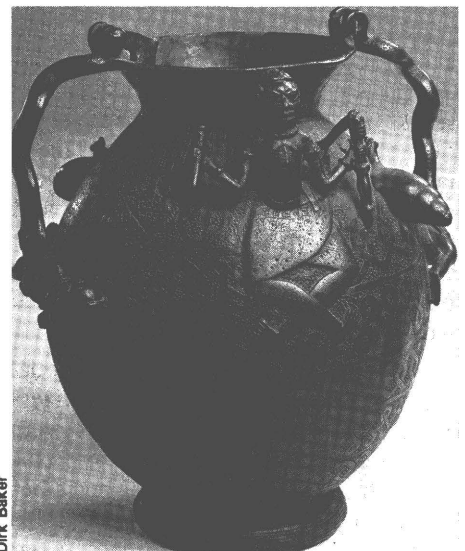
Dirk Baker

Head of a Queen-mother



Dirk Baker

A leopard



Dirk Baker

A receptacle
The handles of this receptacle show snakes with human beings in their mouths

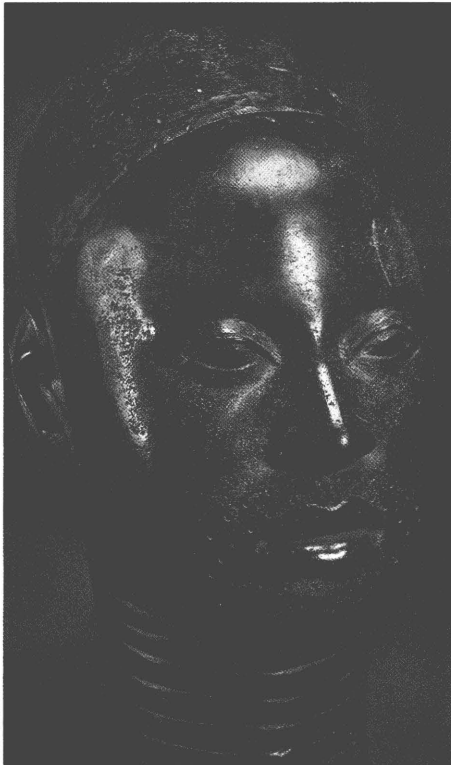


Dirk Baker

Cover bowl
Made from several separate pieces of ivory this bowl was found in the bedroom of the Oba of Benin

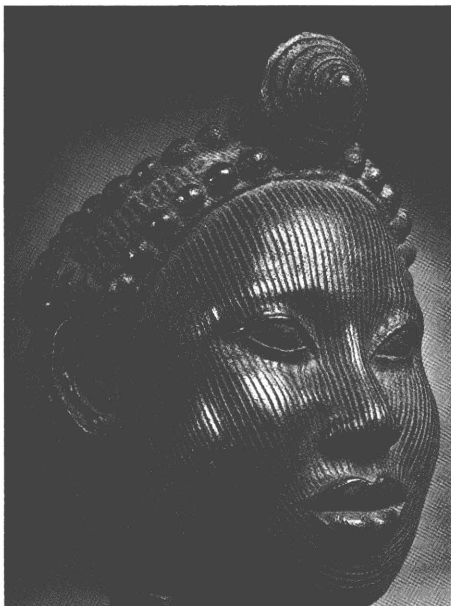
IFE ART

According to oral tradition, it was into the Yoruba city-state of Ife that the gods came down from the heavens to create the world



The head of an oni

This life-size head shows a dead king, or an oni, in his youth. It is possible that a moustache or a beard with real hair was fixed into the holes that surround the mouth and chin. All the heads of oni have a serenity and a dignity that suit the royal qualities that they personify



The crowned head of an oni (XII-XV century)



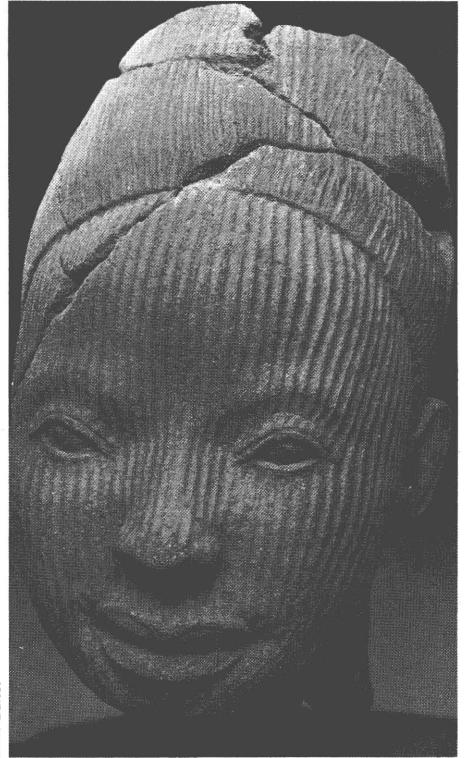
Statuette of an oni which dates from between the XIV century and the beginning of the XV century

This statuette is the only one in bronze standing intact that has been found to this day. It carries the traditional royal insignia: a crown, a heavy pearl necklace, heavier around the body, finer rows on the chest with a double knot in the middle, which seems to be a mark of royalty

In the left hand, it holds a ram's horn filled with magic substances (called ashe) and, in the right, a sceptre made of beads of cloth symbolising both his power and authority

OWO ART

Owo is a Yoruba city-state situated half way between Ife and Benin, two cultures of which it shares



The head of a personality

This calm and serene head in the artistic tradition of Ife was probably alone at Owo. It presents several features of Ife such as the parallel stripes on the face, the upper eyelid which covers the lower one, the edge of the upper eyelid underlined by an incision and the pronounced lip and deep lip-corners. The arch-shaped eyelids are more marked than the terra cotta of Ife



A hand holding an Akoko leaf

Akoko is still considered a sacred tree in the Yoruba culture. At the moment of an king's coronation, an Akoko leaf is given to him both as symbol of the authority that has been vested in him and to wish him long life, because these trees are remarkable for their longevity

Bonnie CAMPBELL — *Les enjeux de la bauxite* — La Guinée face aux multinationales de l'aluminium (Bauxite—what is at stake—Guinea and the aluminium multinationals) — Les Presses de l'Université de Montréal, C.P. 6128, succ. A, Montreal (Quebec), Canada H3C 3J7 — 184 pages — 1983

Although one of Guinea's basic aims is to process its bauxite locally, the conditions behind the country's failure to attract bauxite processing industries at the major Boké site, in spite of the nation's outstanding assets in this respect, need to be understood. Is Guinea really losing out? What can its example teach us about the siting of processing plants in the aluminium industry?

The case of the development of the Boké bauxite site in the Republic of Guinea shows that the existence of input, even in advantageous quantities and conditions, is not in itself enough to ensure that the raw material is actually processed on the spot. This study outlines what restricts a bauxite producing country's power of negotiation with the multinationals of the aluminium trade. It suggests that the causes are not to be found in the will of the government in question or in the strategies of the companies either. Nor even in the interaction of both these things. Mining policies in respect of foreign firms, like the strategies of those firms, are only intelligible if the analysis takes account of the forces acting on and through these policies and strategies. A producing country's powers of negotiation mean analysing at another level—that of the specific conditions of accumulation of the branch in question and, more generally, of the process of accumulation at world level. The study, which is based on the aluminium and bauxite industry, provides information that will be useful when a more precise theory of siting the various stages of production is devised.

Bonnie Campbell, who holds a doctorate in economic and political development from the University of Sussex (GB), has been teaching at the Department of Political Science at the University of Quebec in Montreal (Canada) since 1973.

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Gérard CROS — *La Namibie (Namibia)* — PUF, 108 bvd St-Germain, Paris — 1983 — 128 pages

What a paradox Namibia is. The UN has legal responsibility for it but cannot manage to decolonize it and remove it from the illegal clutches of South Africa! In one of the well-known "Que sais-je" series, Gérard Cros gives an objective description of the various stages of the Imperial German colonization of Namibia and the occupation or, to be more precise, re-colonization of the territory by South Africa, which was invited to administer it on a provisional basis at the end of World War I pending its early accession to independence, along the lines of other African territories (Cameroon, Tanzania and Togo) in a similar legal situation.

After an outline of Namibia's physical and human geography and a precise description of its fabulous mineral wealth and territorial waters (which no doubt account for Pretoria's systematic obstruction of its independence), Gérard Cros discusses the legal conflict born of South African politics. The white minority government in South Africa has gradually strayed from the mandate which the League of Nations, the UN's predecessor, gave it at Versailles in 1919. At that stage, let us not forget, the Republic of South Africa was an ordinary state and not founded on apartheid—which was only introduced and institutionalized in 1948. After that, this racist policy, forced South Africa to surround itself with a protective barrier against anti-apartheid campaigns.

This policy of supervision, first by the League of Nations, then by the UN, which is largely condemned by the states on the council (now the Contact Group, of which France has suspended its membership), and its transposition to Namibia, led the Namibian peoples to fight for freedom. This fight has been going on since the 1960s. It is led by Swapo, the South West African People's Organization, which has Sam Nujoma as its leader, and this and international pressure forced South Africa to consider reform—but, alas, based on bantustanization (i.e. refusal of the national identity of the Namibian people)—and to put the power in the hands of white

minority on the Turnhalle Alliance. This, of course, was a failure, which is why the political and military struggles were stepped up on both domestic and foreign fronts—to the great regret of the African countries of the region, which, as they said in 1969, had "always preferred and still did prefer to act without physical violence. We prefer negotiation to destruction and talking to killing. We do not advocate violence. We advocate an end to violence... If it were possible to make peaceful progress towards independence or if new circumstances opened prospects for the future, we would recommend that our brothers in the resistance movements use peaceful methods of fighting, even if this meant making concessions as to the speed of change. But while peaceful progress is blocked by those who hold the power in southern Africa (in 1969), we have no other choice than to give the people of these territories all the support we can in their fight against their oppressors".

This language of moderation and wisdom on the part of the countries of what we now call the frontline states was never listened to by South Africa—whose objective, in the final analysis, is not peace and certainly not independence for its neighbours. Namibia's fight for independence goes on while the Pretoria regime profits from its obstruction by exploiting the wealth of the territory's mines and seabed.

The book gives an excellent explanation both of the legal imbroglio and South African strategy since the Treaty of Versailles and of the Namibian people's determination to obtain independence.

There is one criticism. While the author only identifies one ethnic group of whites, he lists 11 for the blacks, which is, ethnically speaking, untenable.

○○○

Marcel LEROUX — *The climate of tropical Africa* — Atlas in folio, 250 maps, 900 pages, 351 pictures — Chatkine-Honoré Champion Editions, 7 quai Malagnais, 75006, Paris — 1983

Tropical Africa has been the subject of sectoral, local or regional studies, and partially explored themes through

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CID

REHABILITATION ASSISTANCE

RESTORING PROFITABILITY TO ACP INDUSTRIES

In many ACP states existing industrial concerns representing substantial investments in property, plant and personnel, are being affected by a decline in profitability. One of CID's current priorities is to help rehabilitate such industries by diagnosing the problems and by helping to implement remedial action.

Shortages of foreign exchange in ACP countries make it difficult to pay for spare parts and foreign expertise, thus eroding the efficiency of manufacturing industry. In some instances production can be running at only 20% of capacity because of the breakdown of equipment, interruption of power or other services, or lack of operational skills. If machine components wear out or break it may be possible to resume production only by cannibalising other machines, further reducing the factory's capacity.

In 1983 industrial production in one West African country had fallen by 37% over the previous five years with even larger declines in sectors such as wood products, electrical

and transport equipment.

Many ACP countries therefore place a higher priority on the rehabilitation of their existing industries than on the attraction of new industrial enterprises. The recovery programme 1982-1984 of the Uganda Government, for instance, placed a high priority on the rehabilitation of the country's industries, particularly those with an agricultural base or which provide import substitution.

DEMANDS FOR ASSISTANCE

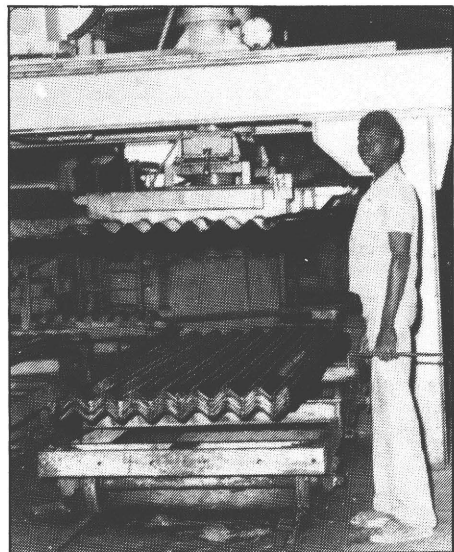
Requests to CID for "rehabilitation assistance" have been growing steadily throughout the present Lomé Convention. Even where the climate for establishing new industries is unfavourable, the case for rebuilding on existing industrial investments is usually strong. CID is able to use its position, linking the industries of ACP and EEC states, to find experts and technical partners, to finance part of the rehabilitation process and to follow up with technical assistance and training.

The effects of this assistance can be rapid and the restoration of profitability to an ACP company provides a stimulus to local employment and a contribution to the nation's economy.

REASONS FOR DECLINE

ACP companies can experience a decline in profitability for a variety of reasons:

- frequently, the equipment in a factory may be suffering from its age, from an increasing incidence of



The moulding of corrugated sheets in a Sudanese plant which received "rehabilitation assistance" from CID.

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- Activities in the field (January to April 1984).

breakdowns aggravated by a shortage of spare parts, or from lack of maintenance;

- technologies change and an ACP firm may experience a downturn in its fortunes as a result of competition from better equipped companies;

- market conditions can also affect a company's position and a firm which fails to react to the commercial situation may find its market share diminishing to unprofitable levels;

- process operators may lack the knowledge required to set up and adjust the machinery to obtain the best performance in terms of both quality and output.

DIAGNOSTIC STUDY

When approached for assistance by an ACP company, CID can start the process of rehabilitation by finding an expert, qualified and experienced in the industry concerned, to carry out a diagnostic study of the problems. During 1983, 34 studies of this kind were undertaken, in in-

Continued on page 2

Continued from page 1

dustries ranging from soap to sawmills, to distilling alcohol, to the production of vehicle tyres. The experts selected by CID for these investigations came either from the EEC countries, or (where relevant technical skills were available) from other ACP States.

Diagnosis, however, is only the first stage in the process of rehabilitation. Next comes the often difficult and complex stage where an agreed programme of reconstruction or modernisation must be implemented.

JOINT VENTURES

Wherever possible, CID tries to find an EEC partner willing to enter into a joint financial venture with the ACP company or to provide long term technical assistance.

Joint ventures have the distinct advantage of including in one package technical, marketing and management assistance along with foreign investment.

In Cameroon a mission carried out by a Belgian firm to examine the re-establishment of a small soap factory has resulted in the creation of a joint venture between both companies. Their objective is to develop the use of local palm nuts for oil, and to provide soap for local and neighbouring markets.

If a joint venture is not a practicable solution for a rehabilitation project, CID can assist in looking for alternative finance. The results of a diagnostic mission can be used to support an application by an ACP enterprise for finance from a local development bank. In a number of cases this has a successful outcome, as in a blanket factory in Mauritania, the refitting of a large cargo vessel in Burundi and the modernisation of a foundry in Mali.

Finally, the rehabilitation process may require longer term technical assistance to ensure the proper use of new or replacement equipment, to introduce improved production methods and to train local staff. In such cases CID may be able to finance part of the cost and to find suitably qualified experts.

SUDANESE EXAMPLE

One recent case, that of a Sudanese company, illustrates the various stage of a rehabilitation project.

A company based in Khartoum, Sudan, requested CID assistance to

improve the range and volume of its output of pipes and roofing sheets for the building industry.

CID sponsored a study by experts who identified a number of problems in the area of technical management, materials handling, health, safety and quality control. Certain improvements were implemented on the basis of the experts' report and extended finance was found to support the rehabilitation.

The longer term technical assistance recommended by the experts is being carried out, with CID contributing to the foreign exchange costs involved.

Nineteen rehabilitation projects undertaken by CID in 1983 are now reaping the benefits of increased production, improved quality or greater productivity. Some of these projects are outlined in the table below.

EXAMPLES OF CID'S REHABILITATION ASSISTANCE TO ACP INDUSTRIES

COUNTRY	PROJECT
BURUNDI	Cargo ship CID is co-financing an expert for the conversion and refitting of a vessel for cargo trading on Lake Tanganyika. The ship is being completely modernised and will be sailing during the second half of 1984.
	Commercial fishing A fishing vessel has been enlarged and equipped with up-to-date fishing gear, with technical assistance from CID. The boat is now engaged in commercial fishing on Lake Tanganyika.
CAMEROON	Soap factory An expert mission to look into the rehabilitation of a small soap factory in a remote part of the country led to the formation of a joint venture with a Belgian partner to develop export markets and the use of local raw materials.
DJIBOUTI	Poultry processing plant CID provided technical assistance for a period of six months to improve the production of an integrated poultry unit.
ETHIOPIA	Tyre plant A comprehensive study was carried out by UK consultants, with CID assistance, into the reasons for unsatisfactory production figures for vehicle tyres. A number of improvements have been introduced and further expansion of the factory is planned.
GHANA	Carpentry and joinery workshops A state-owned corporation, producing furniture and timber components for the building industry, has been receiving expert advice in woodworking practices and in furniture design.
GRENADA	Expansion of perfume company After a technical and marketing study CID contributed towards a technical partnership with a UK company to develop new lines of perfumes and cosmetics.
IVORY COAST	Animal feed plant CID assisted in the provision of technical assistance for a period of six months to improve production and quality control.
KENYA	Pork products CID financed a study into the development of a bacon and pork products factory. New lines are to be introduced for export to the EEC and a joint venture is being considered.
	Ceramics CID engaged an expert to carry out a diagnostic study into production problems with new product lines. The training of staff in Europe and Kenya, plus further visits by the expert, have resulted in the successful expansion of the business.
MADAGASCAR	Jute industry A comprehensive study was carried out to reorganise a jute processing complex. By rationalising product lines and modernising the equipment it is planned to reduce the present imports of jute bags.
	Cotton industry CID financed a major study into Madagascar's principal cotton factories, with a view to rationalisation and reorganisation.
VANUATU	Abattoir With CID assistance a rehabilitation study was completed to improve production at the country's principal abattoir, with a view to diminishing waste and examining the feasibility of introducing new product lines. ■

CENTRAL AFRICA

CID AND ISTA SIGN COOPERATION AGREEMENT

Last March CID signed a cooperation agreement with the *Institut Sous-Régional Multi-sectoriel de Technologie Appliquée et des Evaluations des Projets (ISTA)*.

ISTA was established in 1980 after a number of Central African states had acknowledged that the lack of well-researched projects was one of the main obstacles to industrial development in their sub-region. The previous year the leaders of these states, meeting as the *Union Douanière et Economique de l'Afrique Centrale (UDEAC)*, decided to examine the possibility of setting up an organisation staffed by senior techno-economic specialists, to conceive industrial projects and follow them through all the stages of study and implementation.

Since then ISTA has grown into an organisation which

- trains university graduates from the UDEAC countries in the theoretical techniques and practical skills needed to study, evaluate and implement projects;
- identifies industrial projects in UDEAC countries, studies their feasibility and oversees their implementation.

CID and ISTA have now formally agreed to cooperate in activities aimed at the creation of joint ventures between UDEAC sponsors and EEC financial and technical partners.

The two organisations will also cooperate in the training of foremen and technicians for the rehabilitation or diversification of existing enterprises.

CID agreed to support ISTA's promotional work in the EEC and, at ISTA's request, will provide the technological, financial and commercial information that is so indispensable to development.

ISTA believes that cooperation with CID will allow it to improve the effectiveness of its operations in the ACP members states of UDEAC, i.e. Cameroon, Congo, Equatorial Guinea, Gabon, and Central African Republic. ■

ADAPTED TECHNOLOGY

A WATER PACKAGING PROCESS WITH ECONOMIC ADVANTAGES

An EEC company has developed a small-capacity water packaging plant (for mineral water, thermal water, table water). This is an interesting alternative to the traditional packaging methods which use glass or plastic bottles.

The plant is based on a simple machine often used in food processing industries. The machine is entirely mechanised and requires no compressed air, and no hydraulic or electronic system. It is therefore easy to start up and manipulate. Nonetheless, hygiene and bacteriological security are guaranteed by various processing techniques which vary with the quality of the water.

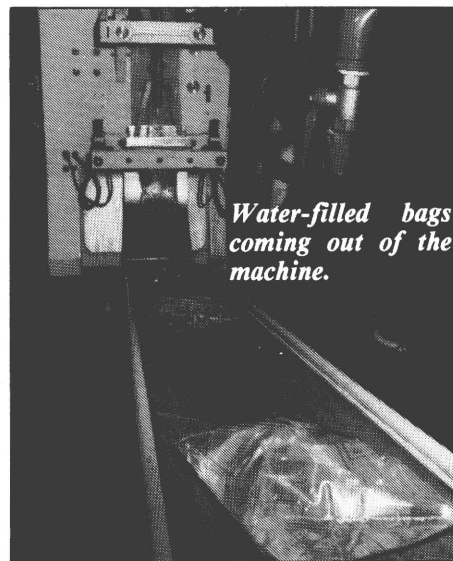
The water is packaged in 1 litre plastic bags made either from polyethylene or complex plastic film.

When they come out of the machine, the water-filled bags can either be placed in plastic or cardboard boxes, or grouped in 6-litre packets under shrinkable plastic film.

ADVANTAGES

Among the many advantages of the process, the most noteworthy are:

- Storage and transport savings, (One cubic metre of the finished product contains 890 litres of packaged water, as against 600 litres in plastic bottles and 460 litres in glass bottles. A trailer-truck with a 27 ton carrying capacity can hold 25,500 litres of water packaged with this method, as against 22,000 litres in plastic bottles and 13,200 litres in glass bottles);
- 99% of the available water is used. (In the case of plastic bottles, 50% of the water is used for rinsing; and in the case of glass bottles, 67% of the water is used for washing and rinsing).
- Low energy consumption;
- A relatively simple technique which does not require highly skilled technicians.



Water-filled bags coming out of the machine.

TECHNICAL DETAILS

The proposed unit has a capacity of 1,500 litres an hour, that is 30,000 hectolitres a year with a team of 3 to 4 people working 250 days per year.

It requires an investment in equipment varying between US\$ 85 000 and US\$ 125 000, depending on the processing required.

The unit is delivered complete in a 20 ft container, ready to function as soon as water and electricity have been connected. It also contains the laboratory equipment for quality control.

Therefore, one need only provide a building for storage and office space.

The EEC company offering the plant can carry out the implementation study, ensure the transfer of know-how and, depending on the specific characteristics of the project, it may be able to take equity.

And furthermore ...

ACP sponsors are invited to contact CID for further details of any technology outlined in this section. CID can help with implementation. ■

EEC industrialists who have developed adapted technologies can benefit from CID's services for the circulation of their technologies in ACP countries. ■



OFFERS FROM ACP SPONSORS

EEC INDUSTRIAL PARTNERS WANTED

EEC industries are invited to contact CID, quoting the reference number, in response to any offer outlined in this section. CID will answer questions on any item and will indicate the kind of assistance it can provide. EEC industries should give a brief description of their operations; and, in relation to the project which interests them, they should state the kind of involvement they envisage.

Organisations reprinting these offers in their own publications, are asked to ALWAYS include the CID reference number.

Making cosmetics from coconut oil, for export Dominica — 660.DOM.1.CHE

A large company currently producing coconut oil and laundry soap wishes to diversify its production to include high quality gift-packaged soap, cosmetic products incorporating local essential oils, and products (like shampoo and hair cream) based on coconut oil.

The Dominican company seeks a royalty, licencing or joint venture agreement with a major European cosmetic company to produce for the US market (to which Dominican products will have duty-free access for 12 years).

Making coconut cream for export to Europe Dominica — 660.DOM.1.F00

An existing company processes coconuts into coconut oil for soap production. It now wishes to expand into the production of coconut cream to be exported frozen to Europe, in weekly shipments of 45 gallon bulk containers.

The priority is to find a marketing partner but any form of cooperation with an EEC importer could be considered.

Producing wine from tropical fruits Fiji — 660.FIJ.4.F00

An existing company seeks technical and marketing assistance from an EEC partner to expand its production of tropical fruit wine. Current production amounts to 1 100 litres a year.

Manufacturer wishes to produce food cans Fiji — 660.FIJ.1.MEC

The total market for food cans in Fiji is 43 million cans a years. A local manufacturer with a current capacity of 15 million cans a year (for paint, powder and storage of dry goods), wishes to increase his volume of production. He seeks a joint venture partner who can provide technical assistance, furnish new plant and assist with training.

Electrical fittings for local market Fiji — 660.FIJ.3.MEC

A wholesale company dealing in electrical switches, two-pin plugs, lampholders, sockets and other electrical fittings wishes to establish a manufacturing unit for such items with an annual capacity of 100 000 pieces a year. The production would be aimed primarily at the local market.

The project requires a joint venture partner who will take a share of the equity, provide technical know-how and help with training.

Manufacturing shoes from local leather Fiji — 660.FIJ.RUB

A company currently engaged in retailing footwear wishes to manufacture 120 000 pairs of leather shoes, plus 16 000 pairs of safety shoes and 36 000 high quality leather thongs per year. Estimated cost of investment: US \$ 550 000.

The value of footwear imports into Fiji in 1983 was US \$ 3,2 m and a tannery is now operating in the country.

This project requires a joint venture partner who will provide technical assistance, take a share of the

equity and possibly help with training.

Company wishes to raise output of PVC bags Fiji — 660.FIJ.1.RUB

A local company manufacturing PVC items such as airline bags, sports bags and ladies purses, wishes to expand production with an eye to markets at home and in neighbouring countries.

Current capacity is 35 000 units a year in one shift. A joint venture partner is required to take a share of the equity, to train supervisors and to assist with design and production planning.

Food manufacturer wants to diversify Fiji — 660.FIJ.8.F00

An existing company wishes to expand its production of sweets and snack foods and to diversify into confectionery and chocolate. Current production of sweets and snacks is valued at about US \$ 1,8 million a year.

The company at present employes 53 people and is exporting to Australia, New Zealand and the West Coast of the USA. Flavours and other raw materials such as glucose are imported from Europe. The company seeks new technology to diversify its production, in addition to marketing opportunities and training. It will also consider brand manufacturing, under royalty or licencing arrangements.

Production of chalk for the local market Papua New Guinea 660.PNG.2.EXT

A joint venture partner is required, to provide technical assistance and

to take a share of the equity in an enterprise to produce chalk for the local market. Present domestic consumption of chalk is 15 tons a year.

Assembly of watches and clocks for export Tonga – 660.TON.1.MEC

A company already assembling watches wishes to expand to reach a capacity of 48 000 watches and 24 000 clocks a year. It exports small quantities to New Zealand and wishes to obtain a joint venture partner who will assist with marketing.

Producing cattle-meat for local consumption Western Samoa 660.WS.6.AGR

A new project aimed at maintaining a stock of 400-500 cattle is sponsored by the local development bank.

The project will make use of 1 300 acres of land, 35% of which is already under improved pasture.

The meat will be primarily for sale on the local market.

Technical assistance is required as well as help with training and marketing.

Poles and posts from coconut wood Western Samoa 660.WS.2.TIM

An existing coconut wood processing plant wishes to expand into the production of poles and posts for use in basic construction, for trellising passion fruit and for supporting electric power lines. It is also intended to produce sawn timber, panning, and roof and floor tiles.

Production capacity: 8 000 trees a year.

Technical assistance, training and possibly a joint venture partner are required. ■

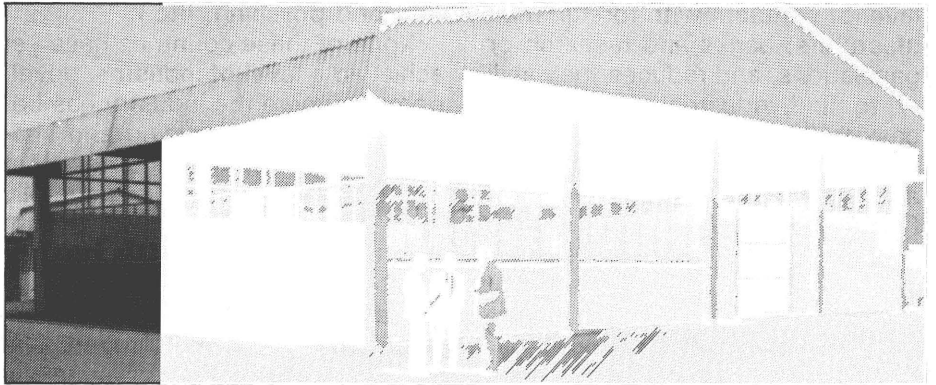
NEW JOINT VENTURE IN SENEGAL

INDUSTRIAL GLUE PLANT GOES INTO PRODUCTION

A CID-assisted joint venture for the manufacture of industrial glues went into production in the Dakar Industrial Zone (SODIA), Senegal, in April. Orders received during the first month of operation amounted to 20% of the capacity for year one—a rate of demand which augures well for the success of the enterprise.

Following the advice of the Belgian Corporation for International Investment (SBI), the Belgian partner, Mr. Paul Pierreux, contacted CID in early '83. CID firstly counselled him to locate a good Senegalese partner and subsequently co-financed a feasibility study which demonstrated that with a total market of 1 500 to 2 000 tonnes a year and a break-even point of 500 tonnes, the project could be viable. The new company can produce enough to satisfy the local market and is thinking of eventually using local raw materials such as arabic gum.

It was ultimately agreed that an existing Belgian glue plant, plus stocks and raw materials, would be sold off to a new joint venture company and relocated to Senegal.



The building which houses the new glue plant in the Dakar Industrial Zone.

Mr. Pierreux holds 49% of the equity and his Senegalese partner, Mr. Aziz Samb holds 51%. Equity represents 40% of the total investment.

Some of the wide spectrum of Senegalese glue users were contacted during the feasibility study—cigarette and match manufacturers, dairies and breweries (who use glue for packaging and labelling), shoe manufacturers and wood industries. All were willing to use locally made glues of proper quality in lieu of imported products for several good reasons:

- They would have speed and flexibility of supply;
- they could reduce stocks;

Mr. Paul Pierreux, Director General of the new glue plant in Senegal (left) with Mr. Jean-Marie Delchambre who handled the file for CID.



- difficult customs procedures would be eliminated;
- prices could be stabilised and reduced.

From six months prior to the start of production the company imported glues similar to their own and sold them in Senegal to test market reaction—with satisfactory results.

By virtue of its location in the Dakar Industrial Zone the new company can hire a factory building cheaply and can obtain the advantages of the Senegalese investment code which includes concessions on tax and customs duties.

The local development bank (SOFI-SEDIT) granted the new company a loan of US \$ 300 000 in association with a private bank, on the basis of the feasibility study and a supporting letter from CID. Total investment in the project comes to about US \$ 630 000. ■

ISLAND AND LANDLOCKED SUGAR COUNTRIES

Special problems and potentials in industrial development

by Jens Mosgard, Director CID

Island and landlocked states with an economy dominated by sugar generally have a higher GNP per capita than the least developed countries. However, the level of wealth expressed by these figures often hides the fact that cost of living is high due to need to import many basic food stuffs, fuel and essential raw materials. The potential for industrial development is also significantly influenced by the higher cost of transportation and the limited sizes of the domestic markets, which is a common feature of these countries.

Island and landlocked states as a rule have small populations and limited physical resources. Budgetary constraints often restrict their ability to maintain adequate Industrial Promotion and Development organisations. Their remoteness from mainstream international economic activities reduces their level of contacts with foreign manufacturers, banks and research organisations, and reduces their ability to find industrial partners, access to finance, etc. For these reasons such countries may need the assistance of organisations like CID even more than the larger, more populated ACP States.

Following my recent mission to some of these countries, namely Swaziland, Mauritius, Fiji and Barbados, it is possible to make some general observations in regard to their industrial development problems and potentials.

In order to lessen a country's dependence on sugar, other industries may be most desirable. However, it appears that maybe too few incentives or basic inputs are available, for instance, the availability of local feeds in sufficient quantities to increase meat and dairy production. Except for Swaziland, the three other countries import a considerable quantity of meat, in spite of the fact that locally available molasses and bagasse together with urea could represent the bulk of feed needed for cattle, and other livestock.

LEVEL OF INDUSTRIAL DEVELOPMENT

The four countries have a level

of industrial development that is high compared to most other small ACP countries.

However, apart from some wood and fertilizer industries, the level is still low in comparison with the Western world, even if some skills have been developed in certain industries (e.g. electronics, diamond polishing, etc.).

None of these countries have yet achieved a level of industrial development where the industry has begun to be self-sustaining and self-developing in spite of the fact that the level of literacy is generally high. Thus the capacity to design, construct and repair equipment and tools as well as to provide engineering inputs to create new industries, is extremely limited, and mostly directed towards sugar industry, ships repair and building construction and non-manufacturing industries. The essential industrial infrastructure, comprising smaller, more specialised service industries, is yet to be developed.

INDUSTRIALIZING INDUSTRIES or development enterprises

To establish self-reliance in industrial development one must first of all create an indigenous capability to provide input to, support and develop existing industries and to create new ones. This means that the metalworking and engineering sector is normally the focal point for further industrial development. This sector creates the equipment and the tools along with the engineering needed to set up new industries.

As an example, the woodworking industries need an industrializing capacity to make and repair equipment, provide saw-doctoring services, design wood products and furniture for local markets and export and to make the special tools and fixtures for wood working factories.

Such industrializing industries are normally not created by private industry alone because of the cost of providing long term in-plant training of higher level technicians, tool makers, engineers, designers, etc.

For this reason, it is absolutely necessary that governments of ACP countries in general realize that support must be given to training in such industries, be they private or mixed. Furthermore, that this need for training is needed for years rather than weeks before skills are sufficiently developed to enable trained technicians to work independently of senior guidance.

HIGHER TECHNOLOGY via joint ventures

Such industrializing industries can of course be created through local initiatives and recruitment of foreign experts, there is no doubt that the joint venture approach—with companies possessing the aggregate technical and operational know-how—is a faster, cheaper, and more effective way of establishing such industries.

However, even in these more developed island and landlocked states, there appears to be reluctance both on the part of the governments in supporting private industries with in-depth training as-

sistance, and on the part of private industrialists themselves to go into joint ventures.

Unfortunately, some joint ventures have been created in ACP countries that provided little development while generating healthy profits for their investors. It is none the less evident that a properly negotiated joint venture that takes into account future developments and needs for training and proper transfer of technology, is a quicker and more secure method of obtaining profit for individual entrepreneurs. Too many examples exist of the private entrepreneur trying on his own to develop from handicraft or trade into industry and not succeeding or only doing so very slowly with heavy losses. This would be easily avoided with a joint venture.

CID assistance to create INDIGENOUS INDUSTRIALIZING CAPACITY

CID can find appropriate joint venture partners and assist in carrying out the necessary studies for a development enterprise or industrializing industry. However, CID cannot at present provide in-depth assistance for training lasting as long as three to five years. A condition therefore, for CID's involvement would be that the government will be prepared to provide an essential training subsidy (also in foreign exchange) e.g. through EDF or bilateral aid. CID, although not having much leverage in sourcing of aid-funds, may try to locate both foreign aid as well as soft loans that will normally also be necessary for such a project (e.g. to finance equipment that is to be used for training).

RURAL DEVELOPMENT ENTERPRISES and meat production

Industrial development in rural areas and for small islands has proved to be difficult to manage and costly. In particular extension services to create small and dispersed industries have had little development effect due to problems of distribution both of raw materials and finished goods, man-

agement, financing and limited markets.

By creating a central development facility around existing or new industries which complement each other, such as feed mills, tanneries, abattoirs and manufacture of agricultural implements, one has the beginning to a rural industrializing industry. The central facility should train technicians to be both technically and commercially capable of setting up and operating satellite production units in rural areas. They should also be able to maintain and operate agricultural equipment, fishing equipment, and to establish feed lot farming, pig-gery units, saw mills, etc.

Such a system could quickly be self-supporting with its own transport and marketing system for complementary products.

Industrializing capacity is part of THE INVESTMENT CLIMATE

The existence of proper repair and maintenance facilities and of some manufacturing engineering capability and, the availability of higher skilled technicians, toolmakers, manufacturing engineers, etc., is an essential attraction for foreign investors and, not least, for the establishment of higher technology industry. Development may also form part of the commercial infrastructure needed to provide tools, spare parts, distribution to rural areas and collection from same and to organise export. This will in turn facilitate the creation of new industries and product lines.

Access through CID to EUROPEAN INDUSTRIAL KNOW-HOW

CID is well placed to channel technical assistance, be it from the EDF or from bi-lateral sources or perhaps from CID's future funding, into such joint ventures involving private industrialists.

For medium-sized industries, the bureaucracy of governments and international aid institutions is not conducive to attracting partners from private industry, except those which want to deliver turn key projects.

But in turn key projects the benefits of joint ventures are lost. In

such cases the commitment does not exist to eventually have a profitable industry that also efficiently performs a development function—while simultaneously generating foreign exchange through exports or new investments. ■

CALL TO EEC INDUSTRIALISTS

We can promote free of charge THE PROPOSALS OF EEC FIRMS

CID encourages EEC firms interested in creating new investment opportunities, to use CID to channel their joint venture proposals to entrepreneurs in African, Caribbean and Pacific (ACP) countries.

CID has many lines of communication to the ACP industrial world. It can ensure that the industrial investment proposals of EEC firms are brought to the attention of the right people in 63 ACP countries.

GET ACCESS TO EXPANDING MARKETS

Relocate labour-intensive operations to ACP countries

Proposals are particularly interesting if they are labour-intensive rather than capital-intensive. CID considers it to be a special "asset" if an EEC company needs to restructure to cope with high labour costs or if it needs to use semi-finished products from ACP countries.

CID is especially interested in getting the EEC's small and medium-sized industries (SMIs) to complete its Registration Form and to make proposals for joint venture productions in ACP countries. Interested parties should therefore write to CID.

EEC firms making proposals through CID should be in good financial standing and/or have a good existing plant that could be relocated, as an investment, to an ACP country.

EEC firms should also be willing to take a minority share of the equity, in a joint venture with an ACP partner. ■

JANUARY-APRIL 1984

ACTIVITIES IN THE FIELD

A summary to demonstrate the range of assistance which CID can provide.

NEW INDUSTRIES

Guinea

Water pumps. A feasibility study by a potential joint venture partner into the manufacture of water pumps for the local market is under way. This study is being co-financed by CID.

Canning. A potential French joint venture partner is carrying out a study into a fruit and vegetable canning plant. The study is being co-financed by CID.

Kenya

Cut flowers. CID provided financial assistance with a study of the European market potential for cut flowers from Kenya. (The Kenyan company has already been selling to European markets on a limited scale via a joint venture with a German partner).

Malawi

PVC hoses. The Greek joint venture partner and CID co-financed a regional market study covering Malawi, Zambia and Zimbabwe.

Mali

Insecticides. A potential Belgian joint venture partner is carrying out a study into the feasibility of manufacturing insecticides for the local market. CID is co-financing this study.

Papua New Guinea

Coir products. As a preliminary step prior to setting up production in Papua New Guinea, CID financed the air freighting for market tests in Australia, of coir products manufactured in the factory of the German joint venture partner.

Senegal

Spectacle frames. A feasibility study into the production of spectacle frames for the local market was completed. This study was co-financed by CID.

Sudan

Soft drinks. A private Sudanese sponsor, his Danish joint venture partner and CID, jointly financed a feasibility study into the production of soft drinks. The Danish Industrialisation Fund for Developing countries (IFU) also helped to finance the study.

Upper Volta

Storm lanterns. An expert mission was carried out by a French company into the possibility of setting up a production unit for acetylene lanterns.

Vanuatu

Biomass energy. The first part of the feasibility study into the production of energy from fast-growing local wood was completed. A letter of intent has been signed between the French, German and Vanuatu partners.

Papain extraction. A feasibility study co-financed by CID is under way into the extraction of papain from papaws, with a view to establishing a joint venture production with a Belgian partner.

Zaire

Calcium carbide. A feasibility study co-financed by CID was completed with a view to setting up production of calcium carbide in the Industrial Free Zone of Inga.

ADAPTED TECHNOLOGY

Mali

Soap factory. A study was completed by a Belgian company to assess the feasibility of establishing a small scale soap production unit. The project is now moving towards implementation as a joint ventures between the ACP and EEC companies involved.

INDUSTRIAL POTENTIAL SURVEYS

CID-financed experts undertook missions to identify industrial potential and to explore project possibilities based on local human and natural resources and Government policies in **Guinea, Lesotho, Mauritania, Niger, Uganda and Zambia.** These surveys are one aspect of the assistance CID gives to least developed countries (LDC's). The governments of the countries concerned will be offered CID assistance for the identification and promotion of projects based on the surveys.

CID also financed a study into the possibility of creating integrated industries based on coconuts in the **Seychelles.** Coconuts and tourism are the country's main resources and the idea is to manufacture coconut products such as edible oil, coconut cream, margarine or soap which could substitute for imports or even be exported.

REHABILITATION OF EXISTING INDUSTRIES

Dominica

Rum distillery. A study to increase the production of a small rum distillery was carried out with CID assistance. Consequent improvements are being implemented. In this case a competent ACP expert was used for the study.

Ghana

Joinery and carpentry. A state corporation received technical assistance to rehabilitate a number of carpentry workshops and to develop furniture for local and export sale.

Grenada

Electricity production. CID is providing the Grenada State Electricity Generating Company (GRENLEC) with assistance towards the drawing up a five-year financial plan and the mechanisation of the invoicing system. The work is being carried out for CID by the Irish Electricity Supply Board (ESB).

Ivory Coast

Soap production. An Italian expert was provided to carry out a study for the rehabilitation of a soap factory which is being re-equipped with modern plant.

Kenya

Synthetic fibres. A diagnostic study, assisted by CID, was carried out by a German expert into the re-development and expansion of a factory producing synthetic yarns for textile production.

Senegal

Lime production. An expert mission, financed by CID, was carried out by a German consultant, to advise on the re-commissioning of a plant to produce industrial and agricultural lime.

TRAINING

Benin

Sea fishing. CID arranged for the training of operators in fishing and fish processing in Italy and Benin, and for subsequent sea and fishing trials in Benin waters.

Burundi

Tobacco production. Technical training in the operation of cigarette machinery was arranged in a Kenyan factory for a Burundi technician.

Cameroon

Air conditioning. Technical training was provided with a French company in the production of air conditioning equipment and associated items.

Nigeria

Foundry. CID assisted in providing training for a Nigerian technician at a foundry in the UK.

Sudan

Cotton mills. Two technicians were trained, with CID assistance, in a cotton textile factory in Belgium. ■

OPERATIONAL SUMMARY

No. 23 — July 1984

(position as at 18 June 1984)



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) and Lomé II (31 October 1979), 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 non-associated 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 recipient 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

Correspondance about this operational summary can be sent directly to:

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Directorate General for Development
Commission of the European Communities
(ARCH.25/1-1)
200, Rue de la Loi
B-1049 Brussels

who will pass on requests for information to the services in charge of projects.

Sectoral Index

<p style="text-align: center;">AGRICULTURE</p> <p>Irrigation and soil development, infra-structures, improvement</p> <p>Coffee, tea, tobacco, cereals, earth-nut, ground-nut, maize, sugar, cotton, palm-tree, coco-tree, rice, gum-tree, potatoes, citrus fruit, hevea</p> <p>Seed and crop protection, environment</p> <p>Agro-industry</p> <p>Forestry</p>	<p>Burundi, Cameroon, Cape Verde, Centralafrican rep., Comoros, Chad, Dominica, Ghana, Guinea, Equatorial Guinea, Kenya, Malawi, Mauritius, Niger, Rwanda, Senegal, Sierra Leone, Somalia, St.-Lucia, Sudan, Swaziland, Chad, Upper Volta, Zambia, Zimbabwe, Egypt, Bangladesh, Burma, Indonesia, Nepal, The Philippines, Dominican Republic, Haiti, Nicaragua, Honduras, Bolivia, Costa Rica, India, Peru, Yemen, Sri-Lanka</p> <p>Burundi, Cameroon, Comoros, Djibouti, Ethiopia, Ghana, Guinea, Ivory Coast, Jamaica, Liberia, P.N.G., Solomon Islands, Senegal, Somalia, Surinam, Tanzania, Zimbabwe, CILSS, Bangladesh, Burma, Thailand</p> <p>Bahamas, Benin, Mauritius, Rwanda, Tuvalu, Tanzania, Zambia, Niger Basin Authority, CILSS, Saharian periphery, Egypt, Mozambique, Bangladesh, Bhutan, India</p> <p>Burundi, Grenada, Liberia, Rwanda, Solomon Islands, Togo, Morocco, Thailand, Yemen (Arab Rep.)</p> <p>Gabon, Guinea Bissau, Fiji, Nigeria, Somalia, Tanzania, New Caledonia, Niger Basin Authority, French Polynesia, Mali, Upper Volta and Niger, Nepal, Kenya</p>
<p style="text-align: center;">STOCK FARMING-FISHING-PISCICULTURE</p> <p>Improvement</p> <p>Veterinary actions</p> <p>Processing industry</p>	<p>Antigua and Barbuda, Benin, Botswana, Burundi, Cameroon, Ethiopia, Ghana, Malawi, P.N.G., St. Lucia, St. Vincent, Senegal, Sierra Leone, Togo, Uganda, Upper Volta, Vanuatu, CARICOM, Tunisia, Angola</p> <p>Kenya, Lesotho, Senegal, Zambia, Southern Africa, Kenya-Gambia-Senegal, 28 African Countries, Eastern Africa, ICIPE, Tanzania and SADCC</p> <p>Mali, Tonga, Neth. Antilles, French Polynesia, Indonesia, India</p>
<p style="text-align: center;">RURAL HYDRAULICS</p> <p>Wells, bores, pumps, pipes, small dams</p>	<p>Botswana, Guinea, Guinea Bissau, Guyana, Mauritania, Senegal, Sierra Leone, Swaziland, Togo, Upper Volta, Zimbabwe, Montserrat, Mayotte, Egypt, Nepal, Burma, Pakistan, Laos, Haiti</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>Cape Verde, Comoros, Mauritania, Rwanda, Tanzania, Uganda, Zimbabwe, Lebanon</p> <p>Cape Verde, Senegal</p>
<p style="text-align: center;">SOCIAL CONSTRUCTIONS</p> <p>Houses, schools, hospitals, buildings, laboratories</p>	<p>Belize, Benin, Burundi, Cape Verde, Centralafrican rep., Chad, Congo, Ethiopia, Gambia, Guinea, Guinea Bissau, Jamaica, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Niger, Rwanda, Senegal, Sierra-Leone, Somalia, Sudan, Surinam, Swaziland, Tanzania, Uganda, Upper Volta, Zimbabwe, CEAO, CERFER, Maritime Transport Conference, OCAM, Forum Fisheries Agency, MRU, Eastern Africa, CARICOM, Egypt, Jordan, Morocco, Syria, Yemen, Asean, Bolivia</p>
<p style="text-align: center;">TRANSPORTS AND COMMUNICATIONS</p> <p>Roads, bridges, airports, railways, ports</p>	<p>Antigua and Barbuda, Benin, Burundi, Cape Verde, Chad, Comoros, Grenada, Guinea, Guinea Bisseau, Uganda, Guyana, Lesotho, Liberia, Madagascar, Mauritania, Mauritius, Niger, P.N.G., Senegal, Sierra Leone, Solomon Islands, Somalia, Sudan, Tonga, Zaire, Anguilla, Neth. Antilles, Turks & Caicos, Guyana-Surinam, Niger-Nigeria, Senegal-Guinea, Djibouti-Ethiopia, Swaziland-Lesotho, CARICOM, Pakistan, Nicaragua-Honduras</p>
<p style="text-align: center;">TELECOMMUNICATIONS</p> <p>Radio, telephone, satellites, hertzian</p>	<p>UAPT</p>
<p style="text-align: center;">ENERGY</p> <p>Power stations, dams, electrification</p>	<p>Cape Verde, Gabon, Ethiopia, Kenya, Mali, P.N.G., Rwanda, Somalia, Surinam, Tuvalu, Zaire, Zambia, O.M.V.G., Egypt</p>
<p style="text-align: center;">NEW AND RENEWABLE ENERGY</p> <p>Solar, wind-wills, biomass, gas, geothermics</p>	<p>Guinea, Senegal, Surinam, Rwanda-Zaire, South-Pacific (SPEC), Pacific OCT</p>
<p style="text-align: center;">MINING</p> <p>Soil survey, research, geophysical survey,</p> <p>Infrastructure, production, processing plants</p>	<p>Congo-Gabon</p> <p>Upper Volta, Ghana, Guyana</p>
<p style="text-align: center;">MAPPING</p> <p>Soil-Air</p>	<p>Congo-Gabon</p>
<p style="text-align: center;">INDUSTRY</p> <p>Plants, productions</p>	<p>Burundi, Malawi</p>
<p style="text-align: center;">TRADE, INDUSTRY, TOURISM, INVESTMENTS PROMOTION - MANAGEMENT - MARKETING - S.M.E. TRAINING</p>	<p>Barbados, Ghana, Guinea, Jamaica, Kenya, Liberia, Malawi, P.N.G., Rwanda, Senegal, Somalia, St. Lucia, St. Vincent and Grenadines, Sudan, Surinam, Trinidad and Tobago, SADCC, CARICOM, AATPO, Indian Ocean ACP Countries, African ACP Countries, Algeria, Lebanon, Egypt, Indonesia, Thailand, ASEAN, Yemen, Andean Pact.</p>

ACP STATES

★ Denotes new projects

ANTIGUA AND BARBUDA

Livestock development — Phase I. Resp. Auth.: Ministry of Agriculture. Estimated cost 2 mECU. Works, supplies and T.A. Project on appraisal. Date foreseen for financial decision 2nd half '84. 4th and 5th EDF.

Road Reconstruction. Resp. Auth.: Ministry of Public Works. Estimated cost 3 mECU. Study for identification of works on the way by GEOPROGETTI (I). Project stage: identification. 4th and 5th EDF.

BAHAMAS

Fruit crop nursery. Resp. Auth.: Ministry of Agriculture. Estimated total cost 1.016 mECU. EDF 0.510 mECU local 0.506 mECU. Works, supplies and T.A. T.A.: Short-list already drawn up. Project in execution. 5th EDF.

BARBADOS

Tourism development. Resp. Auth.: Barbados Board of Tourism — Barbados Hotel Association. 0.192 mECU. Production of a multilingual Travel Trade Manual and supply of equipment. Supplies: int. tender in '84. 5th EDF.

BELIZE

Belize College of Arts, Science and Technology (BELCAST). Resp. Auth.: Ministry of Education. Estimated cost 7 mECU. Works and supplies. T.A. for tender dossier and plans: short-list not yet drawn up. Project on appraisal. 4th and 5th EDF.

BENIN

Djougou-Porga road. Resp. Auth.: Ministère des Travaux Publics. Intermittent road improvements over 180 km. Economic study: SEDES Consultant (F). Technical study: BELLER Consultant (D). 4th EDF.

Dassa-Parakou road renovation. Resp. Auth.: Ministère des Travaux Publics. Reinstatement and asphaltting of 75 km of the road. Estimated total cost 55 mECU. Estimated EDF participation 18 mECU. Cofinanced by BIRD and possible by CEDEAO, BOAD and FADES. Project on appraisal. 5th EDF.

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 foreseen 2nd half '84 with prequalification. 4th and 5th EDF.

Parakou polytechnical complex. Resp. Auth.: Ministère de l'Enseignement Moyen, Général, Technique et Professionnel. Total estimated cost 6.9 mECU. Construction of 8 000 m² of pedagogical and administrative buildings and hostels. Supplies and equipment. Technical and architectural study: Arch. VINOUE (Local). Project on appraisal. Date foreseen for financial decision 2nd half '84. 4th EDF.

Cotonou maternity hospital. Resp. Auth.: Ministère de la Santé Publique. ±1 mECU. Works: Acc. tender. Equipements: int. tender in '84. T.A.: TECHNO-

SYNOPSIS (I). Date foreseen for financial decision: 2nd half '84. 4th EDF.

Livestock development in the Borgou region. Resp. Auth.: Ministère des Fermes d'Etat, de l'Elevage et de la Pêche. Numerical and stabilizing cattle improvement for meat production increase. 5.950 ECU. Date financial decision May '84. 5th EDF.

National Parks development and environment protection. Resp. Auth.: Ministère du Développement Rural. 3,525 mECU. T.A. and equipment for roads and T.A. for scientific actions and Fauna and Flora protection. T.A.: Restr. tender after prequalification. Prequalification done. 5th EDF.

BOTSWANA

Village water supplies. Resp. Auth.: Ministry for Mineral Resources and Water Affairs. Planning Study: DECON-FLOTO (D). Project on appraisal. 5th EDF.

Sheep and Goat development, phase II. Resp. Auth.: Ministry of Agriculture. Animal Production Division and Animal Production Research Unit (APRU). Estimated total cost 2 mECU. EDF 1.6 mECU. Local 0.400 mECU. Works, supply of materials and equipment and T.A. Project in execution. 5th EDF.

BURUNDI

Institut Universitaire de Sciences de l'Education (IUSE). Resp. Auth.: Ministère de l'Education Nationale — 0.7 mECU. Construction and equipment of educational buildings (general teaching classes, laboratories, workshops). Int. tender dossier: TETRA Consultants (Lux). Project on appraisal. 4th EDF.

Rural development of East Mpanda. Resp. Auth.: Ministère de l'Agriculture. Development of 5 950 ha of land — irrigation, construction of a road network, socio-economic infrastructure, for a population of 5 320 families (of which 3 835 are to be installed). Duration 7 years. Estimate 50 mECU. Cofinanced project. Foreseen funding: IFAD — Local — AFDF — OPEC — PAM. Project in execution. Discussion on EDF participation. 5th EDF.

Livestock development project. Resp. Auth.: Ministère de l'Agriculture. Estimated Cost: ±1 mECU. Supply of equipment and T.A. Study: SEDES Consultant (F). Project on appraisal. 4th EDF.

Remera tea factory. Resp. Auth.: Ministère du Plan. Tea factory building for 600-700 tons/year. Project stage: identification. 5th EDF.

Bujumbura naval ship yard. Resp. Auth.: Ministère des Transports. Study on hand by I.P.G. (D). 4th EDF.

Faculty of agronomy. Technical and architectural study. BRUSA-PASQUE (I). Project on appraisal. 5th EDF.

Food strategy—Priority measures. Resp. Auth.: Government and Ministère de l'Agriculture. 1 mECU. Soil aptitude map in the Mosso region. Plant protection pilot operation and development of seed nurseries. Versant basins protection. Works by direct labour. Supplies by direct agreement.

Date financial decision December '83. Special programme hunger.

Bujumbura-Muzinda Road. Resp. Auth.: Ministère des Travaux Publics, de l'Energie et des Mines. 5.1 mECU. Reinstatement and asphaltting of the road (13,5 km). R.I.G. Bujumbura-Bubanza. Works: int. tender. Supervision of works: short-list already drawn up. Int. tender conditional upon provisional finance launched in February '84. Project on appraisal. Date foreseen for financial decision July '84. 3rd and 4th EDF.

CAMEROON

Flood-farming development in Logone and Chari departments. Phase II. Resp. Auth.: Ministère de l'Agriculture. (SEMRY) 8,970 mECU. Continuation and extension current operation. T.A.: Hydroplan (D) and SCET-AGRI (F). Project on appraisal. Date foreseen for financial decision June '84. 5th EDF.

Fishery development in the Lagdo basin. Resp. Auth.: Mission d'Etude de la Vallée Supérieure de la Benoue. Stabex 81. Estimated total cost ±3 mECU. EDF 2 mECU, FAC, local and NGO ±1 mECU. Fisheries research, monitoring and T.A. Date financial decision April '84. 5th EDF.

★ **Djuttitsa tea project.** Resp. Auth.: Ministère d'Etat chargé du Plan et de l'Aménagement du Territoire. CAMDEV (Cameroun Dev. Corp.). Estimated total cost 1.366 mECU. EDF Stabex 81. 0.712 mECU. Local 0.654 mECU. Completion of works and tea and eucalyptus plantation cultivation. Eucalyptus for fuel wood for tea factory. Project on appraisal. 5th EDF.

CAPE VERDE

Sal international airport improvement. Resp. Auth.: Ministère des Transports et Communications. Estimated total cost 14,56 mECU. EDF 6.21 mECU, Italy 3.66 mECU, local 4.69 mECU. EDF part: works, supply of VOR and NDB, luggage and security equipment, furnitures, cooking equipment and supervision of works. For Italy: telecommunications, DME, fire-extinguishers and handling. Project on appraisal. Date foreseen for financial decision June '84. 5th EDF.

Praia water supply and sewerage. Resp. Auth.: Secretariat au Plan. Estimated cost ±7.5 mECU. Prequalification before restr. tender launched in August and October '83. Date foreseen for financial decision, 2nd half '84, cofinanced with Kuwait Fund. 5th EDF.

Civil works for laboratory construction. Resp. Auth.: Secretariat au Plan. Estimated cost 0.066 mECU. Construction of a laboratory for soil and rock mechanics in St. Jorge. Date foreseen for financial decision 2nd half '84. 4th EDF.

Soil protection and conservation. Resp. Auth.: Ministère du Dév. Rural. 1.360 mECU. Total execution by direct labour. Date financial decision May '84. 5th EDF.

Praia electrification. Resp. Auth.: Secretariat au Plan. Estimated cost 0.900 mECU. Project on appraisal. Date foreseen for financial decision, 2nd half '84. 5th EDF.

CENTRAL AFRICAN REPUBLIC

Renovation and equipment of Lycée Technique de Bangui. Resp. Auth.: Ministère de l'Éducation. 0.800 mECU. Supply of equipment and renovation works. Studies: O.R.T. (UK). Date foreseen for financial decision: 2nd half '84. 5th EDF.

Rural development in the cotton area. Resp. Auth.: Ministère de l'Agriculture (SO-CADA). Cofinanced project with I.D.A. and France. EDF 7 mECU. T.A.: shortlist already drawn up. Int. tender for insecticides launched in May 84. Project in execution. 5th EDF.

Paediatric complex in Bangui and Provinces. Resp. Auth.: Ministère de la Santé. Estimated cost 2.420 mECU. Buildings and supply of equipment. Works: acc. tender. Supplies: int. tender. Date foreseen for financial decision 2nd half 84. 5th EDF.

CHAD

Renovation of public buildings. Resp. Auth.: Ministère des Travaux Publics. 1.250 mECU. Works, supply of equipment and T.A. Works: acc. tender and direct labour. Supplies and T.A.: direct agreement. Date financial decision April 84. 5th EDF.

N'Djamena-Guelendeng-Sahr Road. Resp. Auth.: Ministère des Travaux Publics. Estimated cost 8.1 mECU. To repair the earth-road over 560 km. Int. tender (conditional) foreseen in June 84. Project on appraisal. 5th EDF part 2.7 mECU. Date foreseen for financial decision June 84. 5th EDF.

COMOROS

Economical and technical study to assess harbour infrastructure in Grande Comore and in Mohéli. Resp. Auth.: Ministère des Travaux Publics. Feasibility study: short-lists already drawn up. Project on appraisal. 5th EDF.

Maize development project. Resp. Auth.: Ministère de l'Agriculture. 2.34 mECU. Works, supplies and T.A. T.A.: short-list already drawn up. Date financial decision February '84. 5th EDF.

Mutsamudu water supply. Resp. Auth.: Ministère du Plan. 2.3 ECU. Works and supplies for drinking water supply to the town. Works and supplies: Int. tender conditional upon provisional finance launched in October 83. Work supervision: DOXIADIS (GR). Date financial decision March 84. Project in execution. 5th EDF.

Improvement of the Jimilimé Region (Anjouan). Resp. Auth.: Ministère de la Production et des Industries Agricoles. 1.482 mECU. Works, supplies and T.A. Feeder roads, buildings, nurseries, vehicles, tools. T.A.: An agronomist. Project on appraisal. Date foreseen for financial decision June 84. 5th EDF.

CONGO

Sanitary and social actions. Resp. Auth.: Ministère de la Santé Publique. Study and construction of the Ouessou hospital and construction of the Ecole de formation paramédicale et médico-sociale J.J. Loukabou (Brazzaville). Appraisal of the project after sanitary programming and technical studies. Project stage: identification. 5th EDF.

DJIBOUTI

Revitalization and improved use of the doum palm plantations. Resp. Auth.: Ministère de l'Agriculture et du Dév. Rural. Estimated cost 0.750 mECU. 1st stage: study for preserving and making better use. After the study a pilot programme to improve project. Date financial decision December '83. Only for the study 0.200 mECU. Special programme hunger.

DOMINICA

Crop diversification project. Resp. Auth.: Ministry of Agriculture. Estimated cost 0.547 m ECU. Continuation of essential oils programme. Works, supplies and T.A. Project on appraisal. Date foreseen for financial decision 2nd half 84. 5th EDF.

Lime Rehabilitation Project. Resp. Auth.: Ministry of Agriculture. 0.560 mECU. Date financial decision February '84. 5th EDF.

EQUATORIAL GUINEA

Rural interventions. Project stage: identification. 5th EDF.

Rural development in the Bata district. Estimated cost 3 mECU. Project stage: identification. 5th EDF.

ETHIOPIA

Fishery Development. Resp. Auth.: Fisheries Development and Marketing Corporation. 2.078 mECU. EDF 1.513 mECU, Local 0.565 mECU. Supply of equipments, facilities and T.A. Supplies: int. tender in '84. T.A.: GOPA (D). Project in execution. 4th EDF.

Electrical tariffication study. Resp. Auth.: E.EL.P.A. Short-list already drawn up. Project on appraisal. 5th EDF.

Coffee improvement (phase 2). Resp. Auth.: Ministry of Coffee and Tea Development. 27.2 mECU. Works, supplies. T.A.: Short-list already drawn-up. Int. tender for fertilizer, insecticides in '84. Project in execution. 5th EDF.

Strengthening the rural engineering department of the Alemaya Agricultural College. Resp. Auth.: University of Addis Abbaba. 0.212 mECU. Stabex '81. Supply of laboratory equipment by int. tender. 5th EDF.

Construction and equipment of one agricultural research station in Gondar and Gojam. Resp. Auth.: Institute of Agricultural Research (I.A.R.). 2 mECU. Construction and equipping the station. Works: acc. tender. Supplies by direct agreement. Date financial decision December '83. Special programme hunger.

FIJI

Forestry Logging Training School. Resp. Auth.: Ministry of Forest. 0.400 mECU. Constructions and supply of equipment. Works by direct labour. Supplies: int. tender. Date foreseen for financial decision June 84. 5th EDF.

GABON

BOKOUE Reafforestation Resp. Auth.: Ministère des Eaux et Forêts. EDF part 2.78 mECU. T.A.: Short-list already drawn up. Int. tender for supplies launched in

March 84. Project on appraisal. Date foreseen for financial decision July 84. 5th EDF.

Mini power-stations in Ovan and Mbigou. Resp. Auth.: Ministère de l'Énergie et des Ressources Hydrauliques. Estimated total cost 3 mECU. EDF 2 mECU and EIB (may be) 1 mECU. Constructions and supply of equipment. Ovan: 99 KW, Mbigou 225 KW. Project on appraisal. 5th EDF.

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, 3rd quarter 1984. 4th EDF.

GHANA

Central and Accra Regions Rural Integrated Programme (CARRIP). Resp. Auth.: Ministry of Finance and Economic Planning. Prefeasibility study for potential projects within the two regions, with the aim of improving the food situation in Accra and other coastal towns. Halcrow-U.L.G. (UK). Study: rehabilitation irrigation project: HED-ESELSKABET (DK). 5th EDF.

Aveyme livestock development. Resp. Auth.: Ministry of Agriculture. 3.2 mECU. Works, supply of vehicles and equipment. T.A.: short-list already drawn up. 5th EDF.

Ghana Commercial Bank (GCB). Small-Scale Farmers' Scheme. Resp. Auth.: Agricultural Finance Department of GCB. 0.847 mECU. Stabex 81. Purchase of tractors, vehicles and rice hullers. Int. tender and direct agreements. Date financial decision April 84. 5th EDF.

Ghana Cocoa Marketing Board. Vehicle Workshop. Resp. Auth.: Cocoa Marketing Board. (CMB) 2.936 mECU. Stabex 81. Completion and construction of workshops. Supply of equipment and T.A. Works by acc. Tender. Supplies: int. tender. T.A.: direct agreement. Date financial decision, April 84. 5th EDF.

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. Date financial decision May 84. 5th EDF.

Assistance to Ghana Stone Quarry and Kas Products Ltd. Resp. Auth.: Bank for Housing and Construction. 1.670 mECU. Stabex 81. Equipments and spare parts. Date foreseen for financial decision June 84. Project on appraisal. 5th EDF.

Line of Credit to the Agricultural Development Bank. Resp. Auth.: Agric. Dev. Bank (ADB) 6mECU. Purchase of marine diesel engines, spare parts, fishing net, and T.A. Date foreseen for financial decision June 84. Project on appraisal. 5th EDF.

GRENADA

Eastern main road rehabilitation. Phase 2. Repairing and strengthening of a section of the circular road. Estimated cost 1.500 mECU. Date financial decision March 84. 5th EDF.

Hillsborough jetty. Resp. Auth.: Ministry of Public Works. 0.357 mECU. Construction of a jetty for goods and passenger handling. 5th EDF.

★ **Rehabilitation of the Grenville nutmeg factory.** Resp. Auth.: Ministry of Agriculture. Stabex 81. 0.043 mECU. Works by direct labour. Project on appraisal. 5th EDF.

GUINEA

Land development in Kankan and Labé regions. Phase II. Resp. Auth.: Ministère de l'Agriculture et des F.A.P.A. Valuation: Mac Donald and Partners (UK). Project on appraisal. 5th EDF.

New energy research and test. Resp. Auth.: Ministère de l'Energie et du Konkourè. Study on hand. 5th EDF.

Rural development of the Kankan-Siguiri Region. Resp. Auth.: Ministère de l'Agriculture, des Eaux, Forêts et FAPA. 6.350 mECU. Rural infrastructure, supply of rural inputs, equipment, vehicles and T.A. T.A.: CFDT (F). Date financial decision March 84. 5th EDF.

Town planning and construction of council houses. Resp. Auth.: Ministère de l'Urbanisme et de l'Habitat. Estimated cost 9 mECU. Buildings, supply of equipment and T.A. Project on appraisal. 5th EDF.

Establishment of a Child Health and Nutrition Institute (ISNI) in Conakry. Resp. Auth.: Ministère des Affaires Sociales. 2 mECU. Construction and supply of equipment by int. tender with competition after prequalification. Date financial decision May 84. 5th EDF.

T.A. and complementary equipment for the "Institut Polytechnique Secondaire Maritime" (IPS) in Conakry. Resp. Auth.: Ministère de l'Enseignement Moyen et de la Formation Professionnelle. T.A. and equipment by restr. tender after prequalification. Prequalification done. 1.260 mECU. Date financial decision March 84. 5th EDF.

★ **Sanoyah textile factory (CTS). Supply of T.A. and generating sets.** Resp. Auth.: Gov. of Guinea. 8.5 mECU. Int. tender for generating sets launched in May 84 (conditional). Project on appraisal. Date foreseen for financial decision July 84. 5th EDF.

★ **Ignace Deen hospital renovation in Conakry.** Resp. Auth.: Ministère de la Santé Publique. 5 mECU. Works and supplies by int. tender. Works supervision by direct agreement. Project on appraisal. Date foreseen for financial decision July 84. 5th EDF.

GUINEA BISSAU

Health infrastructures. Resp. Auth.: Commissariat d'Etat au Travaux Publics. Estimated cost 1.9 mECU. Construction and equipment of 2 district hospitals, 4 health centres and staff-housing. Supply of equipment: int. tender on 2nd half 84. T.A.: Ass. Engineers (I). 5th EDF.

North-East forestry development. Resp. Auth.: Commissariat général au développement rural. Study on the way by Atlanta (D). 5th EDF.

Rural hydraulics. Resp. Auth.: Ministère des ressources naturelles. Estimated cost 1.4 mECU. Construction of big diameter wells (1.5 m) about 120 wells in the GABU region. Project on appraisal. Date foreseen for financial decision 2nd half 84. 5th EDF.

★ **Reconditioning of 3 self-propelled ferries.** Resp. Auth.: Gov. of G.B. 0.390 mECU. Supplies by direct agreement.

Training. Project on appraisal. Date foreseen for financial decision July 84. 4th EDF.

GUYANA

Fishing port and fish-market in Georgetown. Building of a new port and fish market in Georgetown. 2.700 mECU. 5th EDF.

★ **Sysmin. Bauxite Advance.** 3 mECU. Spare parts supply by direct agreement and study on the European market. Project on appraisal. 5th EDF.

IVORY COAST

Oil-palm tree plantation extension programme. Resp. Auth.: Ministère de l'Agriculture and "Palminindustrie". Estimated total cost 18.2 mECU. EDF 10.306 mECU. Local 7.85 mECU. 12,517 h of palm tree plantations. Project in execution. 5th EDF.

JAMAICA

Board of Revenue — revenue information system. Resp. Auth.: Govt of Jamaica. 3.26 mECU. Reorganisation of the administration and preparation of the Revenue Information System. Supplies and T.A. Int. tender for supplies foreseen in 1st quarter '84. Supervision of project: X-TRA Consult. (B). Int. tender for supplies foreseen on 2nd half 84. Project in execution. 5th EDF.

Citrus fruit production improvement. Resp. Auth.: Ministère de l'Agriculture. Estimated cost 3.5 mECU. Equipment, training and T.A. Credit line. T.A.: Short-list already drawn-up. 5th EDF.

Coffee development. Resp. Auth.: Ministry of Agriculture. Estimated total cost 3.7 mECU. EDF 3.5 mECU. Local 0.2 mECU. Supply of equipment, T.A. and credit line. Project on appraisal. 5th EDF.

"Public Health Laboratory Services". Construction and supply of equipment for a new laboratory in Kingston. Training. Estimated total cost 5.230 mECU. EDF 4.900 mECU. Local 0.300 mECU. Project stage: identification. 5th EDF.

Scientific Research Council (SRC). Resp. Auth.: SRC 0.650 mECU. Supply of equipment, T.A. and training. Project on appraisal. Date foreseen for financial decision July 84. 5th EDF.

KENYA

Eldoret Polytechnic. Estimated cost. 6 mECU. Construction, supply of equipment (pedagogical) and T.A. Preliminary Plan Study: Hughes & Polkinghorne (ACP). Project on appraisal. 5th EDF.

Veterinary investigation laboratory Mariakani. Adm. Resp.: Ministry of Livestock Department. Veterinary Department. 3.4 mECU. Construction of a veterinary investigation laboratory. Supply of materials and equipments. T.A. Materials and equipment: int. tender 2nd half '84. T.A.: direct agreement. 5th FED.

Turkwell hydro-electric project. Resp. Auth.: Ministry of Energy. Feasibility study and final study design: PRICE CARDEW RIDER (UK). 5th EDF.

Machakos Integrated Development Programme. Phase II. Resp. Auth.: Ministry of Finance and Planning (MFP). 15.2 mECU, EDF part. Local 6.5 mECU. Works, supplies and T.A. Project on appraisal. Date foreseen for financial decision July 84. 5th EDF.

Bura Management II. T.A. for the management of the Bura Irrigation and Settlement Scheme. (West Bank of the Lower Tana). 1.7 mECU. Project on appraisal. 5th EDF.

Primate Research Institute. Construction of a laboratory by int. tender. Work supervision by direct agreement. 1 mECU. Project on appraisal. 5th EDF.

LESOTHO

Maseru airport. Resp. Auth.: Ministry of Transport and Communication. Estimation ±60 mECU. EDF part 3 mECU. Provision of a modern international airport 15 km south of Maseru. Foreseen funding: Lesotho - Saudi Fund - Kuwait Fund - ABEDA 4.4 mECU - OPEC - Abu Dhabi - ADB - EDF and Finland. - Project on appraisal. Date foreseen for financial decision 2nd half 84. 4th EDF.

Mohale's Hoek - Outhing road. Mohale's Hoek-Mekaling part. Resp. Auth.: Central Planning and Dev. Office. Reinstatement of a road. 25 km. Estimated cost ±14 mECU. Int. tender launched in April 84. 5th EDF.

Primary School Development Project Extension. Resp. Auth.: Ministry of Works and Ministry of Education. 0.307 mECU. Works by acc. tender. Supplies by direct agreement. Project in execution. 4th EDF.

LIBERIA

Coffee and cocoa development project at Zwedru and Plahn. Resp. Auth.: Ministry of Agriculture 5.7 mECU, EDF 2.9 mECU, Local 2.8 mECU. To develop 980 hectares of robusta coffee and 1 320 hectares of cocoa in Grand Gedeh and Sinoe countries. Works by acc. tender. — Supplies by int. tender in '84. Project in execution. 4th EDF.

Buto oil palm. Phase II. Resp. Auth.: Ministry of Agriculture. Continuation of the existing project in connection with the construction of an oil mill. T.A. and supply of equipment. Project on appraisal. 5th EDF.

Port Development Study South East — Phase II and III. Resp. Auth.: National Port Authority. Continuation of feasibility study. Project on appraisal. 4th EDF.

Improving agricultural training in the Rural Development Institute (R.D.I.). Resp. Auth.: Ministries of Agriculture and Education. 0.880 mECU. Works, supply of equipment and training. Project in execution. 5th EDF.

MADAGASCAR

Intermediate level health infrastructure strengthening. Resp. Auth.: Ministère de la Santé. Estimated total cost 4.820 mECU. Works, supply of equipment, training and T.A. Date financial decision April 84. 5th EDF.

★ **Supply of equipment for rural and road transport.** Cofinancing with CCCE (F), KfW (Germany) and World Bank. Estimated total cost 17.828 mECU. EDF part 2.2 mECU. Project on appraisal. 5th EDF.

MALAWI

Dairy cattle development. Resp. Auth.: Ministry of Agriculture. Cross local bovine breed with European dairy breeds. Project on appraisal. 5th EDF.

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. 5th EDF.

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. 5th EDF.

Strategic fuel reserve. Resp. Auth.: Economic Planning Division. OPC. 4.2 mECU. Construction of tanks farm for gasoil, petrol, ethanol. Associated infrastructure and equipment. T.A. Project on appraisal. 5th EDF.

Small Enterprise Development Organisation of Malawi (SEDOM) — Phase II. Resp. Auth.: Sedom secretariat. Estimated total cost 5.4 mECU. Works by direct labour. Supply of vehicles and equipment by int. tender in '85. T.A. end '84. Project on appraisal. 5th EDF.

Ntchisi Project Area. Phase II. Resp. Auth.: Ministry of Agriculture. Estimated total cost 6.4 mECU. EDF 3.6 mECU, local 2.8 mECU. Works, supplies and operating costs. Project on appraisal. 5th EDF.

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, equipments, training. Architecturals and technicals studies: GOUSIER (F). T.A.: Short-list already drawn up. 4th EDF.

High voltage Line transformer stations. Sélingué-Kalana. Resp. Auth.: Ministère d'Etat chargé de l'Equipement (Office d'Exploitation des Ressources hydrauliques du Haut Niger — OERHN). 3.2 mECU. Project on appraisal. Int. tender (conditional) launched in March 84. Date foreseen for financial decision July '84. 5th EDF.

Refrigerated slaughter-house in Bamako (Rehabilitation Project). Resp. Auth.: Ministère du Dév. Rural. 1 mECU. Renovation and purchase of equipment and machinery. To purchase 6 refrigerated-vans int. tender. The rest, acc. tender and direct agreement. Date financial decision April 84. 5th EDF.

MAURITANIA

Extension of Kaédi regional hospital. Resp. Auth.: Ministère de l'Equipement. 1.925 mECU. Construction, equipment and TA for Kaédi hospital (100 beds). Works: on the way. Medical-technical equipment int. tender, 2nd half '84. Project in execution. 4th EDF.

Small dams construction in the Hodhs region. Resp. Auth.: Ministère du Développement rural. Estimated cost 2 mECU. Study on the way Binnie and Partners (UK). Project on appraisal. Project stage: identification. 5th EDF.

Nouakchott Wharf. Resp. Auth.: Ministère de l'Equipement et des Transports. Estimated cost 1.6 mECU. Maintaining, equipment and repairing. Project on appraisal. Date foreseen for financial decision July 84. 5th EDF.

Aioun El Atrouss hospital. Resp. Auth.: Ministère de l'Equipement. 1.050 mECU. Renovation and supply of equipment for 3 buildings. Works by acc. tender. Supplies by int. tender. Project on appraisal. 5th EDF.

Centre de Formation Professionnelle Maritime de Nouadhibou (C.F.D.M.). Resp. Auth.: Ministère de l'Equipement. 2.5 mECU. Construction, supply of equipment and purchase of a wooden-trawler, T.A. Project on appraisal. Date foreseen for financial decision 2nd half 84. 5th EDF.

★ **Supply of drilling equipment.** Resp. Auth.: Ministère de l'Hydraulique et de l'Energie. Direction de l'Hydraulique. 0.943 mECU. Supply and installation by direct agreement. T.A.: by direct agreement. Project on appraisal. Date foreseen for financial decision July 84. 5th EDF.

MAURITIUS

Development of Ile Rodrigues. Resp. Auth.: Ministry of Agriculture. 3 mECU. Development centred on agricultural production. Economical and technical study, on the way. T.A.: Luxconsult (Lux.). 5th EDF.

Phoenix-La Vigie road. Possible cofinancing with FAC (F) and local gov. EDF part ±5 mECU. Project on appraisal. 5th EDF.

★ **Cold stores for onions.** Resp. Auth.: Ministry of Economic Planning. Estimated cost ±2.5 mECU. Cold stores for 1 500 T of onions. Int. tender dossier definition: Berlin Consult (D). T.A.: by direct agreement. Works and supplies: int. tender with competition. Project on appraisal. 5th EDF.

NIGER

Air Valley development. Resp. Auth.: Ministère du Dév. Rural. Estimated cost 1.6 mECU. Hydro-agricultural works. Construction and equipping of wells. Equipping and operation of nurseries. T.A. and training. Works and equipment: int. tender. Project on appraisal. 5th EDF.

Rural health programme. Resp. Auth.: Ministère de la Santé Publique et des Affaires Sociales. 4.5 mECU. Construction of a medical centre in Mirria and 14 rural dispensaries, supply of equipment and T.A. Works: acc. tender. Supply of equipment, medicines, vehicles and motor-cycles: int. tender. T.A.: restr. tender short-list done. Date financial decision April 84. 5th EDF.

NIGERIA

Kaduna afforestation project. Resp. Auth.: Federal Department of Forestry. Estimated Cost 10 mECU. Feasibility study: EUROCONSULT (NL). Project on appraisal. 5th EDF.

PAPUA NEW GUINEA

Foodstuffs production on the south coast. Resp. Auth.: Department of Primary Industry. E.D.F. part 3 mECU. Development of seasonal cultivation and marketing. Technical and economic studies. Definition of the project: Produce Studies Ltd. Consultant (UK). Project on appraisal. 4th EDF.

Magi highway. Resp. Auth.: Department of Transport. 3.5 mECU. Upgrading and sealing of a road section. Works: int. tender foreseen 2nd half '84. 5th EDF.

Huris Grasslands cattle ranch and cocoa Project. Resp. Auth.: Department of Primary Industry. 1.460 mECU. Works, sup-

plies, T.A. and training. Project in execution. 5th EDF.

Trade Promotion Programme. Resp. Auth.: Trade and Investment Promotion Branch and Chamber of Commerce and Industry. 0.350 mECU. Date financial decision May 84. 5th EDF.

★ **Milne Bay Highlands Access Roads: Wedau to Karagautu.** Resp. Auth.: Departments of Works and Supplies (DWS). Stabex 81. 1.2 mECU. Works by direct labour. Project on appraisal. Date foreseen for financial decision July 84. 5th EDF.

★ **Diesel Power Replacement Programme.** Resp. Auth.: Electricity Commission (ELCOM). Estimated cost 4.850 mECU. 4 small hydroelectric power plants with transmission lines extensions from existing grids. Project on appraisal. 5th EDF.

RWANDA

Bugesera water supply. Resp. Auth.: Ministère du Plan. Construction of a drinking-water network in Bugesera. Project on appraisal. 5th EDF.

Development of Zaire Nil Crest. Resp. Auth.: Ministère de l'Agriculture 13.8 mECU. Développement of agricultural production and social-economic infrastructure. T.A.: INSTRUPA (D). Supply: int. tender in '84. Project in execution. 5th EDF.

Strengthening of the "public enterprises". Resp. Auth.: Ministère du Plan. Estimated cost 2.595 mECU. Creation of a central accountancy agency, training and control data. Supply of equipment for auditing and office and vehicles. T.A.: GOPA (A). 5th EDF.

Development of Préfecture de Butare. Priority actions. Resp. Auth.: Ministères du Plan et de l'Agriculture. Total estimated cost 11.765 mECU. EDF 10.400 mECU. Local 1.365 mECU. Actions to improve rural products, S.M.E., handicrafts and administration. Works by direct labour or direct agreement. Supplies and equipment, int. tender or direct agreement. T.A.: CARL BRO (DK). Project in execution. 5th EDF.

Food strategy — Priority measures. Resp. Auth.: Government. 4 mECU. Construction of 4 warehouses for OPROVIA. Construction and equipping of stores, purchase and stocking of sorghum. Supply of equipment, fertilizers, T.A. and training. Works by direct labour or acc. tender. Supplies by int. tender or direct agreement. T.A. and training by direct agreement. Date financial decision December '83. Special programme hunger.

Gisakura tea-factory rehabilitation. Resp. Auth.: Office des Cultures Industrielles du Rwanda. Secteur thé (OCIR-Thé). 0.142 mECU. Stabex 81. Supply of equipment and spare parts. Date financial decision April 84. 5th EDF.

ST LUCIA

Livestock development project. Phase 2. Resp. Auth.: Ministry of rural development. Estimated cost 0.860 mECU. Extension project zone. Works, supplies and T.A. Study: short-list already drawn up. Project on appraisal. 5th EDF.

Tourism development project. Resp. Auth.: Department of Tourism. 0.120 mECU.

Preparation of promotion material and training. Project on appraisal. 5th EDF.

★ **Rural drainage project.** Resp. Auth.: Department of agriculture. Estimated cost 1.5 mECU. Study to define the project: Huntings (UK). Project on appraisal. 5th EDF.

ST VINCENT AND GRENADINES

Livestock development project. Resp. Auth.: Ministry of Agriculture. 0.415 m ECU. Works, equipment and supply of vehicles. T.A.: shortlist already drawn up. Project in execution. 5th EDF.

Tourism development project. Resp. Auth.: Department of Tourism. 0.125 mECU. Upgrading Department of Tourism and preparation of promotion material by CEGOS (F). 5th EDF.

SENEGAL

New energy research and test in rural region. Resp. Auth.: Secretariat 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). Equipments: int. tender in 84. Project on appraisal. 5th EDF.

Gum-tree plantation. Resp. Auth.: Ministère du Développement Rural. Estimated cost 2.5 mECU. Works, supplies and T.A. T.A.: Deutsche Forstinventur Service (D). Project in execution. 5th EDF.

Sewerage of the "Gueule Tapée" district. Resp. Auth.: Direction Générale des Travaux Publics. Estimated cost 6 mECU. Construction of canalization and pipes for rain waters. Improvement of the sewage network. Int. tender (conditional) launched in February 84. Project on appraisal. Date foreseen for financial decision July 84. 5th EDF.

Trade Promotion programme. Resp. Auth.: Centre Sénégalais du Commerce Extérieur. 1.083 mECU. Actions for productions, marketing and T.A. Contract: direct agreement or restr. tender. 5th EDF.

Noirrot Bridge at Kaolack. Resp. Auth.: Direction Générale Travaux Publics. Estimated cost 2.5 mECU. Existing bridge replacement with a new. T.A.: to prepare technical dossier for an int. tender with competition. Int. tender launched in May '84. T.A.: Bureau Obermeier (D). Project on appraisal. 5th EDF.

Continuation of cereals-growing development in agricultural areas. Resp. Auth.: Ministère du Dév. Rural-Société des Terres Neuves. Estimated cost 2.2 mECU. Works (roads, drillings, wells) supply of fertilizers, building materials and T.A. Project in execution. 5th EDF.

Safe-keeping livestock programme. Resp. Auth.: Soc. d'Intervention nationale dans la zone sylvo-pastorale. SODESP. 0.797 mECU. Stabex 81. Date financial decision March 84. 5th EDF.

★ **Podor rural irrigated areas. Phase II.** Resp. Auth.: Ministère du Dév. Rural. Société d'aménagement du Fleuve Sénégal et de la Falémé (S.A.E.D.). Estimated cost 2.4 mECU. Works by direct labour. Supply of motor-pumps by int. tender. Project on appraisal. 5th EDF.

★ **Consolidation of the livestock development programme.** Resp. Auth.: SOD-

ESP. Estimated cost 1.6 mECU. Study on the way by BESSEL Ass. (UK). Project on appraisal. 5th EDF.

SIERRA LEONE

North-western integrated agricultural development project. Resp. Auth.: Ministry of Agriculture and Forestry. Four-year integrated programme to develop mangrove swamps, upland crops, coastal fishing, infrastructure. Estimated Cost: 6.03 mECU. EDF 4.9 mECU. Local 1.13 mECU. Works: acc. tender. Supplies: int. tender. T.A.: direct agreement. Project in execution. 4th and 5th EDF.

Koinadugu - Phase II. Resp. Auth.: Ministry of Agriculture and Forestry. Estimated total cost 8.370 mECU. EDF 7.5 mECU. Local 0.870 mECU. Buildings and housing, transport equipment, farminputs, operation, maintenance, staff salaries. Project in execution. 5th EDF.

Rural hydraulics. Resp. Auth.: Ministry of Agriculture and Forestry. Estimated cost 1.55 mECU. Construction of water points for villages with 2000 inhabitants. Study to prepare project and appraisal: IWACO (NL). Date financial decision February '84. 5th EDF.

Kambia Fishery Development. Resp. Auth.: Ministry of Agriculture and Forestry. 0.900 mECU. Construction of 2 buildings and a boatyard, supply of boats, motors, vehicles and T.A. T.A.: Short-list already drawn up. 5th EDF.

Economical study of the Sambamba-Kabala Road. Short-list already drawn up. Project stage: identification. 5th EDF.

Buildings for Njala University College (N.U.C.). Resp. Auth.: Ministry of Education. 2.5 mECU. Construction of academic block and student hostel, supply of equipment and work supervision. T.A.: OLU WRIGHT ASS. (ACP). 5th EDF.

SOLOMON ISLANDS

Coconut industry development project. Resp. Auth.: Ministry of Land and Natural Resources. Study on hand. Project stage: identification. 5th EDF.

SOMALIA

Saakow rural experimental centre. Resp. Auth.: Ministry of Agriculture. Creation of an irrigated area (60 ha) with all facilities and equipment. Aim: agronomical experiments. Estimated total cost: 5.026 mECU. EDF: 4.950 mECU. Local 0.076 mECU. Works: 4 kms of tracks, pump station (180 l/s) electric power station (120 KVA). Supply of: agricultural equipment, 3 tractors, vehicles, furnitures. T.A.: short list already drawn up. Land improvement works and estate infrastructure: contracts awarded. Supplies: int. tender in '84. Project in execution. 4th EDF.

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, Koweit 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 during 1984. Transmission lines int. tender in 1984. Equipment: powerhouse main equipment and auxiliary equipment, int. tenders in 1985. Gates, valves, intake equipment, int tender in 1986. Study: 4th EDF. Works: Int. tender for site prospection launched in February 84. 5th EDF.

Mogadishu Institute of Statistics. Resp. Auth.: Ministry of Public Works. Estimated cost: 1 mECU. Supply: int. tender in '84. Project on appraisal. Date foreseen for financial decision 2nd half 84. 4th EDF.

Development of pheniculture (date-palm). Resp. Auth.: Ministry of Agriculture. Estimated cost 2.3 mECU. 1000 ha plantation in the North region. Supply of equipment, machines, inputs, rural monitoring. T.A. by French aid. Project on appraisal. Date foreseen for financial decision July 84. 5th EDF.

Somalia Trade Promotion. Resp. Auth.: Ministry of National Planning. 0.670 mECU. Four independent components: development of supportive infrastructure and T.A. for frankincense, myrrh and gums. Identification of obstacles to livestock exports and study of livestock marketing. Participation in Trade Fairs. Training, short term consultancies. 5th EDF.

"Aula Magna" Mogadishu National University. Resp. Auth.: Ministry of Public Works. ±2.5 mECU. Project on appraisal. 4th EDF.

Mogadishu Slipway. Rep. Auth.: Ministry of Planning. Estimated cost 3 or 4 mECU. Feasibility study on the way by AVECO (NL). 4th EDF.

Technical study of the Juba Valley Road. Resp. Auth.: Ministry of National Planning and Ministry of Public Works. Engineering design and preparation of tender documents. Estimated cost 1 mECU. Short-list already drawn up. Date financial decision May 84. 5th EDF.

Forestry Nursery Development. Resp. Auth.: National Range Agency. 1.290 mECU. Supply of vehicles, equipment and materials for 10 nurseries. All by int. tender. launched in May 84. Date financial decision December '83. Special programme hunger.

SUDAN

Jebel Marra rural development project. Resp. Auth.: Ministry of Agriculture, Food and Natural Resources. 15.043 mECU. EDF 11 mECU. Local 4.043 mECU. Agricultural extension and improvement or rural infrastructure (road improvement and maintenance, forestry programme, community development programme). Supplies: int. tender for fertilizers in 84. TA: Hunting Technical Services Ltd (UK). Project in execution. 4th EDF.

Jebel Marra Rural Dev. Project. Interim phase. Estimated total cost 9.092 mECU. EDF 2.1 mECU. Agricultural extension and improvement of rural infrastructure. Supply of road plant and vehicles and T.A. Project on appraisal. Date foreseen for financial decision July 84. 5th EDF.

University of Juba, phase II. Resp. Auth.: Ministry of Education. 7 mECU. Additional facilities on the new campus for a ca-

capacity of about 400 students: 3 hostels, (1 100 m² each) dining hall and kitchen (360 m²), 3 college buildings (1 850 m²), 21 staff houses (each 170 m²). Works including infrastructure for water, sewerage and electricity: int. tender launched September '82. Equipment: int. tender in 1984. Supervision of works: HAMD GROUP (ACP). 4th EDF.

Port Sudan-Hayia railway. Resp. Auth.: Sudan Railway Corporation. Expertise: KAMPSAX (DK). 4th EDF.

Magwe — Upper Talanga feeder road. Resp. Auth.: Ministry of Finance and Economic Planning. 1.170 mECU. Rehabilitation and regravelling of existing roads and construction of feeder roads. Preparation of the tender dossier: GITEC (D). Project in execution. 5th EDF.

SURINAME

Rice project at Coronie. Resp. Auth.: Ministerie van Landbouw, Veeveelt, Visserij en Bosbouw. 7.650 mECU. Rice production developments. T.A. short-list already drawn up. 3rd and 5th EDF.

LTS — Geyersvlijt. Resp. Auth.: Public Works Department. Construction of school building. Lower level technical education. Estimated cost 2.8 mECU. Int tender foreseen in 84. Project in execution. 3rd EDF.

Biomass energy project at Wageningen. Resp. Auth.: Government. Installation of an energy generator on the basis of rice husks. Project stage: identification. 5th EDF.

2nd Credit line for Landbouwbank. Resp. Auth.: Landbouwbank N.V. Credits for agriculture, animal husbandry, fisheries and forestry. 7.5 mECU. Date financial decision May 84. 4th EDF.

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: short-list already drawn up. 5th EDF.

Teacher training colleges; Ngwane, Pigg's Peak. Resp. Auth.: Ministry of Works. 7.4 mECU. Extension for Ngwane and new construction for Pigg's Peak. Supply of equipment and T.A. to prepare tender dossier and site supervision. For Ngwane acc. tender, for Pigg's Peak int. tender. Supplies: int. tender. T.A.: Cusdin, Burden and Howitt (ACP). 5th EDF.

Rural Development Areas Programme. Phase II. Resp. Auth.: Ministry of Agriculture. Estimated Cost 3.3 mECU. EDF 3 mECU, local 0.300 mECU. Farming inputs, T.A. and training. Project on appraisal. Date foreseen for financial decision 2nd half 84. 5th EDF.

TANZANIA

Lushunga-Bukombe road. Resp. Auth.: Ministry of Works. 20 mECU EDF part. Bitumen road of 127 km. Works: Int. tender foreseen 2nd half '84. Supervision of work: GITEC (D). Seek for cofundings. Regional project. 4th EDF.

Technical teacher training college, Mtwara. Resp. Auth.: Ministry of Education. 1.4 mECU. Training facilities for techni-

cal teachers. Classrooms, laboratory and workshops, dormitories and sanitary block, administration. Total area 3,765 m². Equipment: int. tender with possibility of direct agreement depending on nature of supply. Supplies: direct agreement, all in '84. 4th EDF.

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 '84. Supplies: int. tender in '84. Supervision of works: G.W.E. (D). 5th EDF.

Supply of materials and equipment for increasing food production and reducing post-harvest losses. Resp. Auth.: Government. 2 mECU. Supply of steel, bolts, nuts, rivets and chemicals for agricultural tools. Fertilizers and insecticides. All by int. tender. Date financial decision December '83. Special programme hunger.

Fuel-wood substitution programme. Resp. Auth.: Government. 1 mECU. Date financial decision December '83. Special programme hunger.

★ **Coffee Development Programme. Phase II.** Resp. Auth.: Ministry of Agriculture. Continuation and consolidation of the Phase I. EDF part estimated contribution 9.5 mECU. Project on appraisal. 5th EDF.

TOGO

Provisions improvement for Agou oil palm plant. Resp. Auth.: Ministère du Développement Rural. EDF 5 mECU. Project on appraisal. 5th EDF.

Draught animal farming development. Resp. Auth.: Ministère de Développement Rural. Estimated total cost 2.300 mECU. EDF 0.700 mECU. US aid 1.275 mECU. Local 0.325 mECU. Supply of equipment and T.A. Creation of a revolving fund. T.A.: Short-list for restr. tender already done. Project in execution. 5th EDF.

★ **Supply of 300 pumps with foot or hand drive system.** Resp. Auth.: Ministère des T.P., des Mines, de l'Énergie et des Remontes Hydrauliques. Direction de l'Énergie et de l'Hydraulique. Int. tender foreseen in July 84. Estimated cost 0.300 mECU. 5th EDF.

TONGA

Supply of a dredger. Resp. Auth.: Ministry of Works. Estimated cost 0.500 mECU. Technical study: EUROCONSULT (NL). Int. tender foreseen 2nd half '84. Project on appraisal. 5th EDF.

Faua Fisheries Harbour. Resp. Auth.: Ministry of Works. Estimated cost 3.3 mECU. Construction of a new fisheries harbour, repair yards, fish market and wholesale store with ice-making equipment. Int. tender for the supply of steel sheet piles launched in November 83 (conditional). Supply of cooling and ice equipment int. tender in 84 or 85. Works by direct labour. Project in execution. 5th EDF.

TRINIDAD AND TOBAGO

Training programme, health sector. Resp. Auth.: Ministry of Health and Environment. 1.2 mECU. Training awards, laborato-

ry equipment (sound-meters, chemical chromatographs, spectrometers) by int. tender. Short-term T.A. to coordinate and establish new laboratory. Date financial decision May 84. 5th EDF.

TUVALU

★ **Coastal protection project.** Resp. Auth.: Ministry of Works. 0.379 mECU. Works, supplies and supervision of works. Project on appraisal. 5th EDF.

★ **Low voltage distribution.** Resp. Auth.: Tuvalu Electricity Authority 0.305 mECU. Extension of the LV distribution network. Supply and installation of transformers by int. tender. Project on appraisal. 5th EDF.

UGANDA

Primary health centres rehabilitation. Resp. Auth.: Ministry of Health and Ministry of Local Government. 5.8 mECU. To improve health care in rural areas. Project stage: identification. 4th and 5th EDF.

Kampala water supply rehabilitation. Phase II. Resp. Auth.: Ministry of Lands, Minerals and Water Resources. 5.27 mECU. Works, supplies and supervision. T.A. Project in execution. 5th EDF.

Artisanal Fisheries Rehabilitation. Resp. Auth.: Ministry of Animal Industry and Fisheries. 6 mECU. Supply of fishing equipment and materials and T.A. Supplies int. tender launched in May 84. T.A.: restr. tender short-list done. 5th EDF.

Kampala-Masaka Road. 2nd section. Upgrading of the road over 60 km. Study: short-list done. Estimated cost 0.200 mECU. Works by int. tender foreseen in November 84 (conditional). Estimated cost 10 mECU. Project on appraisal. 5th EDF.

UPPER VOLTA

Mine of Poura rehabilitation. Resp. Auth.: Ministère du Commerce, du Développement Industriel et des Mines. 4.14 mECU for assessment of the worker's town. Study on hand. Project in execution. 5th EDF.

Development of the Douna plain. Resp. Auth.: Ministère du développement rural. 10 mECU. Irrigation and draining works, supply of equipments, inputs and T.A. Int. tender for works launched in May 84. 5th EDF.

Young farmers' training. Resp. Auth.: Ministère du Développement Rural. 2.880 mECU. T.A., works and equipment. T.A.: C.E.R.E.D. (F). 5th EDF.

Small ruminants and poultry farming in the Yatenga region. Resp. Auth.: Ministère du développement Rural. 1.150 mECU. Constructions, supply of equipment, training and monitoring. Project in execution. 5th EDF.

Strengthening of the health service in the North and Sahel Regions. Resp. Auth.: Ministère de la Santé. 1.3 mECU. T.A., training, works and supply of equipment. Project in execution. 5th EDF.

VANUATU

Village fisheries, Research and development. Resp. Auth.: Fisheries Department. 0.600 mECU. Promotion and improvement of artisanal fishing. Project in execution. 5th EDF.

ZAIRE

Akula-Gemena road. Resp. Auth.: Commissariat aux Travaux Publics. Upgrading and asphaltting of the road (115 km). Economic study: Bureau SPE (Local). Technical study: LUXCONSULT (Lux). Project on appraisal. Int. tender (conditional) launched in May 84. 5th EDF.

Kalemie port rehabilitation. Resp. Auth.: Département des Transports et Communications. 2 Int. tenders (conditionals) launched in March 84. Works and supplies. 4th EDF regional. Project on appraisal. 5th EDF.

Banana deep water port. Resp. Auth.: Département des Transports et Communications. Economical and financial evaluation: SEMA (F). 5th EDF.

Butembo-Beni hydro-electrical development. Preliminary study done by Tractionnel (B) on local funds. Detailed economical and technical studies: WLPV (UK). Project on appraisal. 5th EDF.

Rural roads in Sud-Ubangui. Resp. Auth.: Office des routes. Total cost 5.190 mECU. EDF 4.950 mECU. CDI (Centre de Développement Intégral de Bwamanda-NGO) 0.240 mECU. Works by CDI and villages. Supply of graders, trucks by int. tender, on 2nd half '84. Project in execution. 5th EDF.

ZAMBIA

Support for Food Policy. Production and storage. Resp. Auth.: Ministry of Agriculture and Water Development. 4 mECU. Supply of materials and equipment. Works and T.A. by direct agreement. Supplies by int. tender. Date financial decision December '83. Special programme hunger.

Zambia marketing and trade promotion. Resp. Auth.: Ministry of Commerce and Industry. Zambian Export Promotion Council. 0.795 mECU. Product Development and Marketing. Marketing management. Trade Fairs — Tourism planning and promotion. Contracts by direct agreement. 5th EDF.

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.: short-list already drawn up. 5th EDF.

Mkushi electrification. Estimated cost 6.07 mECU. EDF 3.07 mECU. Cofinancing needed. Study on hand: MERTZ-McLENNAN (UK). Project stage: identification. 5th EDF.

Mpongwe development project, phase 2. Resp. Auth.: Ministry of Agriculture and Water Development. (M.A.W.D.) 3.712 mECU. To complete and develop existing project. Works, supplies and T.A. Project on appraisal. 5th EDF.

ZIMBABWE

Rural clinics. Resp. Auth.: Ministry of Health. 4.5 mECU. Construction and equipment of 64 rural clinics and 128 staff houses. Works: direct labour. Equipments: int. tender 2nd half 84. (Non associated dev. countries budget).

Rural water supply — accelerated programme for drought relief in Victoria Province. Resp. Auth.: Ministry of Water Re-

sources and Development. Total cost 3.9 mECU. EDF 2.5 mECU. EDF part: drilling and linings. Works: short-list done. Project in execution. 5th EDF.

Small holder Coffee and Fruit Development Programme. Resp. Auth.: Ministry of Lands, Resettlement and Rural Development. Estimated total cost 6.8 mECU. EDF 5 mECU, local 1.8 mECU. Project on appraisal. 5th EDF.

Overseas Countries and Territories (OCT)

ANGUILLA

Road Bay jetty and port facilities. Resp. Auth.: Gov. of Anguilla and British Development Division (Barbados). Estimated cost 0.700 mECU. Expertise for technical and economical appreciation and to prepare designs and tender documents. Short-list already drawn up. Project stage: identification. 5th EDF.

NETHERLANDS ANTILLES

Road improvement on Bonaire. Resp. Auth.: Departement voor Ontwikkelingssamenwerking. 1 mECU. Date financial decision April 84. 5th EDF.

★ **Curaçao slaughter-house.** Resp. Auth.: Departement voor Ontwikkelingssamenwerking, Willemstad, Curaçao. Estimated cost 3.45 mECU. Project on appraisal. 5th EDF.

FRENCH POLYNESIA

Tahiti territorial abattoir. Resp. Auth.: Service de l'Economie Rurale, Papeete (Tahiti). Secrétariat d'Etat des Départements et Territoires d'Outre-Mer, Délégation de la Polynésie Française, Paris. Cofinancing with France. Project on appraisal. 4th EDF.

Reafforestation project. Estimated cost 1.319 mECU. Caribbean pines for Marquises and Société Archipelago. Works by direct labour. Supplies by int. tender and T.A. by direct agreement. Project on appraisal. Date foreseen for financial decision July '84. 5th EDF.

NEW CALEDONIA

Reafforestation programme. Resp. Auth.: Territoire de la Nouvelle Calédonie des Eaux et Forêts. Estimated total cost 4.7 mECU. EDF part ± 3 mECU. Cofunding with France, CCCE (F) and Local. 3,000 ha plantation "Pin de Caraïbes" with all necessary infrastructure and investments. Project on appraisal. 5th EDF.

MAYOTTE

Mayotte Water Supply. Resp. Auth.: Collectivité territoriale de Mayotte. Direction de l'Agriculture. 4.280 mECU. Construction of a drinking water network. Works and supplies by int. tender. Date financial decision May 84. 4th and 5th EDF.

TURKS AND CAICOS ISLANDS

Transport study, North and Middle Caicos. Resp. Auth.: Public Works Department. Wallace Evans and Partners (UK). 5th EDF.

MONTERRAT

Water Supply Project. Resp. Auth.: Montserrat Water Authority and Ministry of Public Works. 1.1 mECU. Project planning: Short-list already drawn up. Project on appraisal. 4th and 5th EDF.

PACIFIC OCT

★ **Regional programme rural photovoltaic electrification.** Estimated total cost 4.150 mECU. EDF 2.884 mECU. T.A. by direct agreement. Supplies by int. tender. Project on appraisal. 5th EDF.

Regional Projects

O.C.A.M.

Extension of "Ecoles Inter-Etats d'Ingénieurs de l'Équipement Rural et des Techniciens Supérieurs de l'Hydraulique et de l'Équipement Rural (EIER-ETSHER). Resp. Auth.: EIER-ETSHER. 4.5 mECU. Date financial decision February '84. 5th EDF.

★ **Inter-state scientific school of veterinary medicine (EISMV), Dakar.** Resp. Auth.: EISMV Secretariat. 0.455 mECU. Construction work for a three-storey building, supply of equipment and supervision of works. Project on appraisal. Date foreseen for financial decision June 84. 5th EDF.

CONGO-GABON

Haut-Ivindo iron mine. Resp. Auth.: Ministère des Mines et de l'Énergie (Congo) — Ministère des Mines, et du pétrole (Gabon). EDF 7 mECU. Mapping, soil survey, borings. Study to be done. Int. tender (conditional) launched in July 83. Date foreseen for financial decision June 84. 5th EDF.

MEMBER COUNTRIES OF CEAO

ESITEX Segou (Mali). Resp. Auth.: CEAO Secretariat. Management training for textile industry. Complex construction in Segou. Supply of equipment. Project stage: identification. 5th EDF.

Ecole des Mines et de la géologie, Niamey. Resp. Auth.: CEAO Secretariat. Creation of a school for 350 students coming from CEAO countries. Estimated total cost 28 mECU. EDF 7 mECU. Cofundings with FAC-BAD-D. Works: prequalification launched in October 83. Date financial decision May 84. 5th EDF.

WESTERN AND CENTRAL AFRICAN COUNTRIES MEMBERS OF CONFERENCE MINISTERIELLE SUR LE TRANSPORT MARITIME

Académie régionale des Sciences et techniques de la mer in Abidjan. Resp. Auth.: Ministère de la Marine Ivory Coast. Estimated total cost 32 mECU. EDF part for pedagogical equipment 2 mECU. Int. tender (conditional) foreseen early 84. Works, T.A. and other equipments: BAD, Japan, Norway, UNDP, France and local. Date foreseen for financial decision 2nd half 84. 5th EDF.

GAMBIA — SENEGAL (O.M.V.G.)

Bridge barrage on the river Gambia. Resp. Auth.: Ministry of Works and Ministère des Travaux Publics. Estimated cost in 78: 60 mECU. Foreseen funding: F.R.G. 20 mECU. Canada 21.7 mECU, USA

11/22 mECU, Technical study: DHV-Rijks-waterstaat-Waterloopkundig Laboratorium Delft (NL). For Phase I - Phase II: Rhein-Ruhr (D). Project stage: identification. 5th EDF.

Agronomical study for the area concerned by the bridge barrage. Short-list already drawn up. 5th EDF.

GUYANA - SURINAM

Guyana - ferry-link. Resp. Auth.: Ministry of Public Works and Ministerie van Openbare Werken. Link ferry on Corentine river. Study on the way by C.A. Liburd and Ass. + Sescon Group (ACP). Project on appraisal. 4th EDF.

MEMBER COUNTRIES OF M.R.U. MANO RIVER UNION

Telecommunication and Postal Training Institute (TPTI) of the MRU. Resp. Auth.: MRU Secretariat in Freetown. Extensions, supplies and training. Estimated total cost 8.5 mECU. EDF 2.5 mECU. Project on appraisal. 5th EDF.

BENIN - IVORY COAST - NIGER - TOGO - UPPER VOLTA

Regional training centre for road maintenance in Lomé-Togo. (CERFER). Resp. Auth.: Secretariat CERFER. Training, T.A. and scholarships. Estimated total cost 0.900 mECU. Project stage identification. 3rd, 4th and 5th EDF.

RWANDA - ZAIRE

Methane gas from Lake Kivu. Resp. Auth.: CEPGL and Commission mixte de 2 pays. 2 stations with urea unit, compressed gas and methane. Int. tenders on the way. Project on appraisal. 5th EDF.

NIGER BASIN AUTHORITY

Protection and reforestation in the "Haut Bassin Versant du fleuve Niger in Guinea". Works, supplies and T.A. Estimated total cost 1.5 mECU. Project stage: identification. 5th EDF.

MEMBER COUNTRIES OF CIADFOR

Extension of A.N.F.P.P. (Agence Nationale de formation et de Perfectionnement Professionnels) in Libreville. Extension and modernization and new complex building in Oloumi. Project stage: identification. 5th EDF.

MEMBER COUNTRIES OF AATPO

Trade Promotion, African Association of Trade Promotion Organisations (AAR-PO). Resp. Auth.: Board of the Association in Tangier. 0.220 mECU. T.A. training and equipment. Date financial decision April 84. 5th EDF.

SENEGAL - GUINEA

Tambacounda-Labe road Resp. Auth.: Ministère des Travaux Publics. Upgrading and asphaltting of the road (455 km). Economic study: SONED (SE). Technical study to be done. Short list already drawn up. Project on appraisal. 4th EDF.

FRENCH SPEAKING AFRICAN AND INDIAN OCEAN ACP COUNTRIES

Ecole de statistiques d'Abidjan. Resp. Auth.: Ministère du Plan et de l'Industrie.

Total estimated cost 3.7 mECU. EDF 2 mECU. Ivory Coast 1.7 mECU. Construction and equipments. Architectural study: Bureaux DLM. Architects and Cabinet AR-CAUD (ACP). Date financial decision December 83. 4th EDF.

WESTERN SAMOA - FIJI - SOLOMON - KIRIBATI - TUVALU - PAPUA NEW GUINEA - TONGA - VANUATU

Renewable energy development project in the South Pacific. Resp. Auth.: SPEC (South Pacific Bureau for Economic Cooperation). 6.2 mECU. Creation of pilot units for ocean energy, gas, small stations 25 kW fed with wood waste. Photovoltaic generators 20 kW and wind-generators 15 kW. Prefaisibility study on the way: LAHMEYER and DORNIER (D). Works, supply and T.A. Supplies: int. tender 2nd half 1984. T.A.: restr. tender short-list done. Project in execution. 5th EDF.

TOGO - MALI - UPPER VOLTA - NIGER - CHAD

Agricultural products regional transit centre, in the Lomé port. Resp. Auth.: Ministère du Plan. Estimated total 7 mECU with cofunding. Technical and economic feasibility study: Bureau SATEC (F). Project stage: identification. 4th and 5th EDF.

SOUTHERN AFRICA

Foot-and-mouth disease prevention. Resp. Auth.: Development Committee. Study to be done: Feasibility. Short-list already drawn up. Project stage: identification. 4th EDF.

PACIFIC ACP COUNTRIES

Forum Fisheries Agency Headquarters. Resp. Auth.: South Pacific Bureau for Economic Cooperation (SPEC). 0.650 mECU. Creation of an international fisheries resources management agency. Works by acc. tender. Supply of equipment restr. tender. Supply of computer and data processing equipment, int. tender. Project in execution. 4th and 5th EDF.

SENEGAL - MAURITANIA - MALI NIGER - UPPER VOLTA

Environmental conservation in Sahel countries. Resp. Auth.: Governments of the 5 countries. Exploitation of existing boreholes for SE - Support for reforestation programmes for MAU - Support for reforestation and savings on fuel wood for MA. Establishment of a forestry fund for NI - Promotion of village tree-planting schemes on the Mossi plateau for U.V. T.A. by direct agreement only for SE. Other actions by direct labour. Date financial decision December '83. Special programme hunger.

MEMBER COUNTRIES OF CEAO AND CILSS

Construction of Centre Régional d'Energie Solaire (CRES) in Bamako, Mali. Estimated total cost 30 mECU. EDF part. 2.270 mECU. T.A. and equipment. Date financial decision October '83. 5th EDF.

MEMBER COUNTRIES OF CILLS

Provisional survey of natural renewable resources in the Sahel. Resp. Auth.: CILLS Secretariat. Estimated cost 6 mECU. EDF

±1.5 mECU. Setting up of an observation unit to forecast crop production. Remote sensing by satellite, air survey and ground control. Project stage: identification. 5th EDF.

Project to improve the means of monitoring on a permanent basis agricultural production and stock-raising. Resp. Auth.: CILLS secretariat. ±3.130 mECU. Studies for means to produce, collect and treat agricultural production and stock-raising data. T.A., vehicles and data collecting and processing equipment. Date financial decision April '84. 4th and 5th EDF.

Millet, maize, sorghum and niébé project. Resp. Auth.: CILLS Secretariat. Estimated 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.

Setting up of a system to estimate cereal stocks in private hands. Resp. Auth.: CILLS Secretariat. Estimated cost 1 mECU. EDF 0.5 mECU FAC 0.5 mECU. Creation of a system to monitor permanently the global availability of food stocks. T.A. and equipment. Project stage: identification. 5th EDF.

Fight against drought in the Sahel. Resp. Auth.: CILLS Secretariat. Estimated cost 1 mECU. T.A. and experts for the CILLS Executif Secretariat. Project stage: identification. 5th EDF.

Regional coordination of food production and distribution of improved cooking stoves. Resp. Auth.: CILLS Secretariat. Studies on food marketing, pricing and trading. Studies and aids for improved cooking stoves distribution. Estimated cost 0.276 mECU. Project stage: identification. 5th EDF.

AFRICAN ACP COUNTRIES

★ **T.A. for statistical training to the Training Centres associated in the "Programme de formation statistique pour l'Afrique" (P.F.S.A.).** 0.925 mECU. T.A., training, seminars and supply of equipment. Project on appraisal. Date foreseen for financial decision July 84. 5th EDF.

SAHARIAN PERIPHERY

Characterization by remote sensing of the dynamics of the desertification in the Saharian periphery. 2 mECU. 1st part.: Purchase and installation of the equipment. First data processing and distribution. 2nd part: Research and Development operations. Execution in Europe with local missions. Contracts by direct agreement. Regional coordination in Europe: CRC in Ispra. National coordination in Europe: représentants from each european organization or institute. ESA participation for the Maspalomas station and of Instituts and Organizations for the Research from the 10 countries Members of the EC. Date financial decision December '83. Special programme hunger.

MEMBER COUNTRIES OF U.A.P.T.

Satellite telecommunications project. Resp. Auth.: U.A.P.T. Secretariat in Brazzaville. R.P.C. Parametric study on the way by national organisations of I, UK, F and D. Project stage: identification. 5th EDF.

EASTERN AFRICA 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-room, offices and housing. Project stage: identification. 5th EDF.

INDIAN OCEAN ACP COUNTRIES

Assistance for training, research and T.A. 1 mECU. Training, seminars, studies, T.A. for the "C.O.I." Commission de l'Océan Indien. Comores, Madagascar, Mauritius, Seychelles. Date financial decision May 84. 5th EDF.

DJIBOUTI-ETHIOPIA

Djibouti-Ethiopia Railways. Phase II. Resp. Auth.: CFDE (Compagnie du Chemin de Fer Djibouti-Ethiopie). Estimated total cost 28 mECU EDF 15 mECU, France 13 mECU. Supply of rails, wagons and equipment. Int. tender foreseen in June or July 84. Project on appraisal. Date foreseen for financial decision June 84. 5th EDF.

GAMBIA — SENEGAL

Ndama production research. Estimated total cost 13.620 mECU. EDF 2.5 mECU other sources ODA, Af.D.B. FAO. Research project to be implemented by ILRAD-ILCA (International Livestock Centre for Africa and International Laboratory for Research on Animal diseases). Supplies, T.A. and training. Project on appraisal. Date foreseen for financial decision July 84. 5th EDF.

TANZANIA AND SADCC

Regional Rinderpest Control Programme. Resp. Auth.: Ministry of Livestock-veterinary Services Department. 4.3 mECU. Purchase of 27 four-wheel drive vehicles, 30 lorries (7 ton), vaccines, veterinary and laboratory equipment, camping equipment, T.A. Date financial decision May 84. 5th EDF.

28 AFRICAN COUNTRIES

★ **Pan-African campaign against Rinderpest.** Resp. Auth.: OUA and IBAR. Estimated total cost for 1st year 53 mECU. Supply of equipment and T.A. Project on appraisal. 5th EDF.

SWAZILAND — LESOTHO

Matsapha Airport. Construction of a control tower, equipment and T.A. Estimated total cost: 31 mECU. EDF 2.1 mECU. Int. tender foreseen in 84. EDF part: date foreseen for financial decision 2nd half 84. Project in execution. 5th EDF.

BOTSWANA — LESOTHO — MALAWI — SWAZILAND

Multi-country post-telecommunication training scheme. Resp. Auth.: Postmaster general of 4 countries. 1.2 mECU. Training and supply of equipment. T.A. managed by I.T.U. Supplies: int. tender. Project on appraisal. Date foreseen for financial decision July 84. 5th EDF.

MEMBER COUNTRIES OF CARICOM

Development of the regional trade promotion services in the Caribbean region. Resp. Auth.: Caricom Secretariat.

1.8 mECU. T.A. project. Contract: short-list already drawn up. 5th EDF.

Assistance to Caribbean Agricultural Research and Development Institute (CARDI). Resp. Auth.: CARDI Secretariat. EDF part 3.035 mECU. T.A. equipment and training. T.A.: Short-list already drawn up. 5th EDF.

Regional hotel trade school in St Lucia. Resp. Auth.: Caricom Secretariat. Estimated total cost 0.900 mECU. EDF 0.200 mECU. Work financed locally. EDF part: supply of pedagogical equipment, furniture and 1 vehicle. Project on appraisal. 5th EDF.

Regional marketing of agricultural inputs. Resp. Auth.: Caribbean Food Corporation. (CFC). 2.3 mECU. Supply of fertilizers and seeds. Works and equipments. Supplies: int. tender in 84. Project in execution. T.A.: Short-list already drawn up. 5th EDF.

Research development in the Caribbean region. (CTRC). Resp. Auth.: Caricom Secretariat 4.100 mECU. T.A. marketing and tourism promotion. Project in execution. Training: U.W.I. (Jamaica). 5th EDF.

Regional tourism promotion study. Resp. Auth.: Caricom Secretariat. Caribbean Tourist Association. 0.800 mECU. Steigenberger Consulting (D). Project in execution. 5th EDF.

Assistance for Point-Salines International Airport-Grenada. Resp. Auth.: Caricom Secretariat and Grenada Int. Airport Authority. EDF part 1.740 mECU, T.A. and supply of radio and electronic navigational equipment. T.A. by direct agreement. Equipment by int. tender. Date foreseen for financial decision 2nd half '84. 5th EDF.

T.A. to the Caricom Secretariat. Training. T.A. and supply of equipment. 0.650 mECU. Date financial decision March 84. 5th EDF.

University of the West Indies. Resp. Auth.: Caricom Secretariat and Ministries of the Countries members of CARICOM. Works, supply of pedagogical equipment, training and T.A. 10.437 mECU. Date financial decision January 84. 5th EDF.

LIAT phase II. (Leeward Island Air Transport). Resp. Auth.: C.D.B. Estimated total cost 26 mECU. EDF 16 mECU. E.I.B. 10 mECU. Supply of 4 aircrafts ±50 seats each. Date financial decision February '84. 5th EDF.

MEDITERRANEAN COUNTRIES

ALGERIA

Training of technicians for rural development and hydraulics. Resp. Auth.: Ministère de l'Agriculture. 1.440 mECU. T.A. and training. For T.A.: X-TRA (B), AAB (D), AGROTEC (I) SATEC (F). Project in execution.

EGYPT

Soil improvement programme in Kafrel-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 Kafrel-Sheikh Governorate. Short-list already drawn up. Project in execution.

Improved of agricultural input storage facilities in the Daqhalia Governorate. Resp. Auth.: Principal Bank for Development and Agricultural Credit. EEC Contribution 6 mECU. Construction of 13 new ware houses on prefabricated steel of 1 700 m² each providing a total capacity of 27 000 T. Works: int. tender foreseen in 2nd half '84.

Egyptian Renewable Energy Development Organisation. EREDO. Resp. Auth.: Egyptian Government. Estimated total cost 10.741 mECU. EEC contribution 7.7 mECU. Construction and equipment for the centre. Works and supplies: int. tender in '84. T.A.: Short-list already drawn up.

Feasibility study for Thermal Power Station at Kureimat. Resp. Auth.: Egyptian Electricity Authority. Study for a 1200 MW thermal power station. Estimated cost 2 mECU. Project on appraisal. Date foreseen for financial decision 2nd half 84.

University Cooperation. Resp. Auth.: Academy of Sciences, Cairo University and Suez Canal University. Estimated cost 4.7 mECU. Cooperation with Liverpool University in the field of Marine biology, with Gent University for artemia cultivation and with Netherlands Kanker Instituut for cancer therapy. Project on appraisal. Date foreseen for financial decision 2nd half 84.

★ **Export Promotion.** Resp. Auth.: Egypt Export Promotion Company (EEPC). T.A. to the EEPC. 0.920 mECU. Project on appraisal.

★ **Sinai Water Resources Study.** Resp. Auth.: Water Resources Centre (WRC). 3 mECU. Soil prospection and investigations. Project on appraisal.

JORDAN

2 Trade Training Centres (TTC). Resp. Auth.: National Planning Council (NPC) and Vocational Training Corporation. Cost estimate 1.2 mECU for EEC. The TTCs offer apprenticeship in cooperation with local trade and industry. One TTC for about 400 boys at Zarqa. One TTC for about 400 girls in Amman. Buildings to be financed by Jordan. Training and TA programmes also. Study to identify and define project, TEMA Consultant (I). Supply: int. tender for Zarqa launched February '82. Project in execution. Int. tender for Amman foreseen 2nd half 84 (conditional).

Secondary Industrial School at Madaba. Resp. Auth.: Ministry of Education (M.O.E.) EEC part 1.6 mECU. Supply of pedagogical equipment and T.A. Supplies by int. tender. Date foreseen for financial decision 2nd half 84. T.A.: Short-list already drawn up.

LEBANON

Industrial planning and industrial census. Resp. Auth.: Ministère de l'Industrie. 0.518 mECU. Foreign expert to supervise local experts for census. Mission in Lebanon 2 months EEC contribution covers all expenses for foreign expert and ±50% of total cost of the project. Project on appraisal.

Aid for the Union Nationale de Crédit Coopératif (UNCC). 1.4 mECU. Line of credit to the UNCC and T.A. T.A.: Short-list already drawn up.

Document automatization for the **Chambre de Commerce et de l'Industrie de Beyrouth (CCIB)**. Resp. Auth.: C.C.I.B. 0.24 mECU. Supply and T.A. For equipment int. tender in '84. T.A.: M. Savitsky (F).

MOROCCO

Interventions for Laboratoire de Technologie des céréales de Rabat. Resp. Auth.: Ministère de l'Agriculture. 0.790 mECU. Equipment, T.A. and training. Supply by restr. tender or direct agreement. T.A.: short-list already drawn up.

Reabsorption of Salé "bidonville". Resp. Auth.: Ministre de l'Habitat. Estimated total cost 30.6 mECU. EEC part 18 mECU, local 15.5 mECU. Water, roofs infrastructure, sanitation, electricity, sewage works. Int. tender launched in March 84. Date financial decision March 84.

TUNISIA

Participation to create 3 Training Vocational Centres: in Nabeul, Menzel-Bourguiba, Zaghuan. Resp. Auth.: O.T.T.E.E.F.P. (Office des Travailleurs Tunisiens à l'Etranger de l'Emploi et de la Formation Professionnelle.) EEC Contribution 3.870 mECU. Supply of equipment, T.A. and training. Supplies: int. tender for Nabeul foreseen in 2nd half '84. T.A.: A.A.B. (D).

SYRIA

ISSAT. Institut Supérieur des Sciences Appliquées et de Technologie. Resp. Auth.: State Planning Commission. Estimated total cost 22.2 mECU. EEC part: supply of teaching and training equipment for the institute. Project on appraisal.

Non-associated developing countries

ANGOLA

Repatriates project. Cofinanced with UNICEF. 2 mECU. Date financial decision April '84.

MOZAMBIQUE

Potatoes seed production project. Resp. Auth.: Ministry of Agriculture. 7.100 mECU. Works, supplies, equipments, training and T.A. Supplies: int. tender. Project in execution. Technical study: K.W.S. (D).

BANGLADESH

Tea rehabilitation project. Resp. Auth.: Bangladesh Tea Board (BTB). EEC 6.6 mECU, UK and Local 55.68 mECU. Purchase of machinery for tea factories. Call for quotation in EEC member states and Indian subcontinent launched in April 84.

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, 2nd half '84.

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.

Supply of fertilizers. Resp. Auth.: BADC. EEC 15 mECU. Int. tender launched in June 84.

Bhola irrigation project. Resp. Auth.: Bangladesh Water Development Board (BWDB). Estimated total cost 44.4 mECU. EEC 3 mECU. Parallel cofunding with A.D.B. (Asian Dev. Bank). Works, equipment and supply of vehicles, pumps and fuel. T.A. and training. Project in execution.

Food grain production and storage. Resp. Auth.: BADC. 7 mECU. Purchase of phosphate fertilizers (TSP) by int. tender launched in June 84. Date financial decision December '83. Special programme hunger.

Improvement of Grain Storage. Resp. Auth.: Ministry of Food. 7 mECU. Works by direct labour or acc. tender. T.A. and training by direct agreement. Date financial decision April 84.

Cereal Seeds II. Resp. Auth.: BADC. 17 mECU. EEC 10 mECU. Germany 7 mECU. Works, supplies, storages, T.A. Project on appraisal. Date foreseen for financial decision June 84.

BHUTAN

Plant protection services. Resp. Auth.: Ministry of Development (Agricultural Department). 3.4 mECU. Building of laboratories, equipments training and T.A. Works: acc. tender. Supplies: int. tender or direct agreement. Project in execution.

BURMA

Palm oil development. Resp. Auth.: Ministry of Agriculture and Forest. Estimated cost: 16.3 mECU. Financing: EEC 4.9 mECU. Switzerland and local 11.4 mECU. Expanding production for domestic consumption. Supplies and T.A. Supply: int. tender in 84. I.R.H.O. (F).

Rural water supply and sanitation outside the dry zone. Resp. Auth.: Ministry of Agriculture and Forests and Ministry of Health. Estimated total cost 11.5 mECU. EEC part 2.5 mECU. Germany and Canada via Unicef 1.68 mECU and 0.850 mECU. Local 6.470 mECU. Works and supply of equipment for wells. Works by direct labour supplies by int. tender and direct agreement. Date financial decision December 83.

INDONESIA

Baturraden Dairy Development. Resp. Auth.: D.G. for livestock services. Estimated cost: 8.385 mECU. EEC 4.4 mECU, Italy 0.410 mECU. Construction, infrastructure, supply of equipment, T.A. Works and supplies: int. tender 2nd half '84. T.A.: IFA-GRARIA (I).

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 scheme, establishment of a water-management training centre, and establishment of climatological stations. T.A. Works: acc. tender.

T.A. to Bank Indonesia for SEDP II. Resp. Auth.: Bank Indonesia. Total estimated cost 12.5 mECU. EEC 8.3 mECU. Local 4.2 mECU. Expatriates and local consultants. T.A. and training in Bank Indonesia regional offices to implement Bank's large ongoing programme of small-scale credits. Consultants will be contracted by Bank Indonesia, after approval by the Commission, on the basis of tender or mutual agreement procedures. Project in execution.

Pilot Project for Artisanal Fisheries in East Java. Resp. Auth.: Directorate General of Fisheries (DGF). Total cost 4.880 mECU. Parallel cofinancing with Italy. EEC 3.178 mECU. Italy 0.876 mECU, Local 0.826 mECU. Works, equipment and supplies. Works by direct labour. Supplies: int. tender and direct agreement. Supply of refrigeration equipment: Italy. T.A.: direct agreement. Project in execution.

Madura groundwater development. Resp. Auth.: Ministry of Public Works. DG for Water Resources Dev. Total cost 19.3 mECU. EEC part 13.10 mECU, U.K. 2 mECU, Local 4.2 mECU. EEC part: supply of pumps, drilling equipment, vehicles, casing and screening and local T.A. U.K. part: expatriate T.A. Supplies: int. tender.

West Pasaman Irrigation Project. Resp. Auth.: Ministry of Public Works. DG for Water Resources Dev. 7.5 mECU. Date financial decision February '84.

INDIA

Pilot project for village trout fish farming in Jammu and Kashmir. Resp. Auth.: Department of Fisheries of Jammu and Kashmir. EEC 1 mECU. Local 0.370 mECU. Works, equipment, T.A. and training. Works by direct labour or acc. tender. Supplies: restr. tender with specialized companies. T.A.: direct agreement after short-list. Project in execution.

State Centres for training for rural Development. Resp. Auth.: Ministry of Rural Development (MRD). Construction improvements and supply of equipment for centres in 22 states. EEC part 6.5 mECU. Works and supplies by acc. tenders. Project in execution.

Modernisation of tank irrigation systems in Tamil Nadu. Resp. Auth.: Public Works Department (P.W.D.) and Agricultural Department of the State government of Tamil Nadu. EEC part 25 mECU. Works by direct labour or acc. tenders. Supplies by acc. tenders. Project in execution.

Supply of fertilizers. Resp. Auth.: Minerals and Metal Trading Corporation of India (MMTC). Purchase of 230 000t of urea by int. tender launched in May 84. Project on appraisal. 32.750 mECU. Date foreseen for financial decision June 84.

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: int. tender after prequalification. Works and supplies in 84.

Baluchistan Water Supply Programme, phase II. Resp. Auth.: Baluchistan Integrated Area Development Programme (BIAD). Estimated total cost 13.20 mECU.

EEC 7.80 mECU. UNICEF 1.88 mECU. Local 3.52 mECU. EEC part: civil works, materials, vehicles and training. UNICEF will manage EEC contribution. Supplies for EEC part by int. tender. Contracts by direct agreements. Project in execution.

NEPAL

Rural water supply and health infrastructure. Resp. Auth.: MPLD (Ministry of Panchayat and Local Development) and DWSS (Department of water supply and sewage). 4.8 mECU. EEC 3.7 mECU Local 1.1 mECU. Supply of equipment (pipes, tubes, manual-pumps, vehicles) and T.A. Management by UNICEF for EEC contribution. Supplies: int. tender or direct agreement. Date foreseen for financial decision 2nd half 84.

Supply of fertilizers. Resp. Auth.: Agriculture Input Corporation (AIC). 5.3 mECU. Supply of composed fertilizers by int. tender launched in May 84.

Forestry development. Resp. Auth.: Ministry of Forest and Soil Conservation. Estimated total cost 33 mECU. EEC part 2.8 mECU (+5.3 mECU counterpart funds arising from the supply of fertilizers). I.D.A. 18.389 mECU, UK (O.D.A.) 0.385 mECU. Local 6.126 mECU. Reforestation and seed units. Construction of 2 training centres, supply of vehicles and equipments training and T.A. Buildings and vehicles: int. tender. EEC: T.A. for reforestation and a part of the local expenditures. Date financial decision December '83. Special programme hunger.

THAILAND

Cooperation training and marketing. Resp. Auth.: National Economic and Social Development Board (NESDB) and Bank for Agriculture and Agricultural Cooperation (BAAC). EEC 3.037 mECU. To provide training facilities for the personnel of agricultural cooperatives and equipment for cooperative marketing unit. Int. tender in '84 for supplies. T.A.: Clear unit (UK). Int. tender for audiovisual equipment launched in February 84.

Rubber smallholdings yield improvement. Resp. Auth.: Rubber Research Centre (RCC). Ministry of Agriculture and Cooperatives. EEC 1.8 mECU, Local 1.8 mECU. To introduce and popularize new tapping techniques to improve the yield of old rubber trees before their felling. TA: Harrison Fleming (UK). Tenders in '84.

Oilseed crop development programme. Resp. Auth.: Ministry of Agriculture — Oil seed Project Steering Committee. Total estimated cost 4.2 mECU. EEC 3.3 mECU. T.A. and supply of equipment. T.A.: Short-list not yet drawn up.

Agricultural credit project. Resp. Auth.: Bank for Agriculture and Agricultural Cooperatives (BAAC). Estimated total cost 125 mECU. EEC 20 mECU, As. Dev. Bank (ADB) ± 59 mECU, BAAC 46 mECU. Purchase of equipment, fertilizers, training and T.A. Supplies by int. tender, T.A. by direct agreement via EEC. Date financial decision December '83.

Cashew development, NE. Resp. Auth.: Ministry of Agriculture. EEC 1.3 mECU, local 0.620 mECU. Works, equipments and T.A. Date financial decision May 84.

THE PHILIPPINES

Palawan integrated area development. Resp. Auth.: National Council on Integrated Area Development (NACIAD). Total cost 78 mECU, EEC contribution 7.1 mECU, ADB 43.05 mECU and GOP 27.85 mECU. Small-scale irrigation works, agricultural intensification and diversification, livestock, transport development, health facilities, training and monitoring. Project duration 1982-1988. Works: partly int. tender, partly direct agreement or acc. tender. Supplies: int. tender or direct agreement. Administrative arrangements, excluding EEC int. tenders, concern full responsibility of ADB. T.A.: short-list already drawn up.

MALDIVES

Male water supply and Sanitation. Resp. Auth.: Maldives Water supply Agency (M.W.S.A.). Cofinanced with Saudi Fund and Germany. EEC part 1.7 mECU. Project on appraisal. Date foreseen for financial decision June 84.

SRI LANKA

Integrated Rural Development of System B (Zones 2 and 3) of the Accelerated Mahaweli Development Programme. Resp. Auth.: Mahaweli Authority of Sri Lanka. Estimated total cost 73 mECU. EEC participation 20 mECU, Saudi Fund 29 mECU, Local 24 mECU. Roads, tertiary irrigation, social and administrative infrastructure, land development, training and T.A. Supply of equipment and vehicles by int. tender. Works by acc. tender. T.A. and training by direct agreement. Date financial decision April 84.

ASEAN

Regional collaborative programme on grain post-harvest technology. Resp. Auth.: Sub-committee on Food Handling (SCFH). Cost 4.3 mECU. EEC 4.3 mECU. T.A., training and research. For supplies: int. tender or direct agreement to be determined. T.A. to be decided by S.C.F.H. Short-list not yet drawn up.

★ **Asean Timber Technology Centre (ATTC).** ATTC Secretariat. EEC 7.5 mECU for works, supply of equipment, T.A. and research programme. T.A. by direct agreement. Project on appraisal. Date foreseen for financial decision July 84.

LAOS

Water Supply. Cofinanced with Unicef. Estimated cost 0.800 mECU. Project on appraisal. Date foreseen for financial decision July '84.

DOMINICAN REPUBLIC

T.A. for agrarian reform and integrated rural development. Resp. Auth.: Instituto Agrario Dominicano (I.A.D.). Total cost 13.6 mECU, EEC 12 mECU, Local 1.6 mECU. Infrastructure, equipments, T.A. and training. Supplies: int. tender or acc. tender or direct agreement. Works: direct labour or acc. tender. T.A.: short-list already drawn up. Project in execution.

HAITI

Integrated rural development of Asile region. Présidence de la République. Estimated cost: 12 mECU. Foreseen financing:

EEC 5 mECU, IDB 7 mECU. Feeder roads, rural monitoring, irrigation, social infrastructure. Works by direct labour. Supply: int. tender in '84.

Integrated rural development of Jeremy region. Resp. Auth.: Présidence de la République. Total cost 7.4 mECU, EEC 6.6 mECU, Local 0.800 mECU. T.A. works, equipments and training. T.A.: contracts made by the Commission after government agreement. Supplies: int. tender. Works: direct labour. Project in execution.

Hydraulic support programme for the "mornes" and soil conservation. Resp. Auth.: Ministère de l'Agriculture. Micro-projects, training and T.A. Cofinanced with France. 2.23 mECU. Local 0.2 mECU. Supplies: int. tender or direct agreement. T.A.: direct agreement. Date financial decision December '83. Special programme hunger.

NICARAGUA

T.A. for agrarian reform and integrated rural development. Resp. Auth.: Ministerio de la Agricultura e de la Reforma Agraria (MIDINRA). Total cost 12 mECU. EEC 9.8 mECU. Local 2.2 mECU. Infrastructure, equipments and T.A. Equipments: int. tender. T.A.: short-list already drawn up. Project in execution. Int. tender for motorcycles launched in February 84.

Waslala regional development. Resp. Auth.: MIDINRA. Total cost 8.5 mECU. EEC 3.5 mECU. Local 5 mECU. Road infrastructure and social. Supply of agricultural equipment. T.A. Roads by direct labour. Supplies: launched in March 84. T.A.: AGRER (B). Works: direct labour or acc. tender. Project in execution. Int. tender for motorcycles launched in February 84.

Crop development. Resp. Auth.: Ministerio de la Agricultura e de la Reforma Agraria (MIDINRA). Total estimated cost 19.930 mECU. EEC 7.400 mECU. Studies, monitoring, training, supply of equipment and T.A. Supply: int. tender or acc. tender according to importance or urgency. Contract: CONSULINT (I). Project in execution.

NICARAGUA — HONDURAS

Bridges reconstruction. Resp. Auth.: Ministry of Public Works. 3.2 mECU. Reconstruction of 3 bridges. Works, T.A. and site supervision. Date foreseen for financial decision 2nd half 84.

BOLIVIA

Irrigation Programme Altiplano-Valles (Cochabamba). Resp. Auth.: Service National de Développement Communautaire (S.N.D.C.). Cost: 9 mECU. EEC 2 mECU, KFW (F.R.G.) 6 mECU, Local 1 mECU. Construction of small dams and irrigation canals. Works by direct labour.

Rural microprojects. Resp. Auth.: Corporation de Développement de Potosi (CORDEPO) and Corporation de Développement d'Oruro (CORDEOR). Total cost 18 mECU. EEC 16 mECU. Drinking water supply, roads, lines of credit, T.A., training. Works by direct labour or acc. tender. Supplies: int. tender launched in March 84. T.A.: direct agreement by CCE. Project in execution.

★ **Reconstruction programme.** Resp. Auth.: Servicio Nacional de Caminos (SNC) for the bridge. "Corporacion Regional de Desarrollo del Beni (CORDEBENI) for flood

control. Servicio Nacional de Meteorología e Hidrología (SENAMHI) for prevention and PHICAB programme. EEC contribution 3.4 mECU. Works and supplies. Project on appraisal. Date foreseen for financial decision July 84.

HONDURAS

T.A. for agrarian reform and integrated rural development. Resp. Auth.: Instituto Nacional Agrario (I.N.A.). Total cost 17.7 mECU. EEC 16.9 mECU. Local 0.8 mECU. Infrastructure, supplies, equipments and T.A. Works by direct labour or acc. tender. Supplies: int. tender or acc. tender or direct agreement. T.A.: BOOM (NL). Project in execution. Int. tender for vehicles launched in January 84.

Consolidation of the agrarian reform. Resp. Auth.: I.N.A. Estimated cost 9 mECU. Date financial decision February '84.

COUNTRIES MEMBERS OF PACTO ANDINO

Technical cooperation (industry and economical 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 Commission of EC.

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 Commission of EC and decision by the Junta.

Applied agricultural research (maize and corn). Resp. Auth.: CIMMYT (Centro Internacional de Mejoramiento Maiz y Trigo) Mexico — Decentralized actions in the andean region. Research and training. 2 mECU. Project in execution.

Regional project for industrial timber promotion. Resp. Auth.: Junta del Acuerdo de Cartagena. Total cost 12.610 mECU. EEC 6 mECU. Industrial promotion, vocational training, rural buildings and housing. T.A.- Works: direct labour or acc. tender. Supplies: int. tender or acc. tender or direct

agreement. T.A.: choice by the JUNAC on the basis of short-list proposed by CCE. Project in execution.

★ **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 on appraisal. Date foreseen for financial decision July 84.

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 financial decision 2nd half 84.

COSTA RICA

T.A. for agrarian reform and integrated rural development. Resp. Auth.: Ministerio de la Agricultura. Total cost 25.8 mECU. EEC 18 mECU. Local 7.8 mECU. Infrastructure, equipment and T.A. Works by direct labour or acc. tender. Supplies: int. tender or acc. tender or direct agreement. T.A.: SCET-AGRI (F). Project in execution.

PERU

Pilot project Majes. Irrigation. Resp. Auth.: Autoridad Autonoma del Proyecto MAJES (Autodema). Total cost 17 mECU. EEC 5.6 mECU, Italy 2 mECU, Local 9.4 mECU. Supply of equipment and inputs, T.A. and credit system. Project in execution.

Rural investments programme. (Micro-regions in Cusco). Resp. Auth.: Corporación Departamental de desarrollo de Cuzco (CORDECUZCO) and (PRODERM) Proyecto de Desarrollo Rural en Microregiones. EEC part 6 mECU. Works and supply of equipment for forestry, natural resources, infrastructures, monitoring and research. Works by direct labour or acc. tenders. Supplies by int. tenders or acc. tenders. Project in execution.

YEMEN ARAB REPUBLIC (YAR)

Seed production project. Resp. Auth.:

central Agricultural Research Station (CARS). Total cost 6.600 mECU. EEC 5.200 mECU. Construction of 5 centres, supply of equipment, T.A. and training. Works: acc. tender. Supplies: int. tender or direct agreement according to importance. T.A.: K.W.S. (D).

Dhamar Rehabilitation Project. Resp. Auth.: The Executive office for Reconstruction. EEC part 2.55 mECU. Supply of equipments and T.A. to support the self help house reconstruction effort after the earthquake of December 82. Project in execution.

Al Bayda integrated rural development. Resp. Auth.: Ministry of Agriculture and Rada integrated Rural Development Project Organization. EEC part 2.74 mECU. Improvement of crop and livestock production, road infrastructure and drinking water supplies. T.A. All by direct labour. T.A. by direct agreement. Project in execution.

YEMEN (PEOPLE'S DEMOCRATIC REPUBLIC)

Flood damage reconstruction Dhalla. Resp. Auth.: Ministry of Agriculture. Irrigation Department. 2.5 mECU. Reconstruction of flood damaged irrigation systems and open wells. Installation of flood-warning system. Supply of equipment. T.A. Equipment: int. tender launched end of March 84. T.A.: on proposal of the Commission after agreement by PDRY Government. Project in execution.

AFRICAN - LATIN AMERICAN AND ASIAN COUNTRIES

Fuel wood. Resp. Auth.: Commission of the European Communities. 2.7 mECU. a) Information and dissemination of knowledge. Seminars in Asia. b) Research and Development programme in Asia-Kenya: euphorbia. c) Technical support for national strategies, Niger, Rwanda, Burundi, Haiti and SADCC members. d) Nepal pilot scheme. Studies, T.A. Laboratory facilities, supplies. Studies and T.A. by direct agreements. Laboratories: AIT (Asian Institute of Technology in Bangkok) and CRA (Centre de Recherche Agronomique de Gembloux. Station de Technologie Forestière - B). Supplies: int. tender. Date financial decision December '83. Special programme hunger.

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.

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different schools of thought, within Meteorological Services or linguistic areas, but no comprehensive study exists that will enable us to gain a *continental perspective of climatic mechanisms and climates*.

The climate of tropical Africa happens, therefore, to fulfill an enormous deficiency in the meteorological and geographical understanding of the African continent.

The work is composed of two volumes:

An Atlas of 250 meteorological and climatic maps (size 31 × 46 cm). All the explanations and the legends of the maps are in French and English.

A text of 900 pages with 351 illustrations (size 22 × 30 cm).

The Atlas represents both the starting-point of observations through descriptive maps, and the results of the research through synthesis maps.

— 118 maps are devoted to aerological factors such as pressure and wind (surface, 1 000 metres, 850 mb/1 500 metres, 2 000 metres, 700 mb/3 000 metres, 500 mb/6 000 metres). 276 meridian and zonal cross-sections led to the construction of a three-dimensional structure of the tropical African troposphere; this «meteorological scene» provides an indispensable model for understanding climatic phenomena.

— 124 maps describe climatic elements, including mean relative humidity, rainfall (mean, number of days with rain and thunderstorms, rainfall regimes, dynamics of rainfall), temperature (mean, maximum, minimum, daily range, thermic regimes).

— 1 relief map, 4 maps of climatic synthesis and 3 network maps are included, which complete a whole based on all reliable observation data presently available in tropical Africa.

The text explains and makes use of the Atlas maps, and complements it, taking into account all scales of phenomena. It contains an introduction and four parts.

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René LENOIR — *Le Tiers monde peut se nourrir* (The Third World can feed itself) — Report to the Club of Rome — Preface by Edgard Pisani — Editions Fayard — 210 pages — 458 BF — 1984

“Technical engineering has enabled rivers to be dammed, mountains to be broken through, deserts to bloom and men to be sent to the moon. Political genius does not allow the feeding of 560 m hungry people. A great challenge to our science and conscience”.

René Lenoir is careful about magic words: develop, invest, teach etc. and more still the term “aid”. The Third World, he says, can feed itself if it bases its development on its cultural wealth and its unemployed workforce. He is talking about men and what mobilizes them rather than fertilizers and dams.

He takes us to the village level and shows us that, in communities at the grassroot level, capital and intellectual accumulations go hand in hand and are the motive force of development. This concrete approach, which is contrary to the usual way of looking at hunger in the world, constitutes the profound originality of this report to the Club of Rome.

In his preface, Edgard Pisani adds: “As the Commission of the European Communities emphasized in its Memorandum on Community development policy, the solutions—and René Lenoir is precise about this—are above all cultural and political. In fact, imitation of lifestyles, of imported food habits have created the conditions of economic imbalance. The peasant no longer finds a just income for his produce consumed in towns with dramatic population explosion. It is the town that imports and spreads feeding and new eating habits. It is after all through the affirmation of a cultural model and a different political will that one will be able to create the

elements of a new balance between production and consumption. The Western World must stop spreading, with its bags of wheat, milkpowder, tins of butter-oil, industrial bakeries, the instruments of a uniform food and cultural model which correspond in no way to the social, geographical and climatic realities of other countries, and which upset all their balances.”

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William ZARTMAN — *The Political Economy of Nigeria* — Praeger Publishers, CBS Educational and Professional Publishing, 521 Fifth Avenue, New York, N.Y. 10175, U.S.A. 236 pages — 1983

Published late last year, this book appears somewhat overtaken by events since the military took over the government in Nigeria on 31 December 1983. Zartman writes in the introduction: “Nigeria has been born again, the civil war is over, reconciliation has been accomplished, the military government has been withdrawn and the political life has been renewed”, enough to discourage many a reader. But this book is far from being about the defunct Second Republic. While it constantly refers to the political life of Nigeria from 1979-83, it is, in fact, an intelligent analysis of the permanent political and economic structures of Nigeria, whether governed by civilians or not. It delves into the past to reveal how these structures developed and evolved as Nigeria went through the experiences of colonialism, independence, political turmoil and civil war, military rule and the return (alas disappointing) of civilians to power.

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