

The Europe-South Dialogue in Practice

COMMISSION OF THE EUROPEAN COMMUNITIES



DOMINIQUE MAES



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Introduction

In 1984 the Commission of the European Communities published a dossier entitled The Europe-South dialogue which described the history, aims and instruments of the Community's development policy. This publication was up-dated in 1985 and 1988.

The Commission, wishing to illustrate this policy with concrete examples, has selected a number of operations financed by the Community in different parts of the world. These are presented in this second volume.

The Community has consistently supported the economic and social development of the poorer countries. In 1958 it set up the first European Development Fund for some 20 'overseas countries and territories' situated for the most part in Africa and linked by colonial ties with some of the countries of the Community. With the first enlargement this cooperation was gradually extended to the whole of Africa, the Caribbean, the Pacific, the southern and eastern Mediterranean, Asia and Latin America.

By the end of 1986, the Community had committed some twelve and a half thousand million ECU for development projects (not counting food aid and emergency aid) and spent nearly ten thousand million since 1958.

While Africa, where the Community has been involved since the end of the 1950s, provides a majority of the examples selected, these are drawn from countries in all six geographical areas and cover all sectors which are essential to their economic development.

Four sectors account for almost nine tenths of total Community commitments to date: rural development, including village water supplies, animal husbandry and fisheries; industry, together with energy, mining, tourism and trade; the 'social' sector – education, training and health; and transport and communications. Examples from this last sector have been included in the chapter on regional cooperation.

The operations described here were chosen because they have significantly improved the economic or social condition of those for whom they were intended and because they are representative of the Community's overseas development work. In presenting them an attempt has been made to explain their background, the measures taken and the results achieved.

Development takes time, and 10 operations begun in the 1960s or early 1970s have been included; they show that persistence pays dividends. The majority, however, were launched in the late 1970s and early 1980s, while a few are too recent to show more than partial results.

A number of these operations have been supported by other organizations as well as the Community: the World Bank, FAO, WHO, non-governmental organizations (NGOs), institutes of tropical medicine and agriculture. Their involvement in certain projects is mentioned but not described in detail in this brochure, which naturally concentrates on the Community's contribution.

This is not limited to the provision of funds. While the partner countries are responsible for the sectoral allocation of the resources placed at their disposal, and the involvement of local communities is always essential, the experts recruited by the Community and its own qualified staff have contributed in no small measure to the design and successful execution of many projects. The technical assistance they provide is as much a part of the Community's contribution as its financial support.

Rural development

Rural development in the broad sense has received a larger share of Community funds than any other sector: 31 % of all commitments up to the end of 1986, not counting food aid counterpart funds which are also used for operations in this area.

This is the result of a deliberate choice. The third Lomé Convention, which aims to encourage greater self-reliance in the developing countries, places special emphasis on agricultural and rural development; on the basis of the programmes negotiated with the ACP countries, this sector should attract on average 80 % of Lomé III project funds.

In Asia and Latin America Community development aid is not governed by a convention. It is based on a unilateral decision of the Twelve and governed by a regulation which confines its scope to rural development and regional cooperation.

Community aid to the Maghreb and Mashreq countries is more diversified because its cooperation agreements with them do not provide for concentration on one particular area. In practice, however, some of them, like Morocco and Tunisia, have devoted a substantial share of Community funds to agriculture and food production.

Overall, roughly two thirds of resources have been devoted to agricultural production. Up to 1975 the Community supported cash crops and food crops in almost equal proportions – 1.9 million hectares of cash crops and 1.8 million hectares of food crops were financed from the first three European Development Funds (EDF). More recently greater emphasis has been placed on food crops, but none the less the Community has financed the plantation or improvement of over half a million hectares of coffee, cocoa, tea and palm oil over the last 10 years.

Of the other sub-sectors, integrated projects and animal husbandry each accounted for about 10 % of total commitments in the rural sector from the fourth and fifth EDFs (1976–85), with fisheries and rural water supplies accounting for about 10 % between them. While integrated projects appeared on the scene in the mid-1970s, and fishery and livestock projects achieved prominence with the Lomé Conventions, rural water engineering has been a major area

of Community support from the outset (more than 5 500 water points were financed from the first three EDFs alone).

This chapter includes two examples of the use of food aid counterpart funds to finance rural development operations. It is perhaps worth recalling that, since 1970, the Community has been providing food aid on a regular annual basis to low-income food deficit countries which, so as not to discourage their own production, endeavour to use food aid sale proceeds to carry out development projects (from 1976 to 1985 Community expenditure on food aid amounted to some four thousand million ECU).

Cash crops

When Europeans discovered the tropics, they came across a number of exotic products of commercial value. The plants and trees which produced them were cultivated subsequently on a more systematic basis and in some cases introduced to tropical countries where they were previously unknown.

Today these products are referred to as cash crops since they provide an income for the producer countries. The main cash crops are coffee, tea, cocoa, bananas, groundnuts, vegetable oils, especially palm and coconut oil, sugar, tobacco, cotton, sisal, jute and rubber.

The developing countries' exports of primary products, whether agricultural or mineral, are sold on the world market with its attendant price fluctuations and economic risks.

A drop in output or in demand for their commodities is a serious threat to these countries' economies. As a way of overcoming this problem and ensuring a steadier income for the producer countries, the Community set up, in consultation with them, a system for the stabilization of export earnings from agricultural commodities, better known as Stabex.

Introduced in 1975, Stabex aims to guarantee stable earnings from exports by ACP States to (as a general rule) the Community of 49 agricultural commodities on which their economies depend and which are subject to fluctuations in price (drop in demand) or in quantity (drought, disease, etc.) or a combination of these two factors which are beyond the producer country's control.

To be eligible, a request for a Stabex transfer must relate to one of these 49 commodities, and the product in question must have accounted for at least 6 % of the producer country's total exports in the previous year (1.5 % for the least-developed countries). The drop in earnings must be at least 6 % (1.5 % for least-developed countries) of average earnings from exports to the Community during the previous four years.

Transfers take the form of grants for least-developed ACP countries and interest-free loans, repayable in certain circumstances, for the other ACP States.

For the period 1975-85 the Community transferred from Stabex funds a total of 1 200 million ECU to 49 ACP countries to cover losses on some 30 different agricultural commodities and iron ore (originally covered by Stabex, and subsequently put under Sysmin). Groundnuts, cocoa and coffee accounted for 64 % of the total amount transferred.

Stabex 1975-85

Products	Total transfers (in ECU)	Products	Total transfers (in ECU)
All groundnut products	333 780 778	Cashew nuts	11 458 241
Coffee	282 196 654	Raw hides and skins	10 006 845
All cocoa products	161 299 447	Vanilla	8 173 099
All cotton products	81 330 854	Sesame seeds	5 783 823
Iron ore	61 789 536	Cloves	5 212 874
All wood products	45 349 687	Karite nuts	1 937 603
Oil cake	45 303 777	Essential oils	1 510 469
All copra and coconut products	42 962 224	Mohair	1 290 959
Sisal	33 118 052	Gum arabic	848 489
Bananas	20 034 026	Prawns	710 289
All palm products	18 165 476	Nutmeg	637 851
Beans	17 838 522	Pyrethrum	608 802
Tea	17 243 689		

Grand total: 1 208 592 066

The value of the system has been proved beyond doubt. With each Convention the ACP States have requested and received an increase in the Stabex allocation: from 385 million ECU under Lomé I, this has risen to 925 million ECU under Lomé III. What is more, the Community has recently set up a similar system for the least-developed Latin American and Asian countries, which are not signatories to the Lomé Convention. Up to 50 million ECU is available for the period 1986-90 to cover the same products plus jute.

But however useful it is, Stabex is no more than a form of compensation. It cannot replace aid for production, essential for many ACP countries which have only commodities and external aid to finance their development. To diversify their economies and so become less vulnerable, to increase production in order to withstand competition, to protect crops against disease – to do all these things, the ACP countries need the Community's financial and technical assistance. Some of them have been receiving it for a quarter of a century. The three cases described here – tea in Rwanda, palm oil in Côte d'Ivoire and bananas in the Caribbean – illustrate what can be achieved with this assistance.



Rwanda: Tea – a second cash crop

Coffee used to be the country's only cash crop. Today, tea plays a major role in Rwanda's economy. First introduced into the country during the 1950s by a few private farmers, it covered only 200 hectares (ha). The green leaves were processed in factories in Zaire and Uganda.

After independence in 1962, the Rwandan Government, anxious to diversify agriculture through the addition of a second cash crop, undertook the systematic expansion

of tea-growing. In doing so, it hoped to strengthen the economy, promote rural development, increase small-holders' income and improve the services available to them. These objectives were written into the country's First Development Plan (1966-71) and reaffirmed in the Third Plan (1977-81).

Twenty-five years after the tea campaign was launched in Rwanda, indications are that the initial obstacles to its execution have been overcome, and that tea has become a national asset.

What were these obstacles? Rwanda's small size, heavy popula-

Tea plantation and factory, Rwanda



tion – Africa's densest – and scattered habitat, with dwellings usually in the middle of family fields, an arrangement which considerably reduces the land available for cultivation. And the fact that the country is landlocked. Rwanda's exports have to pass through Tanzania, Uganda and Kenya on their way to the sea. In the event of political conflicts or security problems, getting them to the ports of the Indian Ocean can be difficult.

On the other hand, the country possesses certain assets to set against these disadvantages. The right climate and soil; enough manpower, being so densely populated; and adaptable farmers, who can assimilate new techniques once their economic value has been explained to them. The development of tea-growing also owes much to the unwavering support given to the rural areas by the public authorities.

The Rwandan Government's policy of crop diversification has been supported, financially and technically, by the Community for 20 years. Starting with the first two feasibility studies, direct Community aid from the different European Development Funds (EDF) had come to some 22 million ECU by the end of 1983. The EEC financed four out of 10 tea factories, which provided that year 4607 tonnes (61%) of tea out of a global production of 7439 tonnes.

The tea consolidation project has led to an increase in jobs, cultivated land and foreign exchange earnings. Today, the area under tea has expanded from 200 ha in the early 1960s to 11000 ha of which 6454 ha are smallholder plantations. Production shows the same rising curve, from 430 tonnes in 1967 to 7480 tonnes in 1983, an average annual increase of 440 tonnes.

Villagers who wanted to grow tea on their family plots received initial technical support from the local offices of the Ministry of Agriculture. From 1972, they received additional support from the EDF within the framework of the special tea-growing extension project. Since the project was launched, the number of small tea-growers has risen steadily, from 3000 in 1976 to 31000 in 1984.

By 1984 there were nearly 2500 senior and middle-management staff,

including over 40 agronomists, supporting the project, along with 40 technicians, about 100 administrative staff and 600 village instructors. The EDF lent a hand by paying the salaries and overheads of the project's local supervisory staff. Rwanda has rightly given priority to training managerial and back-up staff, and encouraging their permanent presence in the field; their collective experience acquired over the years should guarantee that smallholder tea-growing will flourish in future without expatriate assistance.

Rwandan tea-growers have also set up cooperatives, open to anyone who contributes labour and capital (1000 Rwandan francs (RWF) per head).

The progress made in tea-growing has significantly reduced the economy's dependence on coffee. In 1967, tea contributed RWF 10.4 million to export earnings and constituted 1.8% of total exports. In 1980, tea earnings had risen to RWF 1187 million (17% of total exports), before dropping to 8.3% in 1983. But by 1985, export earnings were back up to RWF 1753 million (over 13% of total export revenue).

Today, tea is the main export crop in most of the regions where it is grown. Tea promotion and cultivation has brought economic development to whole regions in the north-east which were formerly uncultivated and unproductive.

Although the impact of the project is not easy to measure, it has undoubtedly improved the quality of life for tea-growers. With increased purchasing power and job security, they live today in houses built of durable materials instead of the traditional thatched huts. Better health, hygiene, clothing and education all point to a general rise in living standards in the country. ■

Côte d'Ivoire: Palm oil – the Palm Plans

Agriculture dominates the economy of Côte d'Ivoire (the Ivory Coast). Its agricultural surplus amounts to 25% of the country's GNP – the highest such ratio in the world. However, the preponderance of two

crops – cocoa and coffee, occupying between them over 40% of all arable land – made it very dependent on external markets and therefore vulnerable to commodity price fluctuations. In a bid to reduce its dependence on coffee and cocoa, the country has encouraged other crops.

The Palm Plan, launched in 1963, is a particularly good example of successful diversification, supplying the domestic market with oils and fats while at the same time providing home-processed products with locally added value for export. Over the years, the implementation of this vast programme, involving 80500 hectares of oil palm plantations, required substantial investment (120 million ECU in all) from several sources: 12 million ECU from Côte d'Ivoire itself, 35 million ECU from the World Bank, 13 million ECU from the Caisse Centrale de Coopération, and 59 million ECU from the European Community, provided partly in the form of European Investment Bank loans and partly from the EDF. In addition to the area under cultivation, a whole network of economic and social infra-



Fruit of the oil palm

structure, including eleven oil mills, was built up under this first Palm Plan.

Up to 1975, things worked out well. Between 1976 and 1980, production fell, as a result of legal and financial difficulties combined with bad weather. From 1980 onwards, however, the situation improved and Côte d'Ivoire emerged as Africa's leading palm oil producer and the third world's largest exporter of palm oil.

The Second Palm Plan

The 1980-85 Ivorian five-year development plan gave priority to agriculture, stressing the need for greater self-sufficiency in food and the need to diversify exports. Palm oil, which helps to meet both requirements, was back in the limelight. Since independence, the consumption of edible oils and fats had increased rapidly. It was expected that domestic demand would continue to grow and that therefore if the older plots (55% of all plantations) were not replanted and new ones added, the country would be importing 250 000 tonnes by the year 2000. This analysis led to the Second Palm Plan, under which 60 000 ha of ageing plantations are to be replanted and an additional 35 000 ha are to be newly planted with oil palm trees by the year 1990.

In support of this second plan, the Community approved a project in 1984 to help the country maintain its production potential and ensure self-sufficiency in oils and fats in the coming years.

This project, financed solely by the EDF and the Fonds ivoirien d'extension et de renouvellement (FER), was to plant 12 517 ha with oil palms during the first three years of the Second Palm Plan. Both large estates and village plantations were concerned. In the first category, it was planned to replant 4 817 ha of fields where it was becoming increasingly difficult to reach the top of the trees, and where production was falling; and 1 000 ha of new plantations were to be added. In the second category, 3 000 ha of village plantations were to be replanted, and another 3 700 ha were to be planted with oil palms for



dustrie, the State company responsible for the operation, had to intervene and deal with this delicate problem case by case.

New plantations, on the other hand, exceeded all expectations. Oil palm estates were extended by 1 676 ha, against 1 000 ha planned. But it was the small planters who broke all records: between them they planted a total of 10 739 ha against the expected 3 700, despite the fact that selection of planters by Palmindustrie was extremely strict.



Côte d'Ivoire: 100 000 hectares of oil palm trees, half of them on industrial estates

the first time. Individual fields had to be within 20 km of an oil mill, less than 20 metres from a motorable track and near other planters.

This phase cost 17.1 million ECU, of which 10.3 million were provided by the EDF. It achieved considerably more than the initial target (12 517 ha). At the end of three years, there were 15 594 ha of new plantations of excellent quality.

Replanting of ageing palms, both on estates and village plots, was carried out slightly later than planned, as tree yields declined more slowly than expected; and, many of the planters, not being local, were afraid of losing the land they had been cultivating once the old trees were cut down and replaced. Palmin-

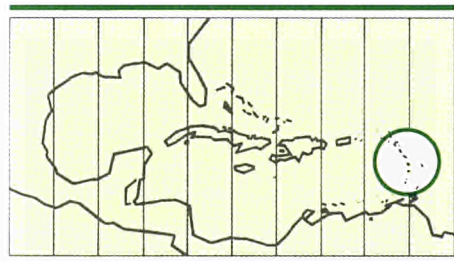
The popularity of this crop among people living in the vicinity of large agro-industrial estates is understandable: not only does it pay well, it pays all the year round, unlike coffee and cocoa which bring in money once a year. Palmindustrie pays the farmers every month for their produce, which has led them to say that they have become 'civil servants'. The enthusiasm of the planters, coupled with the calibre and strength of the management, augur well for the success of the Palm Plan, especially the village plantations. ■

Caribbean: Bananas – Moko disease

Bananas are a major crop in each of the Eastern Caribbean countries of Dominica, St Lucia, St Vincent and Grenada. It is estimated that the livelihood of 30-40 % of their inhabitants depends partly or wholly on banana production, a key source of export earnings.

Bananas constitute 44 % of total agricultural exports for Dominica, 42 % for St Lucia, 24 % for St Vincent and 18 % for Grenada. The United Kingdom is their principal market; in 1986, exports to the UK brought in some 80 million ECU.

But for some years now, the banana crop has been threatened by a bacterial disease known as moko disease which causes yellowing and wilting of the leaves, rotting of the fruit pulp of bearing plants and, later, leads to tree death. Since there is no known cure, stricken plants must be destroyed immediately to prevent the disease from spreading.



On the island of Grenada, moko was first discovered in 1978, long after it had devastated plantations in nearby Trinidad. In 1983, it was observed in Carriacou, a small island to the north of Grenada, and its potential for spreading to other Caribbean islands now threatens the economic welfare of thousands of islanders whose incomes depend on the cultivation of bananas.

Since 1982 the EEC has been supporting efforts to control moko disease with a 1.5 million ECU research and prevention project. The project is being financed from regional funds and its main objective is to prevent moko from spreading to St Vincent, St Lucia and Dominica.

Moko disease had seriously threatened the viability of the highly developed banana industries of Central America in the 1960s. Research there had identified several strains of

the causative bacterium and had shown that the disease is spread on contaminated hand tools, by the use of infected suckers as planting material, by root-to-root contact in the soil and, for one bacterial strain, also by insects. Because affected plants cannot be cured and because there are no known moko-resistant banana varieties, control strategies were developed which aimed at eliminating infected plants and so preventing further disease spread.

Research by project staff in collaboration with scientists from The Windward Islands Banana Growers' Association (Winban), the implementing agency for the project, has been directed towards applying and adapting the control strategies developed for plantations in Central America to the Caribbean situation in which bananas are produced mostly by smallholders, often on rugged hillsides. The bacterial strain affecting Grenada was identified;



Grenada: Moko-diseased bananas

improved techniques for poisoning and killing affected plants which did not release moko bacteria into the environment were tested and developed; and weeds and other plants which harbour the disease were investigated.

On the prevention front, in Grenada several eradication teams were trained in disease recognition and went into action destroying affected plants so as to minimize further disease spread. The successful control of moko demands the active cooperation of farmers in reporting disease and in understanding the strategies being used; campaigns were organized, including regular radio programmes, which brought home the threat of moko to farmers' livelihood and helped all concerned in the recognition of the disease symptoms.

Once contaminated trees have been destroyed, new bananas should not be planted for at least 12 months. The loss of revenue is a serious concern to banana growers and, initially, many showed resentment to the destruction of their affected trees and especially to the necessary destruction of the apparently healthy trees in the immediate vicinity. The supply of planting materials of alternative short-term cash crops by the

project and of cash compensation for the loss of apparently healthy trees destroyed (from funds provided by Winban and the government of Grenada) is reducing this resentment and is greatly improving farmer cooperation.

Other key aspects of the project are in strengthening the inter-island quarantine services to try to intercept the accidental introduction of moko on bananas or other infected plants, in creating a sense of moko awareness and preparedness in the unaffected islands, and in establishing nurseries in Grenada for the provision of moko-free plants to replace those destroyed earlier by moko.

All of these activities are directed by a steering committee chaired by Winban, comprising representatives from the Ministries of Agriculture and the Banana Cooperative Associations of the islands concerned, and are being paid for by the Community until mid-1988. After this time, the regional preparedness and research programmes will be taken over by Winban and all aspects of disease control in Grenada will be managed by the Grenada Banana Cooperative Society.

These combined efforts have succeeded in checking moko spread.

The disease has not moved further northward from its 1983 position in Carriacou. Grenada is learning to live and to cope with moko; disease losses which gradually increased from about 1 500 cases per month in 1983 to 2 500 per month in late-1986/early-1987 are now showing a significant decline, despite some continuing moko spread into new areas of the island. The Community-financed programme aims to reduce incidence to 1 000 cases per month by mid-1988 so that the disease control costs will be an acceptable burden to the banana industry and the governments of the region who will be providing funds from then on.

Uncontrolled moko spread in the Eastern Caribbean would have a disastrous effect on the regional economy. Plans are proceeding to introduce other crops and to diversify agriculture in an attempt to reduce the rural sector's dependence on bananas, but this requires long-term planning and cannot be done overnight. Constant vigilance against further moko spread within the region and tight control of the disease in those islands where it is already established will continue to be of vital importance to the banana industry for a long time to come. ■

Food crops

Thirty years ago the vast majority of African countries were self-sufficient in food. In 1974, according to the FAO, African countries between them imported 7 million tonnes of cereals. In 1986, they imported nearly 18 million tonnes. Of that quantity about 40 % was provided as food aid; the rest had to be bought on the international grains market. Much of what they earn from cash crops is now spent on food imports.

This regrettable situation seems absurd in a continent which is three times the size of Europe and has a smaller population. Even allowing for the fact that large parts of Africa are desert or semi-desert, it seems illogical that cities like Lagos or Kinshasa should have to import shiploads of cereals every year when they have fertile hinterlands.

The rapid growth of African towns in the last quarter of a century (sub-Saharan Africa had 20 million town dwellers in 1950 and 100 million in 1980) is perhaps the biggest single factor in Africa's food crisis. In 1966 there were three cities on the African continent with over one million inhabitants; in 1986 there were 28 and by the year 2000 there will be 36! Increasing numbers of town dwellers, with no garden or vegetable plots and little time to prepare and cook meals, are changing to a diet based on wheat and rice, which are easier and quicker to prepare than maize, millet or manioc. Many of them now prefer the taste of these imported cereals. Government subsidies on wheat and rice have further increased the attraction of such 'foreign foods'.

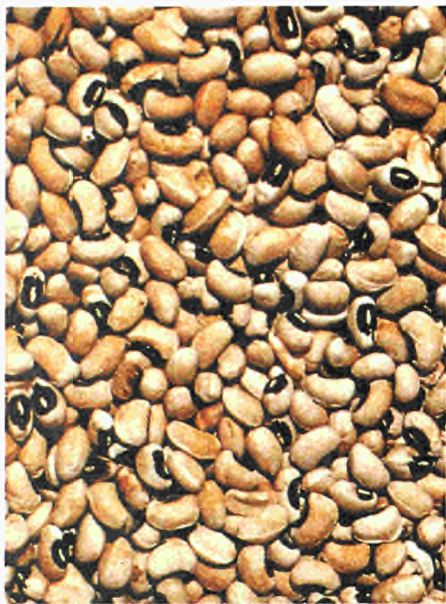
Although less spectacular than in the towns, the increase in population in the countryside has also been considerable. It is estimated that Africa's rural population has been rising by an average of 2 % a year for some time. This means that the land has to support 20 % more people now than 10 years ago. Although overall there has been an increase in the production of food crops, this has fallen far short of the increase in the number of mouths to feed.

Unfortunately, only about 20 % of land in Africa is really fertile, and only a little more than half the continent can sustain rain-fed crops. Soil erosion, aided by drought and deforestation, is steadily reducing the amount of arable land available. Smallholders, who make up the vast majority of Africa's farmers, cannot usually afford to buy fertilizers, top quality seeds or agricultural machinery as farmers in richer countries can. When they do produce a surplus, storage and transport problems can result in considerable post-harvest losses; and the price they are paid for their produce has often been discouragingly low.

Faced with this situation, many African governments have been paying greater attention to food production in this decade than previously. The small farmer, the chief food producer in Africa, and the cereals and vegetables he traditionally grows – millet, sorghum, maize, manioc, beans – now figure much more prominently in national development plans than hitherto. Donors are being asked to devote a greater proportion of their aid to rural development and the goal of food self-sufficiency. Many ACP States have allocated 70 % and more of their Lomé III funds to this sector.

The Community, which has encouraged this relatively recent emphasis on rural development, is merely stepping up its aid in an area in which it has long been involved. For many years it has sought to turn food aid into an instrument of development. In Asia and Latin America it has concentrated its aid on the rural poor. Examples of its efforts on these fronts will be given in the next section. In this chapter we have selected Community-financed operations in three particularly affected areas of Africa: the promotion of a secondary food crop – cowpeas – in Senegal; the provision of a scarce resource – money – for smallholders in Morocco and Tunisia; and the introduction of a technique designed to increase productivity – animal traction – to subsistence farmers in the Sudan.

Senegal: Operation Cowpea



Cowpeas – California Black Eye (CB 5) variety

'*Vigna unguiculata*' in Latin, cowpea in English. Africa's second leguminous plant contains 23.4% protides, 56.8% glucides, 1.3% lipids, 11% water and 4% fibre. It has many uses: the dried grains can be cooked in a variety of ways; the shoots and leaves are eaten like spinach or used in the making of soup. Very often they are dried and stored for use during the dry season. In some places, the tops are used as cattle fodder. An invaluable plant considering that man does not live by bread alone and that efforts to achieve self-sufficiency in food should not be limited to cereals. Leguminous plants like the cowpea or its brother plant, the bean, are rich in proteins and can help to balance the diet of people in developing countries. The cowpea is an ideal weaning food for babies; and because it also contains glucides, lipids, numerous mineral salts and dietary fibres, it is an ideal food crop. In many parts of Africa, however, it is a secondary crop grown between sorghum and millet.

Between November 1984 and December 1985, Senegal imposed the cowpea as a major food crop in certain regions, thereby setting a precedent. Its efforts were supported by the European Community.

In 1984, in Senegal, as in other Sahel countries, there was drought. The winter rains had failed, and maize or millet would not grow. Even the groundnut, the traditional cash crop which requires only 400 mm of water a year, did not ripen. In any case, the desert was advancing so fast that it was senseless to try to grow groundnuts in the north. A food crop, not a cash crop, had to be found to take their place. Enter the cowpea, which grows quickly, is nourishing, and needs less than half the water required by groundnuts. Several changes had to be made to accommodate the new crop: small family plots had to be combined into larger fields and plant health measures introduced.

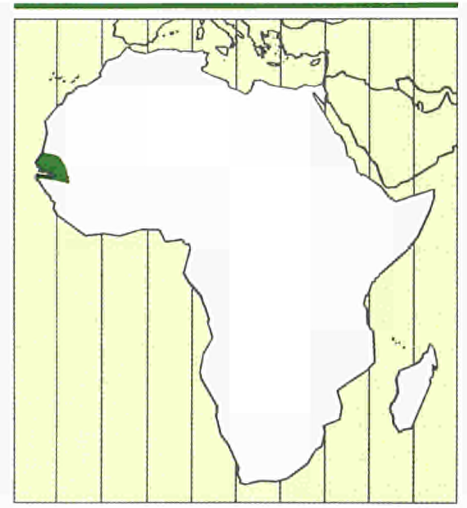
The Senegalese Government went to work, aided in its task by the European Community, and launched 'Operation Cowpea'. During the off-season, March–May 1985, the Senegalese planted what was left of their local seeds, and harvested 51 tonnes of grain. Meanwhile, the EEC bought 450 tonnes of a Californian variety whose excellent reputation had preceded it: CB5. The American Government offered 200 tonnes and the FAO 150. At the beginning of July, the 850 tonnes were sown. The harvest started on 10 August. Soon after, two months earlier than the traditional harvest time, the cowpea appeared on market-stalls in Dakar, Saint-Louis and Ziguinchor. This crop partly helped to tide the Senegalese over until the next harvest. It was a bumper crop: over a tonne per hectare, whereas before, as a secondary crop, 200 kg per hectare had been the rule.

But with the rains came the insects and production fell to an average of 700 kg per hectare because of greenflies and wolverines. The last seeds were planted in Casamance on 16 September. This pilot operation dictated by the country's food crisis yielded nearly 85000 tonnes of cowpeas from 130000 ha.

After the 1984 drought, the 1985 winter rains were a 'gift of the heavens'. But the rainfall was still only half what was considered to be the national average. All over northern Senegal, along the river, where only scattered thorn bushes remain of what was dense forest a century ago,

the millet never ripened and the Californian cowpea was the only food crop harvested.

In addition to buying 450 tonnes of CB5 (Californian Black Eye) and the production of 51 tonnes of the national variety (cost: 0.8 million ECU), the European Community supplied the farmers with 1.3 million ECU worth of insecticide and sprayers to treat the 130000 ha planted with cowpeas. The money came from the resale of food aid to Senegal. This aspect of the operation did not come up to expectations: even though the peasants were convinced of the need to spray the crop, they did not fully master the spraying technique, which was new to them.



The whole operation was carried out swiftly. Within two months, the inputs were already in Louga, situated in the heart of the groundnut-growing region, and the starting point for the experiment. Most of the harvest was sold in Senegal, but a small part was exported, some was kept back to build up the country's food reserves, and another small part was used to reconstitute the national stock of seeds.

The operation, dictated by circumstances, had a huge impact on the population. Most of its results were immediate, positive and lasting. Within a single season, the government had asked the population to change over to planting cowpea as a major food crop instead of as a

second crop. It became a source of speculation when prices went up eight times as it sold in markets. A modern crop needing modern inputs. This was the most delicate part of the operation, as already pointed out, and it suggests that at least three seasons are needed before a new technique is mastered sufficiently to produce results. It is also a

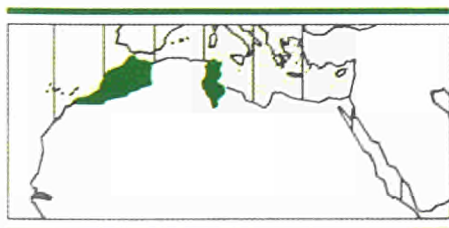
collective crop since farmers are asked to pool their plots to facilitate spraying. Something of a mini-revolution, or at least a far-reaching reform imposed by drought.

The follow-up and possible extension of this type of operation will require care. However promising the future of the cowpea seems, it is neither simple nor clear: the chemi-

cals – unfortunately necessary – are costly (estimated at 1.5 million ECU a year); pooling of individual resources (for treatment, storage and packing) cannot be taken for granted; and lasting, viable marketing channels will have to be set up to guarantee an income for farmers growing cowpeas. All these aspects will require careful consideration. ■



Spraying a field of cowpeas



Morocco and Tunisia: Loans for small farmers

For some years now Morocco and Tunisia have been giving greater priority to agriculture. This is reflected in the use they have made of the Community funds which have been placed at their disposal, under the financial protocols attached to their cooperation agreements, in the form of loans from the European Investment Bank and grants and special loans from the Commission. The first protocols covered the

period 1978-81, the second the period 1982-86.

Morocco, which devoted the bulk of the resources available under the first EEC-Morocco protocol to the industrial sector, allocated a third of the amount available in European Investment Bank loans under the second protocol to agriculture. Tunisia went further and allocated the entire amount available under the second EEC-Tunisia protocol to its agricultural sector.

EIB loans are made at market rates as a general rule and so are intended, in the case of agriculture, for large holdings as well as smaller

businesses. The resources administered by the Commission on the other hand, being soft loans or grants, are generally used to aid small farmers, as in the case of the two projects described here.

Morocco

Rain-fed crops constitute the bulk of Morocco's agricultural output and provide employment for 75 % of the active rural population. In this country of 23 million inhabitants agriculture, although contributing only 13.5 % to GNP, is still of great importance, because it accounts for 40 % of employment. Most farmers have only a small holding, 5 ha or less, which condemns them to subsistence farming.

The drought that hit the country from 1981 to 1985 meant disaster for these small farmers. Production plummeted by 23 % and 17 of the 37 provinces of the Kingdom were severely affected. For peasant farmers, it was a vicious circle: no rain – no crop, no crop – no income. Thus they were unable to repay their debts to the agricultural credit bank, the 'Caisse Nationale de Crédit Agricole' (CNCA) and were, of course, unable to obtain any fresh credit.

The CNCA is an independent, decentralized institution set up in 1961 with a good degree of financial autonomy. It is the only public institution offering credit to farmers and plays an important role in Moroccan rural life. Its short-term loans are used to buy fertilizer or seed, while long-term credit is used to buy machinery, and for construction or other works.

To help peasant farmers hit by drought to get back on their feet, the Community financed an operation to provide them with credit through the CNCA, putting up 24 million ECU in all (14 million ECU in grants and 10 million in special loans).

These funds have been used to reschedule debts contracted with the CNCA by small farmers in difficulty. Their debts have been rescheduled on very easy terms (2 %) over periods ranging from five to 15 years.

This operation helped to save the

CNCA from financial strangulation resulting from the inability of smallholders to repay their loans. It answered a real and pressing need and kept many Moroccan farmers in business by giving them fresh access to credit.

Tunisia

Tunisia's agriculture is essential for the country's economic, financial and social development. Tunisia, however, is very dependent on exports, which makes its balance of payments precarious.

The Tunisian Government has decided to give agricultural development top priority under the seventh plan (1987–91). The aim is to reduce vulnerability to climatic vagaries (by supplementary irrigation, for example) and boost agricultural productivity.

The Community approves this priority and is supporting the government's efforts under the second EEC-Tunisia financial protocol with EIB loans and an agricultural credit operation financed by the Commission.

Under this operation a total of 17.8 million ECU has been made available (13.3 million as grants and 4.5 million as special loans) for individual integrated projects proposed by farmers with small or medium-sized holdings in disadvantaged parts of Tunisia (mainly the south and west). The operation is governed by an agreement between the Community and the Tunisian Government. This stipulates a maximum loan per project of 32 000 ECU, a matching financial contribution from the borrower of between 5 % and 20 %, a 6 % interest rate, and repayment over 7 to 20 years with a 2–5 year grace period, depending on the case. Access to these loans is restricted to farmers with incomes of no more than 2 250 ECU a year.

The 17.8 million ECU are channelled through the National Agricultural Development Bank (BNDA) for on-lending. The BNDA is in the process of setting up and financing a unit offering technical assistance and investment advice to farmers. On the staff will be a veterinary surgeon, an agricultural engineer, a livestock

specialist and a hydraulic engineer.

Here are two typical examples of loan applications that have been approved by the BNDA.

A peasant farmer from Sidi Bouzid applied for a loan of 5 400 dinars to sink a well, plant 2 ha of almond trees and buy a water tank, a draught animal and pipes for irrigation. In July 1987 he was lent 3 000 dinars and proceeded to build his well, install his water tank, buy the animal and lay down 200 m of piping.

Another farmer from Kasserine wanted 6 500 dinars for a 41 m² sheep pen, 4 ha of pistachio trees, 4 ha of spineless cactus, 40 ewes and two goats and a knapsack sprayer. At the end of May 1987 he had received 2 672 dinars, started work on the sheep pen, planted the cactus and some of the pistachios, bought 50 ewes and a goat. He was in fact ahead of schedule after receiving only part of his loan.

It is too early to judge the project as a whole. But the initial results of this novel approach are encouraging. With very few exceptions, the provisions of the agreement have been observed and there are promising signs of activity throughout the less-favoured areas thanks to this new source of credit. The motivation of the farmers (especially the younger ones) and the BNDA's practical support are the best guarantees that this investment will bear fruit.

A deliberate decision was taken to offer very advantageous terms so that farmers with small holdings and small incomes, who would not be eligible for normal agricultural loans, could borrow money.

The Community's aim in providing this aid is to help them improve the profitability of their farms and so in time become eligible for other forms of agricultural credit. ■



Sudan: Animal traction

Cultivation of the land can be done by hand, with the help of animals, or with the aid of motorized machines. At the present time, crop farming is still largely manual in much of Africa, animal-powered in much of Asia, and almost totally motorized in Europe, North America and the rest of the industrialized world. To Africa, Asia and Europe correspond the hand-held hoe, the ox-drawn plough and the tractor.

The ox, the horse, the donkey and even the stubborn camel can all be trained to do farm work. Their use as farm animals was however introduced late to sub-Saharan Africa (Ethiopia excepted) and has never been generalized. Animal traction appeared in Madagascar in the middle of the last century, in southern Africa around 1880, and in East and West Africa around the turn of the century. After progressing with official support, particularly in Uganda and Guinea, animal traction lost favour as a result of the depression of the 1930s and colonial enthusiasm for the tractor.

Post-independence Africa had a love affair with tractors which has now cooled. Tractors are wonderful machines if fuel, spare parts and mechanics are all available. If they are not, farmers are better off with animals. With fuel scarce and expensive, spare parts difficult and costly to obtain, and trained mechanics few and far between, interest in animal traction has revived. For animals too save labour, allow the farmer to cultivate more acres in less time, and

carry heavier weights over longer distances than humans can. They do not have to be imported, and they do not need spare parts.

However, farm animals are not necessarily cheap to buy. They need food, and good veterinary care. They have to be trained. The implements they pull may have to be imported. So subsistence farmers who are introduced to the techniques of animal traction and wish to try them need outside help to switch over from manual farming. The Community has been providing this assistance, both financial and technical, to farmers in Sudan since 1982, through, among other projects, the *Nuba mountains rural development project (NMRDP)*.

Sudan is Africa's largest country, bigger than all the 12 Member States of the EEC put together. In normal to good years the country as a whole produces enough traditional cereals, but every year it imports substantial quantities of wheat – nearly 800 000 tonnes in 1986/87 – and there are some regions which have regular food deficits. The Sudanese Government is therefore concerned to raise local food production, and the NMRDP, backed by EEC grants totalling 7.7 million ECU from the fourth and fifth EDFs, was designed to achieve this aim by introducing animal traction to farmers in three districts of the province of southern Kordofan.

This province occupies an area of savannah larger than Greece. The project area proper is larger than Ireland, contains a railway and a few roads, and an estimated 118 000 farmers. The climate is semi-arid, average annual rainfall (usually between June and September) varies from 440 mm in the north to 850 mm in the south. The staple crops are sorghum and millet, with sesame as the main secondary crop, grown for both consumption and sale. Groundnuts and cowpeas are also grown. Farms vary between 5 and 12 ha, usually split into near fields and far fields (the better to catch scattered showers), which involves a lot of to-ing and fro-ing. Less than 1% of the total area is under cultivation or lying fallow. Culturally, the province is Islamic and partly nomadic, and traditionally animals are not used for farm work. Smallholders own a few

sheep and goats and a donkey. Any savings are usually invested in cattle.

The Nuba mountains project was agreed in 1979 once the Sudanese authorities had been dissuaded from using EEC funds to import tractors, and after demonstrations had aroused farmers' interest in ox-drawn cultivation. The project entered the operational stage in 1982, offering farmers a range of five implements on credit, training sessions in animal traction and some veterinary support. Farmers interested in joining the scheme had to provide a pair of oxen (or a camel or a horse), make a down payment of 30% of the cost of any implement they bought, and follow a training session.

The implements on offer were, and still are, a cultivator (known as the Nuba hoe), a seeder, a ridger and, for harvesting groundnuts, a lifter, all of which can be attached to the frame of the Nuba hoe drawn by an animal. An ox-cart is also included in the package. These implements are imported from



Recruitment: the Nuba hoe and the aims of the programme are explained to farmers (Photo: Guy Mahoux)

Europe with project funds and sold on credit to farmers in the scheme.

Training sessions last three weeks and are held once a year in March/April, in village training centres. Animals are broken in, while farmers are shown how to yoke the animals and how to guide them. Further help and advice is provided in their own villages at other times of the year by village extension workers.

The project includes a small veterinary staff, who provide free treatment for draught and other animals belonging to farmers in the project area.

In its first year of operation (1982), the scheme attracted 241 farmers, and trained 237 pairs of oxen and 4 camels. By the end of 1986, the number of farmers had risen to 2019 and the project had trained 1074 pairs of oxen, 643 camels and 280 horses. The number of camels in training rose dramatically as a result of the 1984/85 drought, which killed a lot of cattle, making the cost of a pair of oxen much higher.

Of the implements on offer, the Nuba hoe is compulsory; of the others the ox-cart has proved the most popular (724 were bought between 1982 and 1986), followed by the seeder (610 bought). The cart is useful all the year round for transporting wood, water, straw, tools and manure, and to keep draught animals in training outside the planting, weeding and harvesting seasons.

Like all innovative schemes, the Nuba mountains project has experienced problems. Smallholders who had no large animals like oxen could not initially take part; so, to enable poorer farmers to join the scheme, oxen are now provided on credit as well as implements, and the down payment on implements has been reduced from 30% to 10%. A determined attempt has been made to encourage local manufacture of the latter, but so far ox-carts made in Sudan have cost more and worked less well than the imported models. The increased quantities of sorghum, millet, groundnuts and sesame produced by farmers using draught animals have been obtained by an extension of the amount of land under cultivation, rather than by higher yields (if farmers crop too much of their land, they may tire out the soil and involuntarily hasten erosion and desertification).

However, the project has undoubtedly led to an increase in production – over 2000 tonnes of extra food in both 1985 and 1986 –

and to an increase in farmers' incomes. A demand for draught animals, implements and training now exists in South Kordofan, and the Nuba mountains project will continue over the period 1987–91, with financial support from the EEC (11.45 million ECU), the Government of Sudan and possibly the German development bank KfW, which will ensure the continued availability of credit. This second phase will offer a wider range of agricultural and veterinary services, and will include soil conservation and forestry measures (the population is becoming more aware of the dangers of desertification). It will aim to bring improved agricultural practices, including animal traction, to 30000 households and to produce an extra 10000 tonnes of food per year by 1991. ■



Introduction of animal traction in the Nuba Mountains region

(Photo: Guy Mahoux)

From sectoral aid to overall strategy

In the 1960s and 1970s projects to develop agriculture generally focused on boosting production of cash crops (coffee, groundnuts and such like) or building infrastructure (dams, irrigation channels, silos, etc.). This approach to development cooperation was called sectoral aid.

It became clear, however, that this type of project did not always do much to improve the living standards of peasant farmers in the Third World. The usefulness of sectoral aid was challenged: what was needed, it was argued, was an approach that took more account of the economic and social situation of the country and the specific problems of its agriculture and related activities.

This policy re-think gave rise in the mid-1970s to the concept of integrated rural development. The term 'integrated' is used to indicate something much broader than just agricultural production. It embraces a multiplicity of factors that together make for development: agriculture-related training and infrastructure, social projects (schools, dispensaries, etc.), improved techniques, marketing, even legal advice.

The basic premise of integrated projects is that agriculture is not to be treated in isolation.

The first step is to create the right social and economic environment for agriculture by facilitating access to credit, setting up cooperatives, bringing the price of inputs like seeds and fertilizer within the reach of small farmers, and introducing appropriate technology.

Once greater productivity becomes possible, the second step is to build storage facilities and set up infrastructure to market the primary or processed product.

Projects designed with a specific geographical area and environment in mind would not, however, necessarily fit in with a country's overall economic development plan. Ways therefore had to be found to insert these projects into an overall strategy. This was how the idea of food strategies was born in 1982. The new approach, the primary objective of which is food security, is first and foremost political. Leaders of developing countries are asked to focus their efforts on the agricultural sector, and give peasant farmers top priority.

What does a food strategy involve? It involves increasing food production, encouraging consumption of local products (millet, for example, rather than wheat), creating a stable domestic market and setting producer prices that put more money in farmers' pockets – still the best incentive for increasing production.

Food aid, often the subject of criticism, also has a role to play in an overall strategy. True, it can create expensive eating habits, and it can also act as a disincentive to local cereals production. However, given and used for the right reasons, food aid can be an additional instrument for development thanks to the security and extra revenue it provides. The counterpart funds that the recipient country raises by selling the aid can help to finance rural development projects.

We shall try to illustrate what is meant by the somewhat complex terms 'integrated project', 'food strategy' and 'intelligent food aid' with the help of three examples, one from South America, one from Africa and one from Asia.



Bolivia: Rural development in the Altiplano

Bolivia's average annual per capita income of USD 410 makes it the poorest country in South America. This may explain why in 1976 it became the first non-associated developing country to receive financial and technical assistance from the European Community. By 1979 five projects had been started, but a military takeover in 1980 put an end to democracy and the EEC suspended its aid programme. In October 1982, faced with an economic situation they could no longer control, the military handed over power to a civilian government. The situation was still far from brilliant but the Community gave its support to the new constitutional government. Aid recommenced and projects were started up. One of these was the *rural microprojects programme (PMPR)*, designed to increase food production (through both crops and livestock) as fast as possible, relaunch economic activity, raise peasant farmers' incomes and curb the rural exodus.



Llama by Lake Titicaca

Between November 1983 and February 1987 30 million ECU were invested in the programme carried out in the country's poorest departments, Potosí and Oruro (average per capita annual income USD 100), situated on the Altiplano at an altitude of over 4 000 m.

Life is hard for the predominantly Indian population of the high plateau around Lake Titicaca, the world's

highest large lake; agriculture and cattle farming are hazardous, and the tin mines, which used to provide many of the industrial jobs, are in difficulty and laying off workers.

In each of the two departments, the programme involved a whole series of microprojects covering all aspects of rural development. The following list gives some idea of the range of goods and services provided:

- (a) water supplies (irrigation channels, wells and reservoirs);
- (b) farm equipment (glasshouses, stores, silos, crop protection works – terraces, walls, trees – and local weather stations);
- (c) roads and bridges (600 km of roads and tracks built or repaired);
- (d) loans for farmers;
- (e) inputs like seeds, plant health and veterinary products;
- (f) nurseries, greenhouses and such like for small-scale market gardening and family vegetable plots (over 800 structures were erected in all).

Crop and livestock training courses were organized to familiarize the local population with new techniques and methods and ensure that they were used to best advantage.

Some 25 % of the total population of these two departments, an estimated 200 000 people, have benefited from the programme. Agricultural output has doubled, as have farmers' incomes. But the results go deeper and are more durable than mere figures suggest.

In the space of three years this PMPR has made security of production possible thanks to the judicious use of a few new techniques to back up traditional methods – with proper veterinary care the herds now survive the Andean winter and the irrigated



Harsh conditions on the Altiplano

crops ripen in the dry summers.

Another exemplary aspect of the programme was the training of 200 local officials who gradually took over the supervision and management of project activities.

From the outset the organizers of the programme decided to make local people responsible for individual projects. Their reason, as they openly admitted, was to protect the programme from possible political upheavals in La Paz which could have jeopardized its survival. Autonomous project management was a preventive measure against political turmoil, but in fact it went further than that and the various partners – the Bolivian Government, the regional development bodies, local and European administrative staff and the European Community – were happy to point out that the most valuable ‘input’ in all these projects was the *campesino* himself. Deeply motivated and involved, the *campesinos* turned out to be the driving force behind the programme.

The rural microprojects programme came to an end in 1987. A *rural self-development programme* has taken its place. The name has changed but not the approach, which has proved its worth. One of the reasons for the success of the first programme was that decisions were

never taken in La Paz or Brussels but by the villagers themselves. The programme was not managed from afar by some shadowy authority unaware of the everyday realities of life in the Altiplano. Instead, its specific activities were identified, carried out and supervised by the villagers. The role of everyone else concerned – government, experts, EEC – was limited to providing support in the form of technical expertise or inputs.

The second programme (20 million ECU), longer than its predecessor, will cover the period 1987–92. It lays particular emphasis on rural training, administration and organization of rural life. Slowly but surely these two departments of the Altiplano are moving towards self-development, as their crop and livestock farmers become steadily less dependent on central government support and foreign aid. ■

Mali: Food strategy

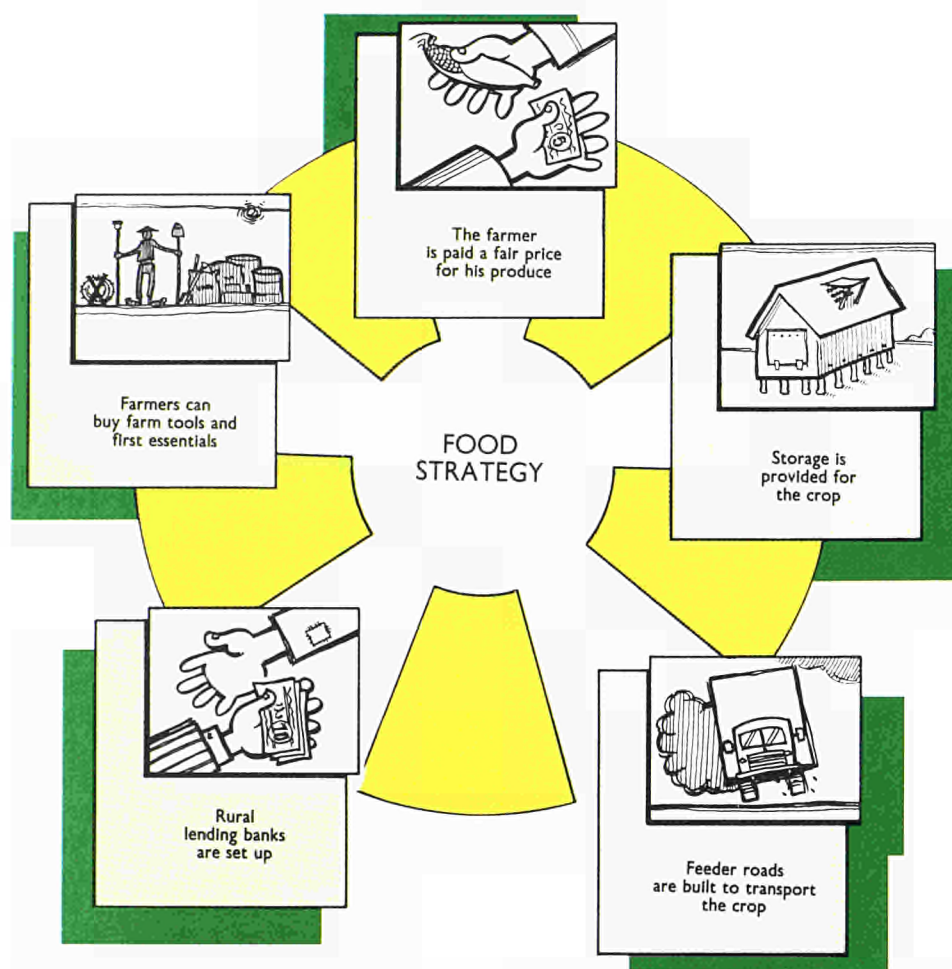
Increasing food shortages in sub-Saharan Africa and the determination of African governments to give top priority to the coverage of their countries’ basic needs, starting with food, led the Community in 1982 to support food strategies in four countries: Kenya, Mali, Rwanda and Zambia. The Community undertook to help them achieve a lasting and substantial increase in their food production. The African countries undertook to carry through reforms designed to induce everyone involved in the production and marketing of foodstuffs to produce enough to cover national requirements.

The choice of Mali is easy to explain. The country is one of the poorest on earth, has few natural resources and suffers the additional handicap of being land-locked. It does however possess substantial agricultural assets: it has vast areas suitable for irrigation and considerable fisheries and livestock potential.

In addition, Mali had embarked in 1981 on a programme to reorganize its cereals market which paved the way for a food strategy.

The reorganization of the cereals market was prompted by the need to increase local production of cereals in a country where they are the staple food and where, as the result of a combination of persistent drought and inappropriate policies, a shortage of cereals had become a permanent feature of economic life. The object of the exercise was to use the food aid supplied in increasing quantities by donor countries and





organizations (USA, Canada, FR of Germany, France, the Netherlands, Belgium, the United Kingdom, the World Food Programme and the EEC)¹ to support reforms which the Government of Mali was prepared to carry through providing they did not impose too heavy a burden on the population.

The basic idea was to use the counterpart funds obtained from the sale of cereals delivered as food aid to cover the expenditure necessarily incurred in the process of raising local production of cereals.

From 1981 to 1986 nearly 16 000 million FCFA (approximately 47 million ECU) was paid into a common counterpart fund. This sum was used as follows: 40 % to buy cereals to constitute a national security stock and to support producer prices; 40 % in subsidies to cover the Board of Food's deficit and the shortfall resulting from a lower increase in consumer prices than in producer prices; and 20 % in loans to finance marketing measures.

These operations are part and parcel of a cereals policy designed to

stimulate all parties actively involved in the cereals market. The reorganization of this market was made possible by the government's decision to loosen State control over the cereals sector and by the collective determination of the food aid donors to support the government by shouldering part of the costs of its policy.

The reorganization programme committed the government to liberalizing the cereals market, to raising producer and consumer prices and to reorganizing the Board of Food (Office des produits alimentaires du Mali, or OPAM). At the same time it committed the donors to supplying for the same five-year period 50 000 tonnes of cereals a year between them, of which the Community was to supply 15 000 tonnes. Over the period 1981 to 1986, changes were indeed brought about: the market in traditional cereals (maize, millet and sorghum) and in rice was liberalized and producer and consumer prices were raised by bringing official prices nearer open-market prices. The programme was also useful in furnishing the Board of Food with the

means to supply the towns and other areas which experienced shortages during the drought of 1984-85.

However, the private sector – private traders and village associations – still has a long way to go before it can counter-balance the State sector. If Mali is to achieve the goals of its strategy – food self-sufficiency by the year 2000 and an adequate level of nutrition for all sections of the population – it must pursue its efforts and its partners must maintain their support. The Community, which backed the food strategy initially with 8.3 million ECU from a special programme to combat hunger, will provide continued and much increased support by devoting to it 90 % of the resources allocated to Mali from the sixth EDF – nearly 110 million ECU.

In view of the seriousness and persistence of the drought conditions affecting food crops in Mali, it was decided to give priority to water supply and to include financing for measures to check the advance of the desert. Community aid will be used to consolidate rural development by financing agricultural activities, revitalizing the health service and increasing employment opportunities in rural areas, some of which could be provided by anti-desertification efforts.

The success of Mali's food strategy depends in equal measure on government commitment and donor support. The Community continues to attach great importance to the reorganization of the cereals market backed by the principal donors. It sees this as the centrepiece of a cereals policy in line with the aims of the food strategy. By backing it with the resources of the sixth EDF, the Community has shown its determination to give the strategy maximum effectiveness. ■

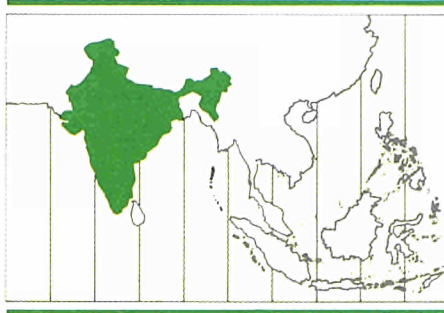
¹ The World Bank is providing technical support for the cereals reorganization programme.

India: Operation Flood

Food aid as an instrument of development may at first sight seem paradoxical, but this is how Operation Flood,¹ devised by India and backed by the Community, has worked for the past 15 years.

It was the British, the former colonial power in India, who introduced milk consumption. It may well have been the transfer of a Western food habit, but in this case it was hardly detrimental as the Indian peasant farmers already owned cows and buffaloes, and milk is an important source of essential proteins.

It was in the 1960s that the Federal government decided to develop the dairy industry by encouraging producer cooperatives. For this purpose a State body, the Indian Dairy Corporation (IDC), was set up, and



launched Operation Flood. Its objective was to supply milk to the big cities of the Indian sub-continent – Bombay, Calcutta, Delhi and Madras – and raise producers' incomes in the process.

This was a monumental task as it involved not only producing more (and better) milk, but collecting, packaging, marketing and distributing it, often over enormous distances. The whole system hinged on

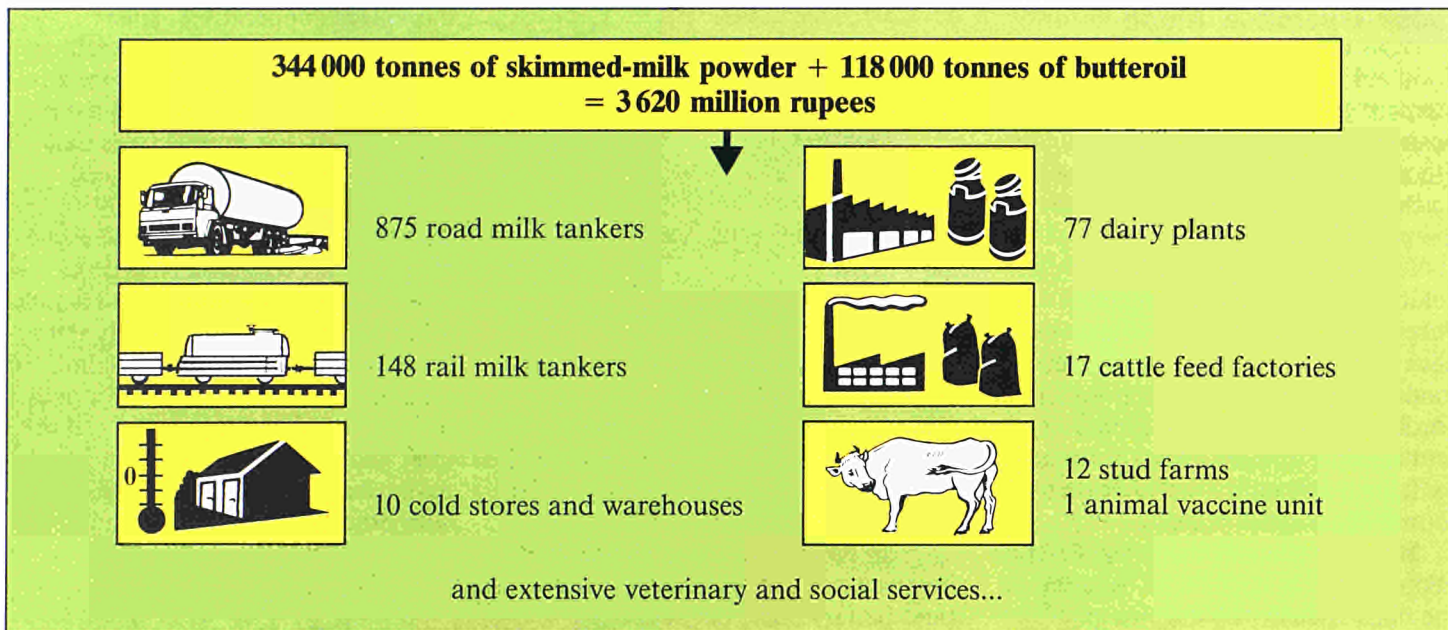
the village cooperatives. Every morning and every evening each cooperative collected milk from all producers who wished to sell their milk to it. It was on this basis that Operation Flood was introduced.

Flood I was launched in 1970 with the support of the World Food Programme (WFP) and the EEC. The basic idea was daring and simple – the aid donors would supply the IDC with 126 000 tonnes of skimmed-milk powder and 42 000 tonnes of butteroil. The IDC would sell the milk and butteroil to the country's major dairies, which after mixing it with domestically produced milk,

¹ A 'flood of milk'.

Milk is collected every morning and evening





would market it. This food aid would provide the IDC with a financial surplus which could be used to pay for new equipment and for developing the dairy sector. With its profits, the IDC would provide the country with a viable foodstuffs industry.

Flood I lasted until March 1981. Some 135 million ECU, the proceeds from milk sales, enabled the IDC to build four new dairies and enlarge four others in Bombay, Delhi, Calcutta and Madras. Seventeen new dairies and 20 chilling centres, cold stores and warehouses were built in rural areas. To transport milk to the towns, 275 road tankers and 62 rail tankers were purchased. Related sectors were not forgotten: 14 animal feed factories were built and 12 stud farms were set up in different parts of the country.

While Flood I was beginning to produce results, Flood II was put into operation. Devised in 1977, it was launched at the beginning of the 1980s and ended in 1985. Its aims were the same as Flood I, although somewhat more ambitious, since it proposed to cover the entire country's milk requirements. For this operation the Community supplied India with 218 000 tonnes of skimmed-milk powder and 76 000 tonnes of butteroil. With the counterpart funds from the sale of these products, eight more rural dairy plants and 11 chilling centres have been

built; 44 other dairy plants are being constructed or expanded; and on the transport and marketing side, another 600 road tankers and 86 rail tankers have been bought and three packaging factories are under construction.

Flood III is now under way and should last until the beginning of the 1990s.

The quantitative results achieved in 15 years are impressive. Since 1970, 34 500 village cooperatives have been set up, with a membership of 3.6 million small farmers. Producers have seen their incomes rise by between 50 % and 100 % since the start of the operation. The quantity of milk sold in the four main urban centres has risen to just over 5 million litres a day, or a decilitre of milk per person per day for 27 million inhabitants.

But, in addition to the quantifiable, material results of this operation, the contribution that it has made to improving the economic and social situation of the rural underprivileged population must be underlined. These are often marginal farmers, people who live below the poverty line, the owners of a single cow or buffalo. Belonging to a cooperative may give them only a modest income, but at least it is a regular income. At the same time, the fact that they have a vote at meetings gives them a status which

would have been inconceivable 40 years ago. In this sense it is no exaggeration to say that Community food aid has contributed to development in India. ■



Rail tanker, road tanker and dairy plant financed with EEC food aid

Rural water supply

Water sustains life and the lack of it threatens the survival of many thousands of people. Unfortunately, for two decades now, periods of drought have recurred with increasing regularity and the desert has advanced in many places, causing much suffering.

Lack of water lies at the root of much present-day hardship. Water, which flows freely in industrialized countries, is often a rare and expensive commodity in the Third World. Consequently, providing water for all is one of the most urgent tasks facing many national and local authorities in developing countries.

At present, a regular and convenient water supply is very far from being the norm. It is a reality for some districts in major cities (an example is given in Chapter 3), but many people in developing countries, particularly in the rural areas, still have no convenient access to clean, safe water which is so important for good health.

According to Unicef and WHO, millions of children under the age of five die each year as a result of lack of clean water. Most of them die from dysentery and diarrhoea. In addition, water-washed infections – trachoma, a common cause of blindness, parasitic worms (which affect 50 % of people in Africa), and bilharzia – afflict many people. These diseases and their harmful effects could be controlled, even in some cases eliminated – as could the long and tiring trek for water which today saps the energies of millions of women and children in the Third World – if people had access to clean water for drinking and washing near their village.

Obtaining water, cleansing it and bringing it to within reasonable reach is a direct way of ensuring an improved standard of living.

Water can be supplied in different ways depending on geographical and climatic conditions. A number of techniques exist to meet different requirements, and the choice of the most appropriate technology is important. Some areas are littered with pumps, boreholes and other waterworks that have fallen into disrepair for lack of maintenance, spare parts or indeed a sense of involvement on the part of the intended beneficiaries.

The equipment used for rural water schemes must be compatible with the economy and resources of the villagers.

Having learnt from experience, the European Community endeavours to associate the local population in all its development projects. This is well brought out in the three water projects described below: they have been selected not for their technological sophistication, but because of the close involvement of the project beneficiaries in every phase of implementation. In each case, it is they who manage and maintain the equipment which has been installed.



Yatenga: water in the village at last!

Burkina Faso: Water-point committees

Between 1981 and 1987 an interesting Community-financed project provided 531 villages in two provinces of Burkina Faso with 666 new water points (452 boreholes and 214 wells) at a total cost of some 10.5 million ECU. Fifty-two local technicians have been trained to instal and repair pumps, and responsibility for the management of the water points has been transferred to village committees.

Elected local committees have been the key to the success of the *Yatenga-Comoé village water project*, because through its committee, each village has had a say in deciding where its water point should be, whether to have a borehole drilled or a well sunk, whether to use manual, mechanical or solar pumps, and how the funds needed for maintenance and the purchase of spare parts are to be collected.

Before the implementation phase began, project staff went round the villages to inform people and discuss with them the technical choices to be made. As a result of these discussions, a majority of villages opted for boreholes equipped with manual pumps. The choice can be explained by the scarcity of surface water in Yatenga and the depth of the underground water table in both Yatenga and Comoé. The whole of the country's northern region is dependent on

underground water reserves, the south being watered by the Black and White Volta rivers. Wells, as opposed to boreholes, are not always adequate because during the dry season, the underground water level can drop to as much as 40 or 50 metres below ground.

The 'water-point committees' have five members: a chairman, a secretary, a treasurer, a person responsible for the pump and a women's representative. In addition to these elected members, the villagers choose technicians to carry out maintenance work. These 'artisan-repairmen' trained by the project staff, are paid from funds collected by the villagers.

To facilitate the purchase of spare parts, a sales network was set up at the beginning of the project. The pump supplier, who is bound by a contract signed with tradesmen in both provinces, delivered the spare parts. After each borehole had been drilled and lined, the pump was handed over to the village committee. It was a gift from the European Development Fund, which then called upon the trained repairmen to instal it.

This is the strength of the Yatenga-Comoé project: once the borehole or well is sunk, responsibility is handed over to the villagers. In order to do this effectively, the project staff did not hesitate to slow down the implementation of the project to ensure that each phase was well understood and that the techniques involved had been mastered by the local population.

Today, the project is continuing with the help of only one expatriate for the whole region. There is evidence that the villagers are managing well on their own. One inspection of 199 boreholes which had been operating for at least 12 months found only 15 pumps out of order on the day they were inspected, although 95 breakdowns had been reported since installation. This suggests that the great majority of committees are



Meeting of a 'water-point' committee



Pump maintenance by an artisan-repairman

looking after their water points and that the 'after-sales' network of spare parts and repairmen is coping with demand.

Through their 'water-point committees' the people of Yatenga and Comoé have worked out an interesting method of financing their development. In order to cover pump maintenance costs, they have both come up with an original savings scheme.

In Comoé, a collective farm has been set up and some of the income from its produce goes into the committee's account.

In Yatenga, the population consists mainly of livestock farmers; they buy cattle which they sell when the price goes up. Again, some of the proceeds are paid into the 'water fund'.

These schemes have their own logic and go to show that villagers can successfully combine traditional practices with foreign technology to further their own development. ■

Tuvalu: Drinking water for Pacific islanders

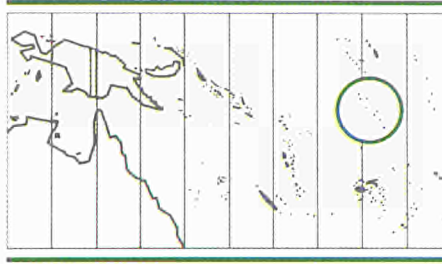
Tuvalu is 10 square miles of porous coral surrounded by millions of square miles of ocean. With less than 9000 inhabitants it is one of the smallest countries in the world and certainly one of the most remote.

Paradoxically, it is short of water. Although rainfall is high by European standards, it simply runs through the coral back into the sea. The old adage 'water, water everywhere and not a drop to drink' was a serious reality for the eight tiny islands which make up the country. All water for drinking purposes was therefore by catchment, often in central cisterns far from individual dwellings (there are also some wells which only yield brackish water). But sometimes it does not rain for months and catchment water dries up. Bathing had then to be done in the sea and very often the only liquid for human consumption was brackish water or coconut juice. So the problem was to retain enough of the sporadic heavy rainfall to last through the periods of drought and make it easily accessible to each householder.

There is no denying that Tuvalu is a micro-country, and so it was entirely logical that part of its EDF programme should take the form of micro-projects to improve the supply of healthy water by providing water tanks and catchment roofs for families which did not already have their own storage tank.

The Tuvalu Government, the EEC and the islanders undertook to share project costs. The EEC contributed 222000 ECU (35% of the total cost), while the government agreed to pay for administrative and supervisory costs (22%) and the local population the rest (43%). They contributed partly in cash and partly in local building materials and unpaid labour. Work started in 1982, once these arrangements had been made.

The tanks were made of ferro-cement and the catchments of coconut fibre/cement roofing sheets. The first step was to train the trainers. A three week course was held for local people appointed as island development coordinators, along with Save



the Children Fund and American Peace Corps volunteers. During this course, the metal formers (or moulds) were made up from old corrugated tanks to facilitate the tank building process and a simple handbook was produced.

After the course the coordinators returned to their islands to develop a work plan with the islanders. Financial and material contributions were collected, storage tank and catchment sites selected and volunteer labour organized. Volunteer tank crews on each island were then taught how to build a water tank and catchment system. These crews built the systems over the rest of the project cycle, becoming experts in construction techniques and discovering some improvements on their own.

By June 1984, after two-and-a-half years work, 80% of households had their own water tank next to their house. Each tank holds 1000 gallons (4543 litres). This is considered enough to provide a family with drinking water throughout the dry season, if rationally used. The

840 storage tanks and 690 catchment roofs built ensure a year-round, clean water supply throughout the archipelago. Because the tanks are covered, there has been a noticeable fall in the number of mosquitoes.

Local response was extremely favourable. The programme has made a difference to the daily lives of the islanders, especially the women. During times of drought, water had to be severely rationed. Now it is plentiful. All the water a family needs for drinking, cooking and washing is there at the tap right beside the house whenever it is needed. In addition, the islanders have acquired a skill in working ferro-cement which has been put to good use in other projects.

The low cost and simple construction technique involved have ensured the success of this micro-project, which proves the worth of small but realistic operations of this kind. Like the village water project in Burkina, it shows that useful results can be achieved, without necessarily spending huge sums, by a combination of European assistance and local involvement. ■





Madagascar: Irrigation microprojects

The Madagascans are the planet's leading rice consumers, with an annual consumption of nearly 200 kg per person. The country has to import between 150 000 and 200 000 tonnes of rice every year. Self-sufficiency in this basic commodity can only be achieved through increased production and the extension of rice paddies.

All Madagascans, whether of African or Indonesian origin, grow rice and know it well. Since the last century, they have been covering the high plateaux of the island with a dense network of canals to irrigate their fields. It is not a rare sight to see a farmer with 10 kilometres of canals to irrigate his rice field. The cultivation and irrigation of rice hold few secrets for the Madagascan farmer.

However, in addition to the farmer's know-how, rice also needs soil, sun and water. There is no shortage of the first two in Madagascar, but the third element, although present, can be capricious, irregular and sometimes ferocious, for the island lies in the path of cyclones which sweep the Indian Ocean. With each torrential rain and flood, the water would wash away dams and canals built from stone, earth and branches. These then had to be rebuilt, and in the meantime, starved of water, rice yields fell.

It was against this background that a whole programme of micro-water projects was set up, with European Community support, to control water for irrigation. As pointed out

earlier, there was no need to teach the Madagascans anything: they knew how to find water and to cultivate rice. All they needed was to consolidate their traditional infrastructure and to find durable materials to replace those they traditionally used. Between 1978 and 1986 (i.e. during Lomé I and II), 1 274 small dams and canals, 118 bridges, sills and culverts were constructed in the most densely-populated region of central Madagascar. Cost: 11.6 million ECU. All in all, the programme benefited 208 000 farmers cultivating 46 000 ha of rice fields. It also brought another 3 000–5 000 ha under cultivation. Rice yields increased from an average of 1.5 tonnes per hectare to an average of 2.4 tonnes per hectare.

A successor programme covering the period 1986–90 provides for the improvement and consolidation of 713 dams and canals, 120 culverts, and other communal infrastructure such as nurseries and warehouses. It will involve some 19 500 ha and bring another 1 500 ha under rice cultivation.

This programme, financed from Lomé III funds, will cost 8.35 million ECU, and is run on the same lines as its predecessor, with the participation of the same three partners – the rural communities (Fokonolona), the Madagascan Government and the

European Community. Each job done or building constructed is the result of a specific request from the farmers to the government. The Community provides the inputs – cement, reinforced concrete – and pays for their transportation and for works supervision. The Fokonolona provide labour and some local materials like wood or gravel. The government provides contractors who supervise the works and train the farmers on the job.

Whenever discussions and negotiations have not resulted in agreement, the Community has refused to become involved. For example, in some cases neighbouring villages have been unable to agree on a common dam, which would have given them a regular, guaranteed water supply, opting instead for two separate traditional water catchments which have to be rebuilt after every flood.

Such local disagreements apart, these programmes have been well received. Their popularity can be attributed in part to the fact that farmers own the irrigation and drainage works which they have requested and helped to install. Another point in their favour is that management and maintenance are easy because the installations are on a fairly modest scale, servicing fields of between 20 and 150 ha. ■



Micro-water projects in Madagascar: more than 2 000 small irrigation works for 70 000 hectares of rice

Animal husbandry

Animal husbandry is an age-old occupation. The importance of livestock in many rural economies is paramount: a source of draught power in many areas, a source of food in all countries, animals – large or small – are also a source of income for many livestock owners.

In Asia, Europe and North Africa animals have been trained to do farm work for thousands of years. In Black Africa animal traction seems to have been introduced only in the last century, and has not been universally adopted. In the industrialized countries tractors have largely taken over from animals. Elsewhere, however, draught animals remain essential for the production of food.

The camel, the cow and the goat are all sources of milk. For regions with large nomadic populations such as the Sahel or Somalia, milk is a basic food. Drunk fresh or curdled, eaten in butter or cheese, milk is the main element of their diet.

Animals are of course also important as a source of meat, particularly sheep and, to a lesser extent, goats. In many areas, larger cattle tend to be kept for trading purposes rather than for slaughter. Income from their sale is used to purchase other commodities.

Besides milk and meat, livestock also provides manure, used as both fertilizer and domestic fuel; and animals provide saleable commodities in hides, skins and wool. World trade in these products is currently dominated by a few large cattle-raising countries (Argentina, Australia and New Zealand in particular). A number of African countries are also exporters, although on a much smaller scale. It is generally agreed that Africa could increase its share of trade in hides, skins and wool if the general level of animal health was higher. This would lead to larger quantities of quality skins and wool being available for export, which would give African producers a better chance against exporters from the richer countries.

Animal health is a question of veterinary care, breeding and feeding. The first two call for specialized knowledge and considerable sums of money, while feeding poses serious problems in the semi-arid regions. Grasslands, trees and bushes provide 85–90 % of livestock feed, but natural pastures are constantly diminishing as a result of drought, population increase and overgrazing.

Drought kills vegetation; population pressure means that more land must be given over to cultivation; while overgrazing, partly the result of excessively large herds and an increase in settled farming, is encouraged by traditional attitudes which will change, if they do change, only very slowly. The possession of a large herd confers prestige, provides the means to pay for various social obligations (such as a wife's dowry), and is widely seen as the best guarantee of survival in the wake of epidemics and natural disasters. The consequence has been a tendency to concentrate on quantity rather than quality.

As a result of the loss or impoverishment of much natural grazing land, more attention is being paid to the use of agricultural by-products (straw, sugar cane residues, plant tops) in animal feed. Our first example of Community support for livestock development presents an attempt to increase the use of straw as fodder in Egypt. Two further projects illustrate other aspects of animal husbandry as applied to cattle in Ghana and to sheep and goats in Botswana.

Egypt: Straw as fodder

According to one fairly recent estimate, there are 5.3 million farm animals in Egypt. The country has been struggling for years with the problem of how to feed them.

Nearly all of Egypt's population lives in the fertile valley and delta of the Nile (the rest of the country is desert). No more than one tenth of the land is fertile, and this narrow strip has to support 45 million inhabitants. In a country where there is not enough arable land to feed the human population, it is extremely difficult to give any of it up to fodder production.

The shortage of land for food crops combined with a high population growth rate has made Egypt one of the world's leading importers of cereals, meat and milk products. Despite a 25% increase in meat production between 1970 and 1980, from 282000 tonnes to 354000 tonnes, the gap between supply and demand remained unbridgeable. During the same period, demand for meat rose by 45%, from 319000 to 464000 tonnes. For the same period, production of milk and milk products rose by 1851000 tonnes, but was still unable to satisfy demand, estimated at 2618000 tonnes.

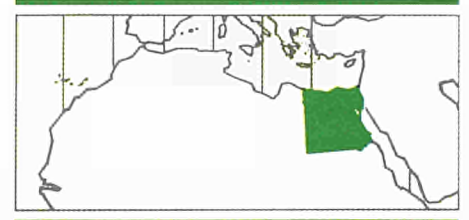
With demand rising rapidly, and production unable to keep up, the importation of food products could only increase. Between 1970 and 1980, the volume of meat imports alone rose sharply from 37000 to 110000 tonnes, an increase of almost 200%. In the circumstances, Egypt is faced with increasing demand for imported cereals to make animal feed, on the one hand, and for meat and milk products to meet the needs of its population, on the other.

In an attempt to find a solution, the Egyptian Government is trying to reduce the deficit in its balance of payments by improving and increasing livestock productivity.

For some years now, the country has been using new technology to turn its agricultural residues into livestock fodder. Rice straw is the principal by-product used at present to feed animals, but there are plans to treat maize or sugar-cane residues for the same purpose.

The *animal feed improvement project*, supported by the Community with a grant of 2.4 million ECU, aims to encourage farmers in the Nile delta to make increasing use of alternative livestock feeds. The project, which began in 1986, follows on from an older FAO programme dating back to 1979. Three by-products have been produced for sale to cattle farmers: ammonia-treated straw, enriched liquid molasses and molasses blocks. The products are not all designed for the same type of customer.

Rice straw, treated with 5% ammonia to make it richer in proteins, more appetizing and easier to digest, is intended for large farms because the treatment is only economic if applied to large quantities (at



least 20 tonnes) of bales of straw. Such quantities of straw would be bought by farmers owning at least 100 head of cattle. Experiments are in progress to treat straw with urea, which small farmers could buy because it would be cheaper.

Liquid molasses – a by-product of sugar cane – is a suitable product for small farmers too, for they can spray their straw stack with it. Molasses, to which mineral salts, urea and phosphoric acid are added, considerably increase the nutritive value of straw.

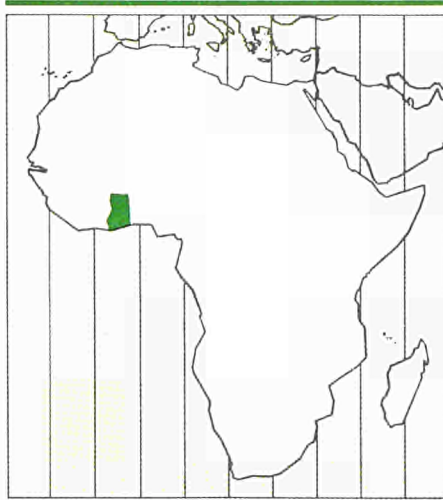
Molasses blocks, also enriched, are sold to large and small farmers alike. They are like large bricks of solidified molasses which the animal can crunch. Of the three products, the blocks are proving the hardest to sell.

Treating bales of straw with ammonia



In addition to the Community contribution, the Egyptian Government has provided a matching contribution of 2.2 million ECU from food aid counterpart funds.¹ A total of 4.6 million ECU is therefore available to finance project staff training and remuneration, the purchase of bulk tankers for distribution and tanks for storage, the construction of six centres for the supply of ammonia and molasses, and the construction of a factory to prepare molasses (El fufeed, as the Egyptians say) and to manufacture and package the molasses blocks (El Mukamil). These buildings are under construction but production has already begun.

For the time being demand from farmers for the different products outstrips supply. The by-products are sold at a profit, and profits are reinvested in the project, which should not only survive but expand. In the months ahead special attention will be paid to the marketing of milk and to the price paid for milk to producers. An increase in the producer price would encourage livestock farmers to increase production and thereby make Egypt a little less dependent on food imports. ■



Ghana: Livestock development (oxen and cows)



White Fulani Zebu and West African shorthorn cattle, Aveyime ranch

Owning a herd of cattle is one thing, keeping it in good health is another. While Ghana, or at least its central and southern part, does not suffer from drought or shortage of pastures, cattle farming has been plagued by recurring outbreaks of contagious diseases. Many cattle, and particularly calves, have been lost for lack of proper animal health care.

Located 75 km outside Accra, the *Aveyime livestock development project* aims to improve animal husbandry by organizing veterinary services and ensuring their regular use

to reduce mortality levels, especially among calves, increase productivity and, indirectly, raise food production. Initially started with Italian development aid, the EEC became involved in 1982 and supported the project with a grant of 3.2 million ECU. Particular emphasis was laid on animal health.

The ranch, hitherto unknown in the region, was introduced as a means of obtaining more productive animals. Ranching, widely practised in big meat-producing countries like Argentina and the United States, consists of settling herds normally used to ranging free.

After four years, the approach has gained a certain amount of credi-

bility in the eyes of traditional cattle farmers. The project's veterinary staff explained to them the advantages of cross-breeding and, on the health side, encouraged them to vaccinate their herds effectively. Several centres were opened for the sale of vaccines.

The wisdom of systematic vaccination was amply demonstrated when an outbreak of rinderpest occurred in the region in 1985. Under the influence of the project, a vaccination campaign had just begun in each of the villages surrounding the ranch.

¹In Egypt, a joint committee of government and Commission officials manages the food aid counterpart funds. It is this committee which decides how these funds are to be used in the priority areas of food strategy and rural development.

During the campaign some 700 animals were vaccinated and only 18 animals registered with the veterinary services died. Prevention thus averted major losses, whereas mortality was much higher among herds belonging to traditional cattle farmers who had not had their cattle effectively vaccinated.

The vaccination campaign helped to establish contacts and begin direct discussions with cattle farmers to make them aware of existing shortcomings and suggest improved methods of livestock care. Informal meetings were organized by the project personnel to explain, with the aid of slides, posters and other available audio-visual means, the root causes of diseases, and ways to control them, as well as breeding techniques. The results have been encouraging. In 1984, 1251 cattle from 19 kraals (an average herd consists of 150) were vaccinated; by the end of 1985, there were 2641 cattle from 28 kraals which had been vaccinated.

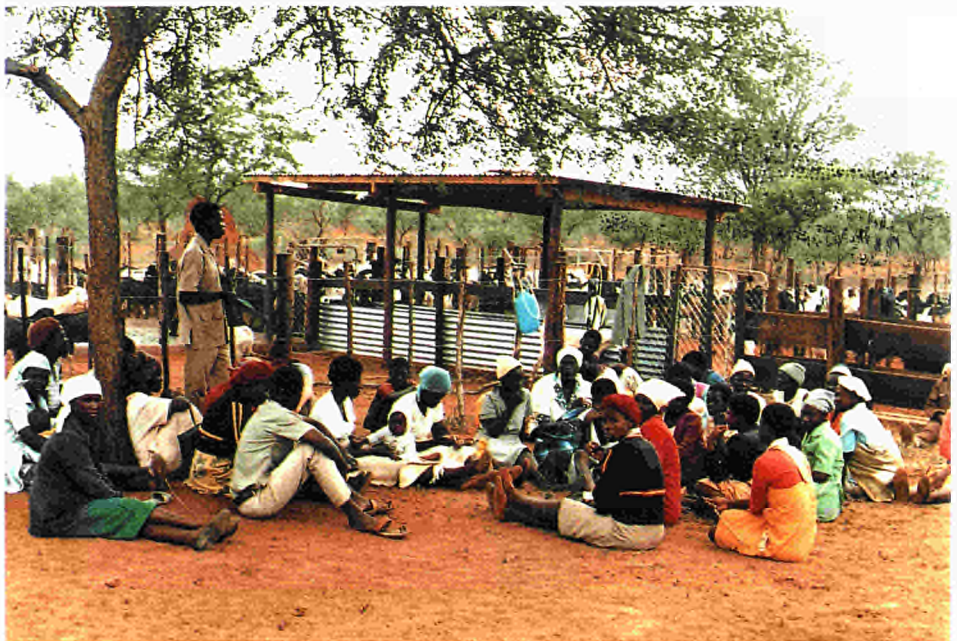
At this stage of the project, cattle farmers agreed to pay for drugs, mineral salts, vaccines and services, something they had been hesitant to do at the beginning of the project. Proceeds from the sale of these products are used to replenish stocks.

The ranch itself occupies 2000 fenced hectares where quality herds are raised for breeding. Regular disinfection and cleaning is carried out as a matter of course and all calves are vaccinated at birth. Calf mortality dropped to 5.1% in 1985, compared to 18% outside the ranch.

The ranch also provides farmers with draught animals. The most sought-after species is a cross between the local West African short-horn or N'dama and the white Fulani zebu. Farmers prefer the cross-bred animals because of their larger size, and because they retain some of the N'dama race's resistance to trypanosomiasis (to which Fulani zebu are vulnerable). To meet the demand, cross-breeding is carried out according to well-established criteria: productivity, sex, weight, percentage of cross-breeding, etc.

Research on plants found on the grasslands is another activity which the ranch has undertaken, in collaboration with the Animal Research Institute, for the production of seed-

lings. The ranch practises sound management to avoid overgrazing. For example, some pastures are fenced off during the rainy season so that they will be ready for grazing in the dry period. The project has been so successful that it is planned to expand the extension services programme to cover the plains east of Accra, where there are an estimated 60 000 head of cattle. ■



Meeting of smallholders around a treatment centre for sheep and goats

Botswana: Livestock development (sheep and goats)

Botswana covers a vast area, 583 000 km², much of which is desert or semi-desert. Botswana's population density is relatively low – a little over one million people. Large and small ruminants outnumber humans by

approximately four to one and the keeping of livestock is the principal activity for the rural population.

Beef exports earn foreign exchange for Botswana and are placed third in importance behind those of diamonds and copper/nickel matte. The European Community imports about 70% of Botswana's total beef exports, making it by far the country's most important market. Climatic conditions severely restrict arable agriculture. This underlines the importance of the livestock sector as a source of food for local consumption. Sheep are primarily a source of meat while goats provide both meat and milk. Small stock are used more and more in barter trading in the rural areas but with increasing exports of goat and sheepmeat, small stock is becoming an important source of rural income.

Botswana is noted for its large herds. Recent estimates put the cattle population at about 2.2 million head. The country also supports large numbers of smaller ruminants – something in the region of 2 million

sheep and goats, the majority of which are owned by smallholders living in rural areas. However, roundworm may cause high mortality among sheep and goats in Botswana. Research has confirmed that up to 40% of young small stock may die from worm infestation within the first six months of birth. In addition, parasites reduce the quality of meat

and wool and reduce fertility of the reeding flock.

The Botswana Government identified the small stock sub-sector as one of its priority areas in the 1976–81 five-year development plan. European Community assistance was sought and the Community responded with financial and technical aid totalling, over two separate four-year phases, some 2 865 000 ECU. The *sheep and goats development project* aims to assist small stock owners throughout the country to improve their methods of production, principally through advances in animal health, but also through improved extension and small stock reeding programmes. Special attention is given to the Karakul – or Astrakhan – sheep industry based in the remote Kgalagadi district. This project component has focused on the establishment of a farmer training centre and Karakul sheep breeding farm in the district.

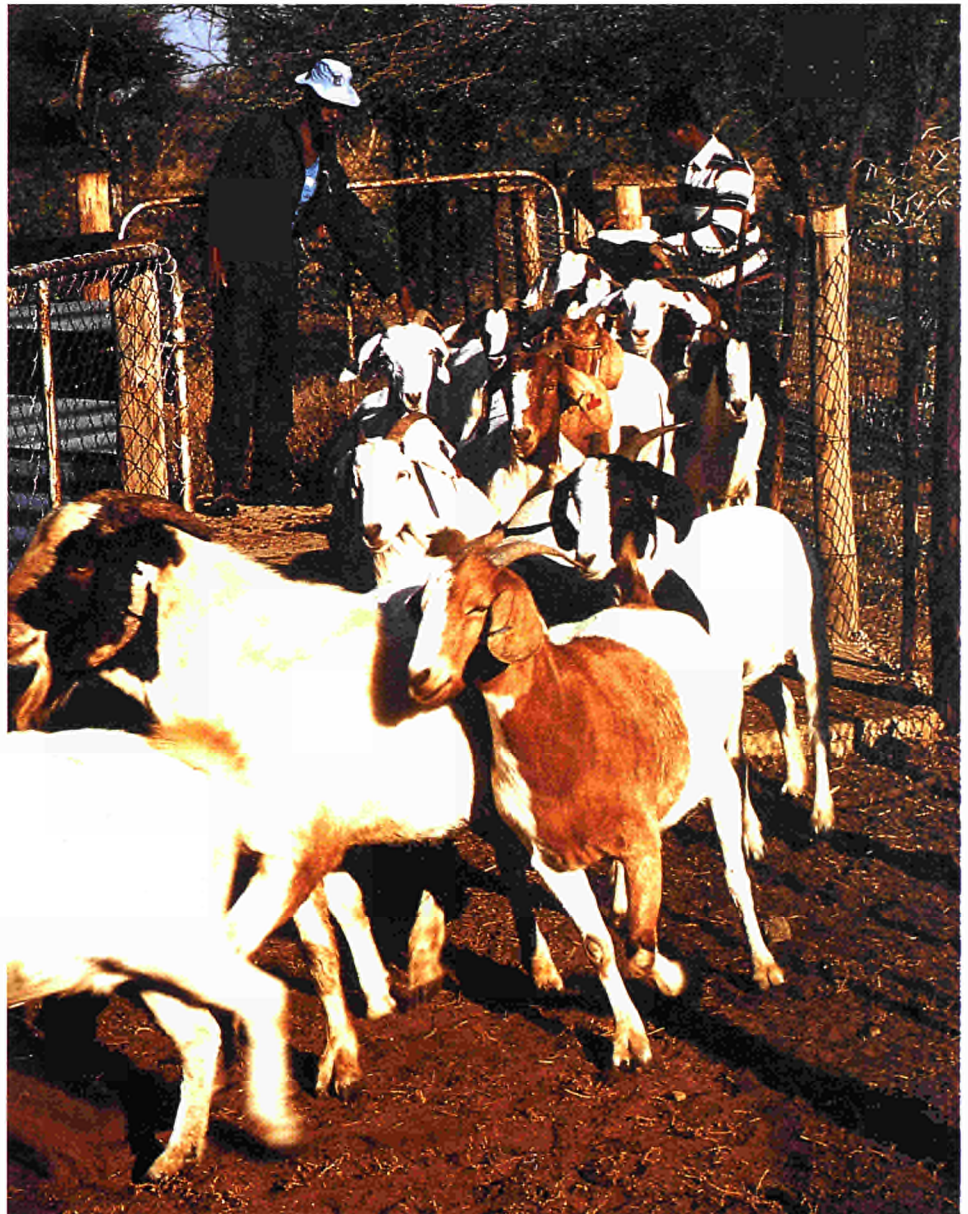
The first phase of the project and its training activities met with some success. Smallholder associations were formed, animal parasite treatment centres were built and demonstrations were carried out on improved methods of feeding and caring for sheep and goats. Since the project was started in 1979, the small stock mortality rate has fallen and there has also been an increase in the lambing rate, but the project period 1979–87 coincided with a period of drought, during which parasite infections are naturally reduced. To develop more productive animals, a small stock breeding programme was formulated and selected rams are now sold at subsidized prices to small stock owners in order that these improved stock may mix with the farmers' own flocks.

In addition to continuing the four first-phase project components of extension, breeding, applied research and the Karakul industry, the second phase introduced a marketing component to the project. The objective of this component is to increase rural incomes by increasing the slaughter of small stock to meet the export demand for meat and for the local urban market.

The Botswana Meat Commission is the main export abattoir and buys animals from the commercial and

communal farming sectors. In a bid to encourage smallholders to increase their sales to BMC, the BMC annually reviews the price which it pays per animal, whether cattle or small stock. In 1982, BMC's small stock price was increased by 40% to bring it in line with cattle prices, and since 1983 when 7 500 head were slaughtered, the number of animals slaughtered by BMC has risen each year, to 33 600 in 1986 and to an estimated 55 000 head in 1987.

In addition, the smallholders of Kgalagadi District obtain a revenue from the improved quality of Karakul pelts marketed in Europe and Karakul wool purchased and manufactured locally. ■



Goats are herded into a treatment centre for de-worming

(Photos: J. Arnhold)

Fisheries

Fisheries are an important source of income and employment in many developing countries. Fishing, the processing, storage and marketing of fish, and the production of fishing boats and equipment occupy considerable numbers of people. Fish, rich in protein, is an important source of food, and one which could play a greater role than hitherto in eliminating malnutrition.

Fisheries are by no means restricted to coastal States. Lake and river fishing is a significant activity in many land-locked countries – Malawi, Mali, Uganda are just three examples which come to mind – and in the inland areas of many countries with a seaboard. These are of course the only ones concerned with maritime fishing, an activity which is usually subdivided into deep-sea, or distant fishing and coastal fishing.

Distant fishing is rarely practised by developing countries. It requires ocean-going vessels, expensive equipment, port facilities, shipyards and a skilled workforce for repairs and maintenance. Very few ACP States possess an industrial fishing fleet. Their 200-mile exclusive economic zones (EEZ) tend to be fished by foreign vessels. Some of these vessels are of Community origin. Their activities are regulated by the fishery agreements which the Community has signed with a number of coastal ACP States.

Under the terms of these agreements, which are all very similar, fishing vessels flying the flag of a Member State of the EEC are entitled to catch fish, on certain conditions, in the ACP signatory State's EEZ. In exchange, shipowners are obliged to pay licence fees and to land a proportion of their catch in the authorizing country, and the Community agrees to pay a certain sum in compensation to the ACP State and to provide fisheries training scholarships. Although primarily commercial, these agreements can help to develop fisheries in the ACP countries concerned: the landing provisions are designed to encourage local processing and marketing of fish, while the Community payments can be used to finance fisheries development, and the scholarships will train ACP nationals in the scientific, technical and economic aspects of fishing.

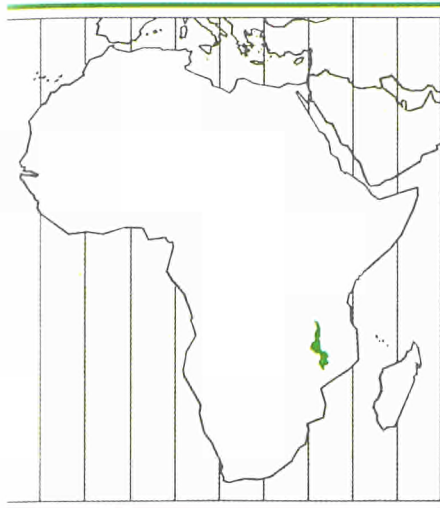
Coastal fishing, on the other hand, has been practised from time immemorial by all peoples living by the sea – although quite often to a surprisingly limited degree. Natural phenomena have imposed limits: lack of natural harbours along much of Africa's east coast, strong currents in the Gulf of Guinea, coral reefs around many of the Pacific islands. Lack of modern equipment and port facilities has also severely limited the expansion of fisheries in more recent times. Inland fishing, like sea fishing, has remained very largely traditional in methods and equipment.

The Community's assistance has been concentrated for the past 10 years on the traditional sector – developing small-scale, artisanal fisheries. Working in this area has proved difficult. A long-running attempt to help a poor fishing community in the islands off the coast of Sierra Leone has had to be re-directed three times: the new boat designs originally envisaged turned out to be no improvement on the traditional flat-bottomed pirogues; the inboard engines proposed, although lighter on fuel than the ones they were designed to replace, proved to have other disadvantages; assistance will now be focused on the provision of basic repair facilities, greater mobilization of the local communities, and fish processing and marketing, which is where the real problems appear to lie.

Lessons have been learnt from experience of this kind. In Malawi, which provides our first example, attention was paid to each aspect of the fisheries industry – processing, marketing and access to markets as well as fishing – with beneficial results. In Vanuatu, where the chief object is to encourage subsistence fishermen to get together and move into commercial fisheries, assistance has been given in a modest, gradual way which has produced positive results.

In common with other donors, the Community has financed a number of fish-farming schemes, particularly in Asia through non-governmental organizations. However, the biggest project which the EEC has financed directly is in Africa – the introduction of aquaculture in Benin – and we have selected this project for our third example on account of its experimental interest.

Over the period from 1960 to 1975 fisheries were not one of the priorities of the Community's partners. Port facilities took most of what little money was spent in this sector. With the arrival on the scene of many more coastal ACP States, and increased awareness of the contribution fisheries could make to developing economies, aid for fisheries doubled under Lomé I and doubled again under Lomé II. A considerable number of fisheries projects have been financed in Asia and Latin America since 1976, although very few in the southern and eastern Mediterranean. Total Community spending on fisheries between 1960 and 1985 was in the region of 180 million ECU. Greater emphasis on fisheries in the third Lomé Convention suggests that spending in this area could well increase further in the coming years.



Malawi: Lake fishing

Fish are an important national resource for Malawi. Lake Malawi, the world's 12th largest lake, and other smaller lakes and rivers are richly stocked with nearly 300 species of fish, and provide annual catches totalling some 75 000 tonnes. Fish, as a food item, accounts for 70 % of the animal protein in the Malawi diet. Annual consumption in the southern

regions is estimated to be nearly 10 kg per person, which is considerable for Africa.

The organization of the fishing industry and the methods used are predominantly traditional. The dug-out canoe is the most common fishing craft. Each activity – fishing, processing, transportation and sale – is a separate occupation, carried out by a different person, and hence earnings are spread fairly evenly among a large number of people.

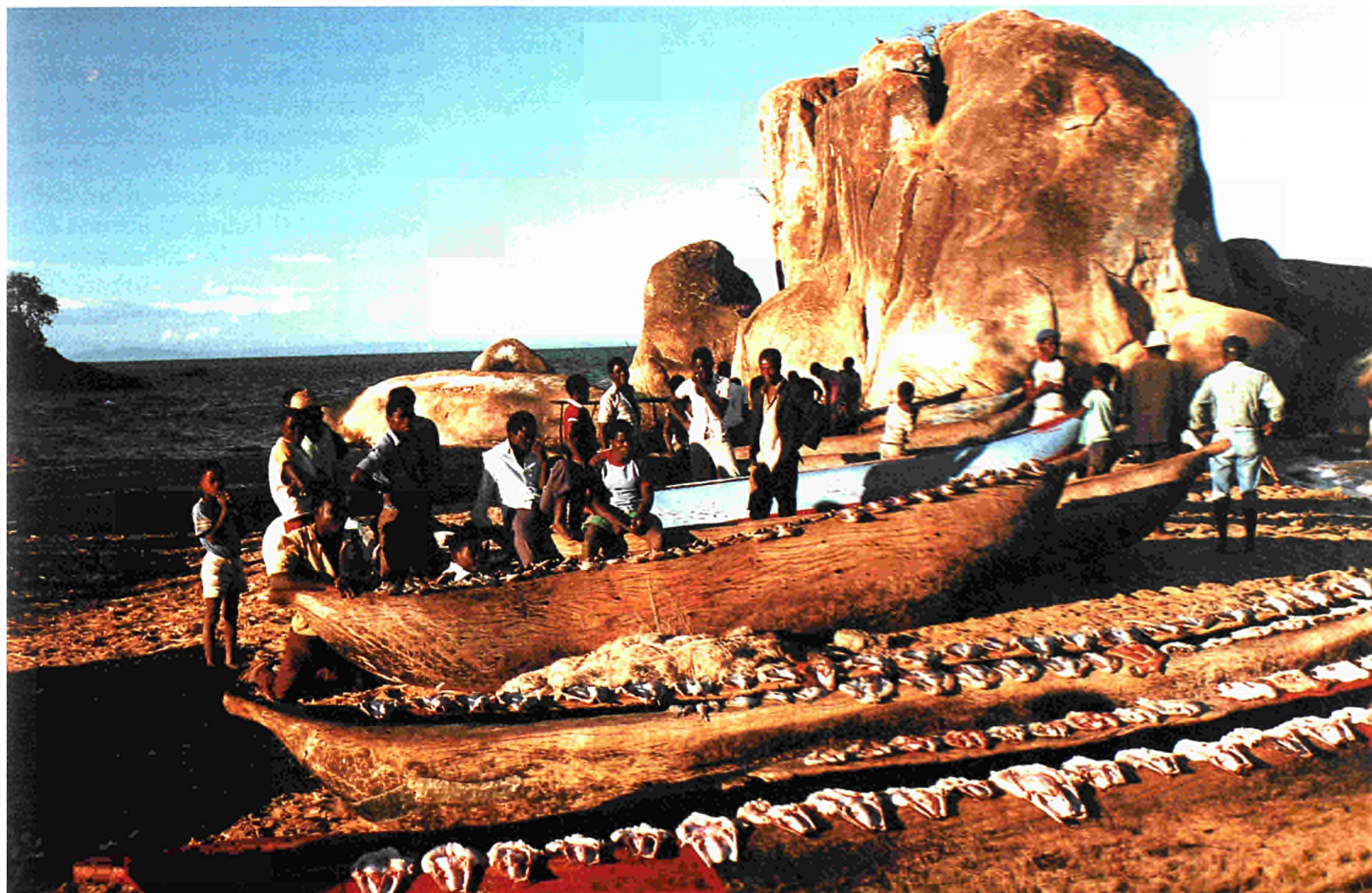
However, expansion of the industry has been hampered by a number of factors. The traditional canoe is dug out of the trunk of a species of large tree which is becoming rare around the lake. In addition, this type of canoe is unsuitable for off-shore fishing because it is unsafe in bad weather (Lake Malawi is subject to drastic weather changes and many Malawian fishermen have been lost in sudden storms). Furthermore, processing and cold storage facilities are often inadequate. Good roads connecting landing areas with inland markets were few and far between.

In order to overcome these obstacles to the expansion of the fishing industry, the Malawi Government, with the assistance of the EEC, set up the *Central Lake fisheries development project* in 1979. The project, to which the Community contributed 1.82 million ECU, has now been completed, and overall the results are considered to be positive. There has been a general improvement in equipment and infrastructure; more efficient methods of processing have been adopted, and trade has increased.

The project boatyard has provided over 70 planked boats which have proved safer in bad weather than the traditional dug-outs. The yard, run on a profit-making commercial basis, also sells engine spares and other equipment such as nets, and does repairs and maintenance.

Access roads have been built to 13 new landing beaches along the lake, making it much easier for traders to transport fish quickly to the main markets inland. New facilities have been provided at the landing

Lake Malawi fishermen



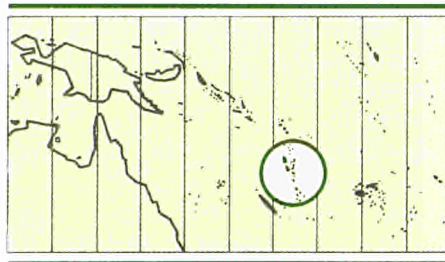
areas: these include slabs on which to prepare fish before processing, a supply of clean water for cleansing fish, and improved smoking kilns for processing.

The traditional method of smoking consists of placing one layer of fish on a grid over an open fire, and cooking – and usually charring – the fish. In the kilns several trays of fish are smoked at a time, resulting in greater output and more economical use of woodfuel. Nearly 150 smoking kilns were provided under the project.

An improved method of drying fish has also been introduced. Traditionally fish were dried in the open air. During the rainy season, from April to November, losses of up to 30% were commonly suffered as a result of blow-fly infestation. The project has cut out 99% of losses from infestation by dipping fish in an insecticide solution used in Malawi to preserve maize. Increased sales of the insecticide suggest that this new method has been widely adopted.

Another of the project's activities has been the sale of ice from an ice plant in the main town of the Central Lake area. Both fishermen and traders have found that the availability of ice has reduced losses from spoilage (temperatures are high all the year round in the lakeshore area) and has improved the quality of their fish, for which customers are prepared to pay higher prices. A comparison of ice sales in March 1983 and March 1985 showed that these had almost quadrupled in two years.

Less waste, higher prices, better quality fish: on the strength of these results the project can claim fairly to have raised living standards for fishermen, traders and consumers in the central lake region, without having wrought any unwanted radical change in the traditional pattern of the fishing industry in Malawi. ■



Vanuatu: Off-shore fishing

Vanuatu, an archipelago in the South Pacific, is surrounded by waters containing tuna and other migratory species which could make a considerable contribution to the economic and social progress of the country. Fish is an important part of the islanders' diet. To satisfy its domestic needs, Vanuatu imports between 700 and 800 tonnes of tinned fish annually. Out of an average yearly consumption of 24 kg per person, only 15 kg are fished locally.

This paradox is explained partly by the fact that Vanuatu has no strong tradition of open sea fishing. As is usual in this part of the Pacific, the islands are ringed with submerged coral reefs, and most fishing is done between the reef and the shore, where stocks are obviously limited. Fishing in the open sea beyond the reef is not unknown, but has never been practised on anything more than a very small scale. Oceanic tuna fishing is carried out almost exclusively by foreign vessels.

Catching more fish locally, and thereby reducing imports, can only



Tuna-fishing off Vanuatu

be done if off-shore fishing is developed. But the majority of fishermen are not equipped to fish beyond the coral reef, where deeper, rougher waters call for engine-powered boats, a minimum of equipment and different techniques.

In an attempt to encourage off-shore fishing the Vanuatu authorities and the EEC launched a series of microprojects in 1982 to initiate subsistence fishermen in off-shore fishing techniques, to show them how to repair outboard engines at sea, and to instruct them in elementary accounting.

Fishermen's associations were formed, and encouraged to save up for specific items: a refrigerator to make ice so that more fresh fish would be available, and even a vehicle to sell fish on the bigger markets further afield.

Much of the outside assistance was provided by expatriate volunteers, who have been living among the fishermen and whose daily presence contributed enormously to the progress of the different projects. The manner in which help has been given has appealed to fishermen, and the original 15 or so microprojects

were followed by many more similar operations. Today there are 80 associations employing around 500 fishermen practising small-scale commercial fisheries.

At this stage the basic techniques have been mastered and a new project to provide fisheries extension services and a training centre, will attempt to consolidate progress throughout the archipelago and bring more subsistence fishermen to small-scale commercial fishing (there are thought to be over 8 000 households still involved in subsistence fishing in Vanuatu). At this more advanced stage, fishermen will be trained by professionals rather than volunteers. The courses will be more advanced, dealing with such areas as fishing methods, boat maintenance and repair techniques, conservation of fish stocks, refrigeration and marketing.

The project is expected to cost 1.7 million ECU and will provide a training centre in Luganville, on the island of Espiritu Santo, where trainees will reside for the duration of the course. Courses on off-shore fishing techniques will also be organized in each of the country's administrative regions. In a bid to encourage fish consumption (copra is the staple food), campaigns to explain the nutritive value of fish will be undertaken, aimed particularly at women.

With the development of off-shore fishing, there has been a noticeable fall in fish imports. According to experts, Vanuatu should be able to provide its fish needs from its own resources in the next three to four years, which means that export possibilities can then be explored.

The project has had something of a snowball effect within Vanuatu, and a similar operation could well be tried out in other Pacific countries. ■



Benin: Fish farming

Fish farming (aquaculture) involves rearing and managing aquatic organisms, primarily fish and shellfish, in an enclosed space controlled by man, usually a pond or cage, until they are ready to be sold. The method is not without risks – losses from disease

of the nineteenth century; but it was not well known in Africa south of the Sahara until very recently, where it was introduced largely on the initiative of the FAO. In the 1970s, fish farming was widely seen as a worldwide solution to the problem of producing more food for a rapidly growing population, and the technique was encouraged, with varying results, in many developing countries. The Community has been involved for some years in this area, and more recently in an interesting fish farming experiment in Benin.

The coastal area of Benin, which supports one third of the country's population, possesses a network of brackish lagoons behind a narrow strip of land fronting the Gulf of Guinea. These lagoons provide some 60% of the fish consumed in Benin; sea fishing is restricted by the notoriously strong currents which make fishing in the Gulf of Guinea a hazardous occupation.

Confronted with the twin prob-



Traditional fishing on Lake Nokoué

can be heavy, and a fairly substantial initial outlay is required – but fish farming can be profitable if well managed and is the soundest way of increasing the amount of fish available for consumption.

Aquaculture has been practised in China for thousands of years, and in Europe since the sharp rise in popu-

lation of population growth and shortage of farmland, the government of Benin was concerned to increase the food supply without incurring the financial strain of importing food. It was suggested that fish farming would be a good way of increasing the production of fish. In 1978 the Community undertook to support the



Aquaculture: cages in the lagoon

introduction of aquaculture with a 1.7 million ECU grant.

The project's activities began with the construction of an aquaculture station near Benin's largest lagoon, Lake Nokoué. The station comprised some 55 ponds to mass-produce seedlings of suitable species or hybrids of *Tilapia*. These fingerlings, as they are called, were then transferred for fattening to marketable size into net cages installed in the lagoon.

Lake Nokoué lies behind the narrow strip on which stand Cotonou and Porto Novo, the biggest centres of population. The lagoon is extensive and shallow. Shrimp fishermen live along its southern shore (the lake is connected to the sea and the water is brackish); its northern shore harbours the 'freshwater' fishing community, centred on the picturesque village of Ganvie built on stilts in the lake, with which the project first became involved.

Fishing is traditionally carried out with the aid of 'acadjas'. These are brush parks of different shapes built with mangrove branches driven quite close together into the bed of the lagoon. Fish are attracted by the shelter which the parks provide and the organisms which grow and feed on the gradually decomposing branches. Fish can swim in and out of the acadjas, but they are usually found in greater numbers inside the parks than outside. At harvest time the acadjas are encircled by nets, the branches are pulled up and the fish are hauled out. This system is already halfway between capture fishery and aquaculture, and so it represented the most natural starting point for the project.

The project staff implanted cages near concentrations of acadjas in the middle of the lagoon, stocked them with fingerlings from the ponds, and fed the fish with pelleted feeds produced by the project's feed mill on

the lakeshore. Ganvie fishermen working on project cages have established a shuttle service between the feed plant and the cages. Fish cannot escape from the net cages, which hold a lot of fish in a relatively small space. Space on the lagoon, as on the land, is at a premium and there exist well-defined rights to stretches of water.

Having demonstrated the increase in output per unit of area to be obtained by this method, the project staff introduced a system of credit in kind to induce local fishermen to rear fish in cages. The project offered netting, fingerlings and fish feed in return for an undertaking to pay back, from sale proceeds, the cost of the initial investment provided by the project.

The introduction of fish farming on Lake Nokoué has had its ups and downs. Heavy losses were suffered in 1985 as a result of a rise in the level of salt in the lagoon. On the other hand, satisfactory commercial results have also been recorded. With Cotonou on their doorstep, fishermen have no shortage of buyers; and 'FED fish', as the Beninois rather amusingly call the products of the new technique,¹ fetch top prices in the market place. In addition to the proximity of a good outlet, two other factors should help fish farming to survive and flourish on Lake Nokoué. Thanks to the system of acadjas, local fishermen are used to handling fish, a prerequisite for successful aquaculture; and the project has won the approval of the village chiefs, which makes widespread adoption of the technique much more probable.

In 1985 the 50-odd fish ponds built by the project produced 400 000 young *Tilapia nilotica* and 125 000 young *Tilapia mossambica*... not exactly small fry. Some of these were

cept back for reproduction, and some for fattening in the ponds, but the vast majority went into the cages in the lake for fattening and sale. The quantity of fish sold on the market was considerable, despite the losses inflicted by the rise in the salt content of the water that year. The project is now experimenting with different species of fish which, while having market appeal, have higher resistance to the varying degrees of salinity of the lagoon.

The possibilities for expanding fish production in the lake are limited, and so the project has been encouraging farmers up-country with some spare land to invest in a fish pond or in what are known as 'trous poisson' or whedos – water-filled depressions which could be used for fish farming. It has had limited success so far. Efforts are now being made to train people better in pond management and convince them to



Tilapia fattened at the project's fish farm

feed the fish more systematically than at present. This would lead to much greater use of ponds and depressions and thus increase output. However, lack of experience with feeding animals creates a cultural barrier which has first to be overcome. This unfamiliarity lay behind the failure of attempts to promote the pig-cum-fish farming which has been so successful in Asia. The project is learning these lessons and taking greater pains to adapt its innova-

tions to local custom and gradually come to an acceptable compromise between traditional attitudes and modern technology.

This is more a question of information and training than material inputs. From the outset training has been an important part of the project, for aquaculture, like any new technique, needs demonstration, explanation and experimentation. The introduction of fish farming in Benin is essentially an experiment. After six years of practical work it is still too early to withdraw European support, but the emphasis on training should ensure that at some stage in the future aquaculture can be practised without resort to external assistance. ■

¹ *FED* are the initials of the *European Development Fund* in French.

Industry and trade

Industrialization has always been a priority for the developing countries, and the industrial sector is the second biggest recipient of Community funds: 26 % of all commitments by the end of 1986. In addition to manufacturing industry and small businesses, we have included under this heading extractive industry (mining), energy (a prerequisite for all industrial activity), tourism (an industry of considerable importance for some developing countries) and trade, which promotes the products of industry as well as those of agriculture.

For the ACP countries, the sector accounted for roughly 20 % of the resources of the first five EDFs. Taken together, the countries of the southern and eastern Mediterranean, which possess a more developed industrial base, have allocated 40 % of their Community funds to the industrial sector. In Asia and Latin America the Community can only finance industrial projects and trade promotion within the framework of regional cooperation; nevertheless these have absorbed 8 % of the resources placed at their disposal by the Community.

Three institutions are involved in industrial cooperation: the European Investment Bank (EIB), the Commission and, since 1976, the Centre for the Development of Industry (CDI), set up to promote cooperation between small and medium-sized businesses in EEC and ACP countries. The Bank, the major source of loan finance, can undertake lending operations in ACP and SEM countries, but its mandate does not extend to Asia and Latin America. The Commission can operate in all three groups of countries.

While the majority of resources have been devoted to manufacturing industry, energy projects have also taken a substantial share (nearly half of all funds for industry in the SEM countries and one third in the ACP countries). The mining sector, badly hit by the last recession, has received much increased support in recent years, largely through Sysmin, introduced with Lomé II. The other sectors – small businesses, tourism and trade promotion – have not been neglected by the Community, although the sums allocated to them have been more modest.

The section on trade includes a brief reminder of the EEC's trade arrangements with the developing countries, and an example of the practical application of the Lomé trade provisions on the one hand, and of the Community's generalized scheme of tariff preferences (GSP) on the other. These arrangements form an important part of the Community's cooperation agreements, and are one of the means of encouraging industrial development.

Industry

The two institutions which manage Community funds for industrial development – the Commission and the EIB – each have a different role to play in building up large-scale industries. The Commission deals with projects which require financing on easy terms (grants, special loans or interest rate subsidies) for things like social infrastructure, while the EIB provides reimbursable aid. Sometimes the EIB and the Commission join forces, as happened in the case of the Tanzanian and Jordanian projects described in this chapter. The EIB, however, is by far the biggest source of Community financing for industrial projects in the ACP and Mediterranean countries.

Under the financial protocols and agreements with these countries the Bank can make loans from its own resources – these are mainly the proceeds of its own borrowings – and put up risk capital, drawn from Community budgetary resources. Sometimes the Bank uses risk capital to enable a government or local development body to buy a stake in a firm. Alternatively, the EIB may take a direct share with risk capital in a firm's capital on behalf of the Community. Its participation, however, lasts only the time needed to get the enterprise off the ground.

Loans from own resources are granted on the same terms as in the Community. However, while covering its expenses, the Bank operates on a non-profit-making basis and can offer relatively advantageous terms. In addition, market rates attached to EIB loans are usually 'softened' by the Commission, through grant interest rate subsidies from the resources it manages. This lightening of a country's debt service burden is another form of aid. In this way interest rates are generally kept between 5% and 8%.

The EIB has been providing assistance to developing countries since the 1960s, and our first example concerns the cement industry in Cameroon which initially received the Bank's support in the late 1960s. Two further examples from ACP countries also concern the manufacture of products obtained by industrial processing: palm oil in Papua New Guinea and cotton gins in Tanzania.

For the southern and eastern Mediterranean countries, the EIB is the source of over half the Community financing made available to them between 1978 and 1986 under the first and second financial protocols. Some of these resources have been devoted to agriculture and in the previous chapter we saw what was being done for farmers with Community aid in two Maghreb countries. Most of the SEM countries, however, have given priority to industry and training. To illustrate Community support for industry in the region we have chosen the example of a new industrial estate in a Mashreq country, Jordan. Although the estate is designed for medium-sized firms, it merits a place in this section because of its overall turnover and the number of jobs created.



Cameroon: Cement

For centuries traditional buildings were erected with materials such as wood, mud or, later, bricks made of sun-dried or fired clay.

Portland cement, as it is known throughout the world (from the similarity between cement and the building stone quarried at Portland in England), has only existed for a century and a half. In most countries it has been widely used only over the last 50 years.

Cement is obtained by a three-stage process: crushed limestone is blended with clay and silica, this 'raw mix' is heated to 1 400°C to become clinker, and the clinker is ground with gypsum (to regulate the setting time) and, where possible, other active components such as pozzolana (a volcanic rock used by the Romans for its cementing qualities) to produce the final product.

Today, cement is absolutely indispensable for building. Mixed with water and sand it is used to make mortars; mixed with fine gravel and



Douala cement works

stones it produces concrete, which, together with reinforced concrete, has become an irreplaceable material for building and civil engineering.

In 1965, the Government of Cameroon decided to gain a foothold in this vital sector of heavy industry and set up the Cameroon Cement Company (Cimencam) to build and run two cement factories: a clinker grinding plant at Douala-Bonabéri on the coast, and an integrated plant at Figuil, located 500 miles away in the north near a deposit of limestone, to produce cement for local raw materials.

As a sign of the importance it attached to the venture, the Cameroon Government subscribed 39% of the capital of the new company. Cimencam's first task was to raise

money to build the two production units. One of the sources of finance was the European Investment Bank, which in 1968 granted a loan on special terms from EDF resources of 1.6 million ECU, repayable over 17 years including a seven-year grace period, at an interest rate of 3%.

The Douala plant began producing cement in 1970, with an initial capacity of 110 000 tonnes a year. The Figuil works, with a capacity of 46 000 tonnes, began production the following year. In the first full year of production, the financial year 1971/72, the company sold a total of nearly 150 000 tonnes of cement.

Since then, demand has risen constantly, and the EIB has provided from its own resources three further loans to help Cimencam expand pro-

duction: 650 000 ECU in 1972 to increase the capacity of the Douala plant to 240 000 tonnes a year; 2 million ECU in 1977 to raise the combined annual capacity of the two plants to 550 000 tonnes; and 6.6 million ECU in 1979 to bring total annual capacity to 970 000 tonnes.

Cement sales have confirmed the wisdom of this policy of expansion: after topping half a million tonnes for the first time in 1979/80, they have continued to rise, totalling just over 800 000 tonnes for the year 1985/86.

Cement consumption is expected to grow as the population increases (9.4 million in 1984, 10 million forecast for 1990), and total capacity has

been increased still further, to 1.1 million tonnes. Today the Douala mill, equipped with four grinding ball mills, one pozzolana dryer, two cranes for unloading gypsum and clinker, five bagging machines and 15 storage silos, can produce a million tonnes of cement a year; the Figuil plant, which includes a kiln, three grinding ball mills, two bagging lines and five storage silos, can produce 100 000 tonnes a year.

From its Douala plant Cimencam supplies the whole of Cameroon except the north, which is covered by the Figuil plant. This also provides cement to Chad. The company, which launched its activities with 19 licensed distributors, now has over

200 throughout the country. It has also built storage depots in Yaoundé and Ngaoundéré on the Transcameroon Railway, to ensure regularity of supply.

Today Cimencam is one of the largest companies in Cameroon, employing more than 800 people. Partly thanks to the European Investment Bank's four loans, amounting to nearly 11 million ECU over 12 years, it has always succeeded in meeting the country's needs in cement and has thereby contributed powerfully to the economic development of Cameroon. ■

*Symbol of Cameroon's industrial power:
the country can produce more than a million tonnes of cement a year*



Papua New Guinea: Palm oil

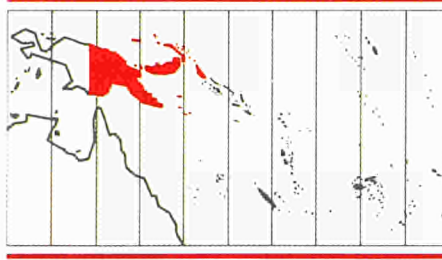
This palm oil project in the Popondetta region on the East coast has grown into an integrated agri-industrial complex. It all started with the cultivation of 5600 ha by small village units, an initiative part-financed by the World Bank. The Higaturu Oil Palm Pty Ltd (HOPPL), set up in 1976 as a joint venture by the government and the Commonwealth Development Corporation, was given the task of expanding, coordinating and managing the project, which was to acquire a new dimension thanks largely to EIB financial support.

In 1978, under the first Lomé Convention, the EIB made HOPPL a 7 million ECU loan from its own resources, topped up with a further 1.9 million ECU in risk capital. The money was used to build an oil mill with a capacity of 30 tonnes/hour and to plant 4000 ha of palms for oil production.

A second loan of 7.9 million ECU, granted in 1982 under Lomé II, expanded capacity to allow production of 60 tonnes/hour as the new plantation came on stream. The two types of plantation, village and industrial, are separate projects that are integrated and coordinated by HOPPL, which, in agreement with the government, sets the prices paid to the village producers on the basis of the world price.

The Higaturu project is noteworthy on a number of accounts. After initially producing 30 tonnes/hour, it has been operating at full capacity – 60 tonnes/hour – since 1984, giving employment to 260 people at the mill and 1750 on the plantations. It is also a means by which 1400 families dependent for their livelihood on palm growing can move from subsistence farming to a market economy. The project is also a financial success and has continued to operate satisfactorily despite a substantial drop in world prices in 1986/87.

Almost all output is exported, meaning that the project has been successful in another of its aims, that of further diversifying Papua New Guinea's exports, hitherto dominated by minerals – copper and gold – and by cocoa and copra. ■



From palm oil to soap

The palm oil produced by HOPPL is also one of the raw materials used by Womsop Pty Ltd, a soap factory set up as a joint venture between a local cooperative (the East New Britain Council of Women) and a German firm, with the assistance of the Centre for the Development of Industry (CDI).

The project was identified by CDI for its Pacific project promotion meeting, held in Vanuatu in 1983. A total investment of 1.25 million ECU was mobilized. The German partner holds a minority share of the equity and during the five-year start-up period (production started in 1987) provided technical know-how, management expertise, and supplier's credit. The factory's European machinery dates from the 1960s and, fully reconditioned and in working order, cost only half the price of new plant. In addition to palm oil, the factory also uses other local raw materials, coconut oil and tallow.

The initial production target was 1000 tonnes of toilet and laundry soap and detergents, maximum capacity being 2000 tonnes. The country's annual consumption of soap is 5150 tonnes.

The PNG Government is naturally anxious to reduce dependence on imports and in the case of this industry the volume of imports is not allowed to exceed local production.

In addition to finding the German partner, whom it brought to the 1983 Vanuatu meeting, the CDI financed the feasibility study, initiated contacts with the German development finance corporation – DEG – which provided a loan, and contributed to the costs of technical assistance and training during the start-up period. ■

Womsop cooperative members

(Photo: CDI)





Tanzania: Cotton canvas

Agriculture is the mainstay of Tanzania's economy, accounting for about half of the country's monetary GNP. Mineral resources are limited and non-agricultural development therefore depends on industry. The Community is keen to help build up this sector and one way that was identified was the construction of a textile mill using local resources and serving local needs.

Morogoro Canvas Mill Ltd produces cotton canvas of various weights suitable for the manufacture of shoes, tents, tarpaulins, sports articles and many more different items. The project was conceived in 1978 and in the intervening years the Community has put up 33.1 million ECU for the design, construction and equipping of the factory at Morogoro, a town in the heart of the cotton growing area and on the crucial 'Central Corridor' transport axis 100 km from Dar es Salaam. Capacity is 7.6 million metres of canvas a year. Since 1983 the Community has financed technical assistance to run the mill and train local counterparts,

who, in time, will take over the reins. A grant of 4 million ECU has been made under Lomé III, meaning that technical assistance can continue until 1991.

Production started up in 1984. The mill is currently running at over 80% capacity, producing a good quality product that has made a name for itself outside Tanzania. A



Morogoro canvas mill uses locally grown cotton ...

... to produce a range of canvas articles



good proportion of output is exported to other African countries and even Europe and the United States. These exports bring in the foreign exchange needed to buy imported inputs.

Despite the constraints imposed by fluctuations in world commodity prices and domestic price levels set to ensure incentives for small-scale cotton growers, Morogoro Canvas Mill has notched up a small but steady profit. Unflinching efforts have been rewarded by a growth in exports, which in 1987 fell not far short of half the mill's sales.

The project has been a boost for Tanzania's agricultural and economic development. Despite the difficulties the country has been experiencing, the Morogoro mill has made its mark as a large-scale producer, now employing over a thousand people. The Tanzanian Government is also better off thanks to the revenue it picks up in the way of taxes on sales and profits. The project goes to show that, with initial external assistance, success can be achieved even in a difficult economic climate of the kind which has prevailed in Tanzania. ■

Jordan: Amman Industrial Estate



Take nine parts of desert, one fertile valley, phosphate rock and potash; add a pinch of salt (from the Dead Sea), and you have the basic ingredients of Jordan. Take a big import bill, deduct the proceeds from phosphate, potash and fertilizer exports, services and tourism, and you are left with . . . a large trade deficit.

There is of course more to Jordan's economy than that. But other significant additions to the nation's resources – foreign aid, and remittances from Jordanians working abroad (one third of the workforce) – are external in origin.

Strengthening the country's economic foundations implies less imports and more jobs. With an educated, adaptable workforce at its disposal, and established markets for its products in neighbouring Arab countries, the Jordanian Government has



been encouraging industrialization, actively supported by the European Community. Their combined efforts have borne fruit in the Amman Industrial Estate at Sahab, a few miles south-east of the Jordanian capital.

The first estate to be developed by the Jordan Industrial Estates Corporation, the body set up in 1980 to promote industry by providing fully serviced sites and other incentives for industrialists, the AIE was established with the aid of two European

Investment Bank loans totalling 8 million ECU. An area of 253 ha was marked out for the estate, and the EIB loans provided part of the funds required for site preparation, infrastructure and buildings over an area of 80 ha (phase I).

This first phase was completed in 1984, when the estate was officially opened. By the end of that year, 51 firms had rented sites on the estate, of which 20 were operational, producing goods as diverse as plastic pipes and TV aerials. Since then, plans for further expansion have gone ahead, with an additional EIB loan signed in 1986, of 6.5 million ECU for the development of another 50 ha (phase II). By 1987, a further 38 firms had rented sites at Sahab and 58 were operational. Between them they employ some 2 500 people, producing a variety of goods (pharmaceuticals, machine parts, fridges, office furniture, for example) which will no longer have to be imported, and which, in many cases, are also exported.

The cost of the EIB loans is reduced by a 2% interest rate subsidy, funded from the Community budget, which will save the Jordanian Government an estimated 1.5 million ECU over the life of the loans. In addition, an EEC grant of 1 million ECU was used to equip the workshops of the Trade Training Centre built on the estate by the JIEC and opened in 1984. This technical school offers a three-year course – half in school, half in industry – to 250 school leavers a year, in the woodworking, metalworking, electrical, mechanical and plumbing trades.

The EEC has also helped both the school and the JIEC with staff training. A team of Belgian specialists was sent to install workshop machines, help devise suitable curricula and upgrade the skills of the Jordanian workshop instructors, while five of the school's staff were sent on a three-month training course in Europe. The JIEC has been provided with technical assistance from Irish consultants, to improve cost accounting and recovery systems, buildings management and industrial promotion techniques, and JIEC staff will receive additional training in Europe.

The coordinated efforts of the Jordanian Government, the EIB and the Commission (in financial terms a total Community investment of some 17 million ECU) have helped to produce an industrial estate which is not an overcrowded Amman, which is equipped with all the infrastructure needed for industry (factories, warehouses, electricity, water, access roads, and also banks, a post office, a restaurant, etc.), which has already generated some 2 500 jobs and is forecast to employ possibly as many as 8 000 people when fully occupied, and which has a technical school turning out 250 skilled graduates a year. ■



Amman Industrial Estate is located a few miles outside the Jordanian capital

Small-scale industry

Self-reliant development strategies based on real needs and local resources, which respect local traditions and values, have to be sustained by 'home-grown' businesses. Local firms help to create a strong economic fabric made up of trade, production and services.

Small businesses spring up in all sectors of the economy – agriculture, crafts, services. They may grow from informal beginnings into more organized concerns and ultimately full-scale industries. When they start up, however, firms are naturally rather modest in size. Small and medium-sized enterprises (SMEs), as they are officially known, are often close to grassroots and an integral part of development plans. The development of SMEs is bound up with rural development in that the goods and services offered in rural areas are related to rural incomes. If these rise, so does demand and small firms flourish, thus setting in motion the development process.

'Small and medium-sized enterprises' can be defined only in their national context – a SME in Tuvalu is in no way similar in size, structure or day-to-day management to an Ethiopian SME. However, they all have some characteristics in common which can help to identify them in the economic landscape.

SMEs are less dependent on infrastructure and the outside world than larger concerns.

They often make better use of production factors (capital, labour, raw materials) than large-scale industry.

They are very good at mobilizing small savings that would not otherwise be invested.

They meet the needs of low-income earners.

They provide scope for business skills and help to develop a company spirit.

They are economically and geographically very diversified (and are particularly well-established in rural areas).

Since the first Lomé Convention the Community has offered assistance to help SMEs overcome their technical and financial problems. The form of assistance most popular with the ACP States is the credit line opened with a development bank. The bank on-lends funds provided by the EIB or the Commission to SMEs wishing to expand. Two examples of credit lines are given in this section, one in Malawi, the other in Ghana.

The Community and the ACP States possess another instrument for helping SMEs in the Centre for the Development of Industry. This joint institution acts as a link between small businesses in Europe and their counterparts in ACP countries. Its assistance is essentially technical. The Germano-Papuan soap factory mentioned in the previous section is an illustration of CDI assistance; a second example is included here, two small firms making perfumes and cosmetics in the Caribbean island of Grenada.

Malawi: Sedom – credit line

Until the end of the 1970s Malawi's industry was dominated by big firms. But the country's geographical situation and domestic resources, combined with employment and income problems led Malawi to give greater priority to the development of small and medium-sized firms (employing no more than 50 people as a rule). At the end of 1986 there were 182000 small businesses in the country, accounting for 13% of GNP. The Malawian Government projected that at this rate 30000 jobs would be created in SMEs over the coming five years, but 65000 would be needed if work was to be found for all. An extra effort would be required to solve Malawi's unemployment problem. A survey revealed that for nearly 70% of small businessmen lack of capital was the main obstacle to development.

To foster this development Malawi has set up a number of institutions which promote SMEs by making loans and providing technical advice for businessmen. One such is Sedom, the Small Enterprise Development Organization of Malawi, which was set up with Community financial assistance. A first allocation of 3282000 ECU covered the period 1983-85 and a second instalment of 4800000 ECU, covering the period 1985-88, is being disbursed. A third instalment to cover Sedom until 1991 is under consideration.

Since starting up in 1983 Sedom has made 2800 short or medium-term loans, mainly to firms in the manufacturing, maintenance and building sectors. It focuses on four sectors in particular: sawmills, brick works, agri-food businesses and, to a lesser extent, crushing mills.

Sedom also offers these firms (and others) advice on production



and management problems. 15% of the firms which have taken out loans have received this technical back-up.

There are 96 employees, including six expatriate experts, at the Sedom headquarters in Blantyre in the south. Regional branches have been set up in the capital, Lilongwe, in the centre of the country and in Mzuzu in the north. An outside firm evaluating Sedom's performance in early 1987 commented that its staff was highly skilled and motivated compared with similar bodies.

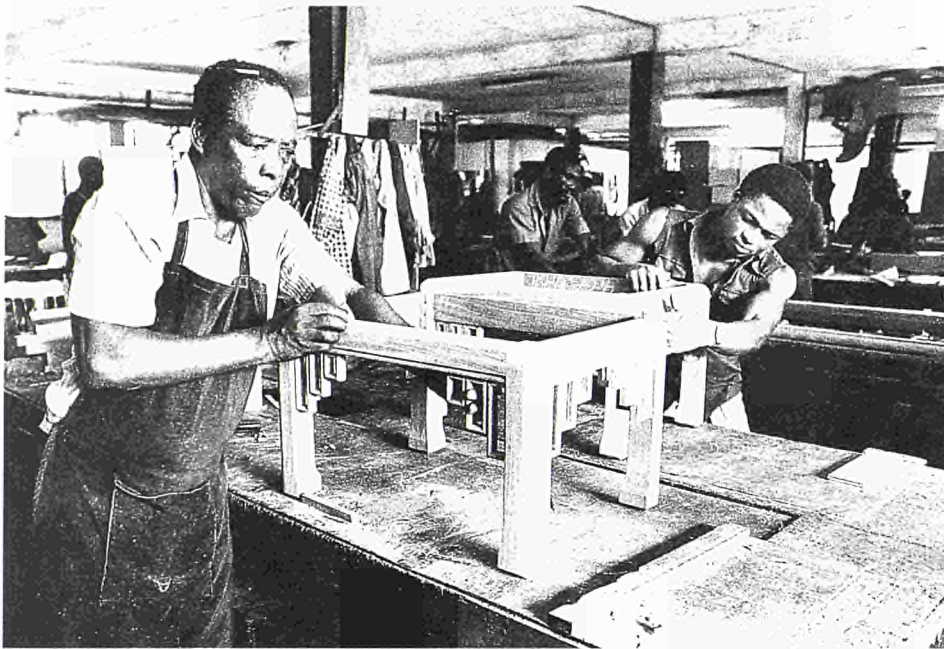
Some Draconian conditions are attached to Sedom's loans, which are by no means soft. This is a strictly business operation. Whether applicants want a mini-loan (less than 3000 kwacha, which is equivalent to about 1600 ECU) or longer-term credit (more than 3000 kwacha), they have to undergo a thorough investigation into their financial solvency and technical capacity. The firm's track record is examined, the applicant is interviewed and the premises inspected: nothing is left to chance. If a second loan is requested, the applicant must undergo training before receiving it. In some cases applicants have had to agree to buildings or machinery

being used as collateral – or take out private insurance. This no-nonsense approach has worked: 90% of the loans made so far have been paid back.

Mini-loans have to be repaid within a year but there is a grace period of one or two months. Larger loans are repaid over eight years with a grace period of 2-12 months. In both cases the interest rate is 16% (in a country where inflation is running at 20%).

There is no doubting the value of Sedom – without it its 1800 clients would not have had access to either credit or technical advice, the two essentials for the development of small firms. The best indicator of the project's success is the regularity and speed with which borrowers repay their loans, proof that their businesses are generating income. Another interesting fact thrown up by an analysis of the results of phases I and II is the number of women in business; they account for over a third of SME managers.

Sedom has overcome any teething troubles and is now a viable financial institution. The Malawian Government considers it an indispensable tool for the promotion of small and medium-sized enterprises. The greatest threat to its continued success is the general economic situation in the country. The disappointing balance of payments results in the second half of 1986 affected supplies of raw materials and spare parts needed by Sedom's clients. Business has slowed and with it loan repayments. One solution acceptable to all parties involved is the opening of a convertible foreign exchange account to buy imported inputs for Sedom and its clients. On this hinges continued promotion of SMEs, job creation and overall economic development in Malawi. ■



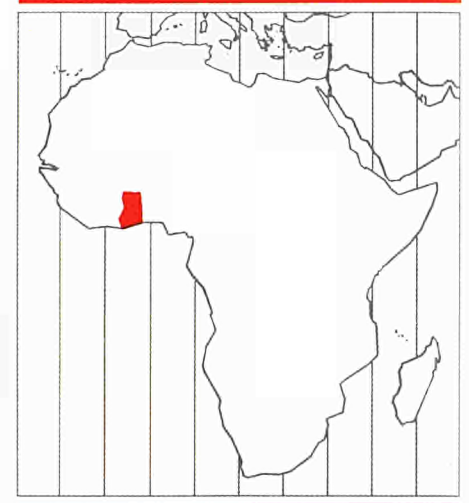
Ghanaian furniture factory selected for an EEC loan (Photo: Maya Pejic)

Ghana: (Life)line of credit for the smaller firm

While cocoa and minerals have traditionally been the mainstay of Ghana's economy, manufacturing industry is by no means negligible. In the mid-1970s, industry was contributing roughly 15% of Ghana's gross domestic product (GDP) and occupying about half a million people. Of these, the majority were employed by one or other of 400 large companies, while the remainder were working for some 4 000 smaller businesses.

But industry was in for a bad spell. The recession which hit the industrialized countries in the late 1970s and early 1980s reached catastrophic proportions in Ghana. In 1981 industry's contribution to GDP had fallen to 11%; by 1982 output had fallen to less than half its 1977 level, and by 1983 utilization of installed capacity was a mere 15% – five sixths of industrial plant was standing idle!

The shortage of foreign exchange, already severe, became acute. The larger firms, with their greater dependence on imported materials, were the worst hit; but many smaller



businesses were forced to cut back and even close down, for they too needed some inputs from abroad to keep going. And their access to credit and foreign exchange was much more restricted. Between 1975 and 1979 the World Bank and the African Development Bank loaned a total of 45 million dollars to Ghana's National Investment Bank – but all for large-scale agro-industry. The larger companies also obtained the lion's share of what hard currency was available. In 1980, for instance, just 1% of import licences were issued to SMEs.

The 1.88 million ECU line of credit from the fourth EDF for on-lending to SMEs in Ghana was therefore more valuable than its modest size might suggest, for it was the only foreign loan available to smaller companies.

After thorough, if lengthy, selection by the National Investment Bank of Ghana, assisted in this exercise by two expatriates, the Community funds were on-lent between 1982 and 1984 to 22 small and medium-sized firms producing goods like tiles, crockery, wooden toys or pineapples, based on locally available resources but needing some inputs from abroad – machinery, spare parts or product components – obtainable only with foreign exchange. As their contribution, the

22 recipients invested between them the equivalent of 2 million ECU in cedis.

In most cases the loans were put to good use. For example, a ceramics company, using 95% local raw materials, was able to buy a second electric kiln with its EEC/NIB loan, and thus increase its production of household pottery to meet local demand. It now has export prospects. Another firm, making wooden toys, was able to purchase, with its EEC credit, non-wooden components essential for its products but not available in Ghana. Partly thanks to the external assistance it has received, this company has since expanded remarkably (see inset).

And the results? In 1985, when the whole exercise was reviewed, it was found that the 22 firms between them employed 1 130 people, had recorded local sales of 52 million cedis the previous year, and earned 2.4 million ECU from exports. On the – optimistic – assumption that, without external assistance, the firms would have been running at half their 1985 level, it was suggested that half this result could be attributed to the EEC loans – in other words, the line of credit had helped to create or maintain 550 jobs and generate 25 million cedis worth of local sales and over 1 million ECU of extra exports in a single year. ■



‘With a little help from your friends’...

The line of credit for SMEs in Ghana was by no means a flawless operation, but it does show that a relatively modest loan in hard currency can be of great help to firms in this category. The success of Akuaba Toys Ltd, a recipient of one of the EEC loans and also of assistance under the Community’s trade promotion programme for Ghana, proves the point.

Situated on the outskirts of Accra, next to the railway bringing in tropical hardwood from all over Ghana, the company specializes in wooden toys and educational games. It started up 15 years ago with a smallish staff making wooden animals, letters and bricks. In 1980 the firm received a grant from EEC trade promotion funds to attend the Nuremberg Toy Fair, the first of eight such grants. In 1984 and 1985 Akuaba also received technical assistance with product design and marketing, through the Centre for the Development of Industry.

As a result of its presence at Nuremberg, and of CDI’s aid, the firm branched out into other products – jigsaw puzzles, garden slides and climbing frames and, more recently, household furniture – and won orders from Europe and America.

In 1982 Akuaba, short of hard currency, obtained a loan of 30 000 ECU from the EEC’s first line of credit to the NIB, to import non-wooden products such as beads, screws, wheels, non-toxic paints, lacquers, castors and adhesive glue. Without these components, not available in Ghana, it would have had difficulty maintaining production.

The company now employs 100 people, has extended its factory, enlarged its range of products and increased overseas sales from 10% in 1983 to almost 50% of its total sales in 1987, earning from these exports most of the foreign exchange it needs. ■

The Centre for the Development of Industry

Keen to encourage the promotion of small and medium-sized enterprises, the Community and the ACP States set up the Centre for the Development of Industry (CDI) in 1977, under Lomé I.

CDI is a practical operational instrument for establishing and strengthening enterprises in ACP States, especially by fostering cooperation between ACP and EEC companies.

It facilitates contacts between EEC and ACP firms wishing to cooperate, particularly through the creation of joint ventures.¹

Its range of free services includes the identification of projects, the co-financing of feasibility studies, technical assistance, the restoration of existing firms and the setting up of new ones.²

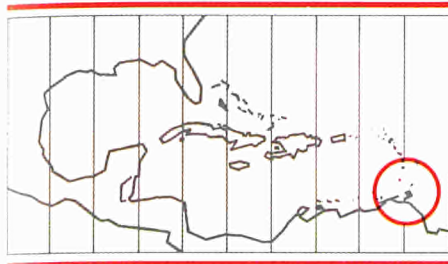
CDI does not itself provide equity or loan finance, but can assist in locating sources of such finance.

Between 1977 and 1987, CDI was instrumental in putting 105 new ACP industrial projects into production, and provided technical assistance to 142 existing firms, mobilizing new investment totalling some 130 million ECU and helping to create over 4 400 jobs and train 370 skilled personnel.

The CDI's wide terms of reference are supported by slender human and financial resources. This inevitably puts a limit on what it can achieve. None the less, there is no shortage of instances of ACP-EEC partnerships which have benefited from CDI assistance. We gave one example in the previous section (Papua New Guinea). Here is another.

¹ *A joint venture is an industrial enterprise undertaken by partners, in this case from EEC and ACP States, who share the financial risks and pool their knowledge of markets, production techniques and management. This formula has certain advantages for small ACP firms who gain access to technology and finance and benefit from the European partner's practical organizational and managerial experience. The European firm gains new outlets for its know-how and a chance to diversify its markets.*

² *Since the entry into force of Lomé III the CDI has extended its range of services to include licensing agreements, franchising, management contracts and international sub-contracting.*



Grenada: Perfumes and cosmetics

The Caribbean island State of Grenada (population 100000) boasts two small but flourishing concerns which have benefited from CDI assistance: Spice Island Perfumes Ltd (SIP) and Spice Island Cosmetics (SIC).

Grenada, famed for its nutmegs and its natural beauty, is essentially an agricultural country; its manufacturing sector only accounts for 2.4% of gross domestic product. SIP and SIC are not only contributing to the development of the sector but also putting local resources to good use: flowers, spices, and coconut oil, much used for cosmetics and toiletries.

Spice Island Perfumes was set up in 1981, to make perfumes and pack-

Flowers and spices of Grenada: nutmeg ...



age spices. CDI's initial assistance took the form of a study of the Caricom area, which identified potential markets. The Centre also financed a visit by SIC's managing director to European laboratories which helped her with the initial selection of equipment and machinery and provided her with information on processes and sources of materials.

After a difficult period related to the country's troubles in 1983, the firm decided to branch out into cosmetics and again turned to CDI for



European technical assistance with the preparation of cosmetics (Photo: CDI)



... cloves ...

assistance. It was decided to set up a sister company, Spice Island Cosmetics Ltd, and the Centre hired a consultant, a British cosmetologist, to visit Grenada and help SIC develop a range of products – shampoos, hair lotions, deodorants and beauty creams – using local and imported ingredients and perfumes produced by SIP. The consultant also helped to train the company's technician and to install its production and quality control equipment.

The two companies export part of their produce to the neighbouring islands of St Vincent and Barbados and have found outlets further afield, in the United Kingdom and Austria. In addition to marketing its own products locally, SIP sells a number of articles made by Grenadian cooperatives, artisans and craftsmen.

At present both firms are doing well. The revival of the tourist trade in Grenada and an increase in cruise ship arrivals have helped them to achieve a 25% increase in turnover during each of the past three years.

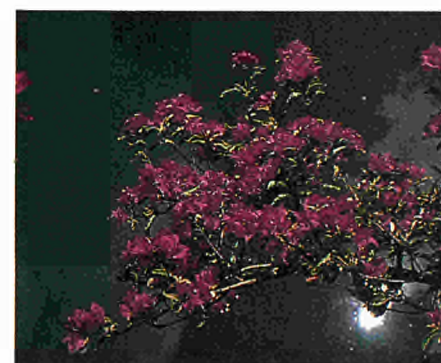
SIP, which is 90% Grenadian-owned and 10% European-owned, now has an annual turnover of 450000 East Caribbean dollars and SIC (ownership 40% Grenadian and 60% European) an annual turnover of 300000 EC dollars. ■

(Photos: C. Vanderweyen)



... hibiscus ...

... bougainvillea



Energy

Since the industrial revolution, the human and financial resources invested in ensuring self-sufficiency in energy have increased steadily. None of the industrialized countries can claim to have solved this problem in a completely satisfactory way. They are all well aware that the precarious balance between energy needs and energy supplies is only too easily disturbed.

What about developing countries then? Even where energy is potentially available, the high cost of investment required to exploit it means exposing future generations to considerable debt. The social and cultural disruptions resulting from the deployment of hundreds of foreign technicians to develop a site and train staff should not be ignored. It must also be borne in mind that a natural environment is much more sensitive to harmful effects than an industrialized environment. Grafting imported technology on a developing economy remains a delicate operation, and one that does not always take.

The situation is even worse for countries which depend on foreign fuel supplies. Deliveries must be paid for with scarce foreign exchange earned from the export of local production. On top of this, these same countries are faced with deforestation and desertification. Enter the issue of fuelwood, without which millet cannot be cooked, iron smelted or bricks made.

Finally, even though today everyone agrees that self-sufficiency in power supplies is part and parcel of development, it has taken a long time for the idea to be accepted. Before oil prices rocketed, many specialists from both North and South had inverted the process, believing it was possible to take short-cuts. Their conceptions were a reflection of an era, now past, when it was widely believed that continued growth could be brought about by limitless energy resources.

A glance at oil imports of non-producing Third World countries reveals some alarming figures. Over the 10 years from 1970 to 1980, their imports doubled, rising from 90 million to 220 million tonnes. They cost nine times more: from 5 400 million to 49 300 million dollars. A disaster for already weak economies.

Should energy saving be encouraged? Definitely, especially considering the heavy consumption of oil in a single sector in developing countries – transport: Kenya 45 %, Thailand 43 %, Brazil 36 % ... compared to under 20 % in Europe. The situation is similar in other economic sectors – production, distribution and processing – which consume much more fuel in the south than in the north for the same output. Unfortunately, more economic machinery and vehicles are expensive and usually have to be imported.

The energy crisis has not spared the traditional sector. In the Third World, 60 % of the population lives in rural areas, and in the least developed countries the figure rises to 90 %. Wood and organic waste are the chief sources of energy for rural populations; in the Sahel, 90 % of the energy supply comes from traditional sources. Theoretically, these sources are renewable, but forests are being destroyed as a result of the population explosion, the extension of farmland and grazing land, and the advance of the desert.

In 1980, the FAO estimated that 1 300 million people were having problems with woodfuel supplies and that some 100 million were experiencing serious shortages. Suitable alternative sources of energy would have to be found, and quickly. For financial reasons, oil was not the answer.

Developing countries have taken up the energy challenge. They are trying to economize on traditional fuel and make available resources profitable. By choosing to invest in the energy sector, these countries are trying to build a solid base for future development.

The European Community has undertaken to support the policies of Third World countries aimed at self-sufficiency in energy while preserving forests. Initially very modest, European cooperation in the energy sector has been growing since the first oil shock. Even though signed in 1975, Lomé I did not give priority to the energy sector. But the harsh realities of the oil price rises soon imposed cooperation in this sector: in 1976 the volume of aid for the sector was higher than it had been during the previous 18 years put together.

Each of the three projects included here employed a different technique to meet a specific energy need: the construction of a tunnel to divert the flow of the river Amarti into a reservoir above the Finchaa power station (Ethiopia), the installation of solar pumps in Mali, and the promotion of improved cooking stoves in Niger.



Amarti diversion tunnel under construction



Ethiopia: Hydroelectricity

In Ethiopia, less than 10 % of the population has access to electric power which is only available in the big cities. Addis Ababa alone consumes 75 % of total power supplies. The Ethiopian Government plans to make electricity available to all, particularly as it is an important factor in agricultural and industrial development. In order to reduce dependence on imported oil, the country undertook a programme to develop its natural sources of energy: water and hot springs.

Technically, electricity in Ethiopia is supplied through two different systems: the inter-connected system (ICS) which supplies Addis Ababa through a high-tension line, and the self-contained system (SCS) made up of 36 local sub-stations scattered all over the country, operating on fuel oil.

The initial shock of soaring oil prices prompted the Ethiopian Electric Light and Power Authority to revise its plan of extending the SCS network, and promote alternative sources of energy instead. Thereafter, emphasis was laid on increasing hydroelectric power and extend-



Tunnel outlet to Lake Finchaa

ing ICS transmission lines to zones supplied by the oil-burning stations. Oil was to be replaced by water.

In 1973, total production from the ICS network was 301.4 GWh;¹ by 1981, it had risen to 478.4 GWh. Demand was set to increase in subsequent years in view of a general increase in consumption, the emergence of big new industrial consumers and the installation of electric boilers on existing industrial sites. In order to meet the expected rise in demand in the mid-1980s, and pending the entry into service of a new hydroelectric plant, scheduled for 1988, the Ethiopian authorities decided, in the early 1980s, to try and obtain higher output from their existing stations.

It was in these circumstances, and with Community support, that the project *Diversion of the river Amarti* towards the Finchaa power station which supplies the capital, was undertaken. Inaugurated in 1973, the Finchaa power station had an initial capacity of 100 MW. But water-holding capacity and flow rate proved insufficient for regular supplies throughout the year. This is where the project was needed.

It was adopted in November 1982, took 30 months to complete and cost 29 million ECU (this was 8 million ECU less than the expected cost of 37 million ECU, a somewhat rare occurrence).

The project consisted of increasing the supply from Finchaa by raising the dam's spillway by two metres and topping up the reservoir with water diverted from a neighbouring river, the Amarti. Sixteen kilometres upstream from the power station, a conventional rock-fill, earth-packed dam was built which could hold back 260 000 m³ of water. Its spillway allows a flow of 200 m³ per second. The diversion tunnel from the Amarti is 1 600 metres long and 3.5 metres wide. The dam's reservoir

covers a surface area of 14.5 km². Fourteen kilometres of access roads to the dam site and the entrance and exit of the tunnel had to be built.

Studies done before the project was approved concentrated on its economic impact. Considering that the only other alternative would have been the use of oil-burning generators in the short term, these concluded that the construction of the tunnel would indirectly save considerable foreign exchange. In fact, the oil bill would have come to over 50 million Ethiopian birrs (25 million ECU) for the production of the equivalent amount of electricity in oil-fired power stations.

Finally, studies were also carried out on its impact on the environment and population. These concluded that the Amarti reservoir (14.5 km²) would be very modest compared to Lake Finchaa nearby, and the area to be flooded was only scantily populated, being a malaria zone. The project, which was completed in 1985, earlier and at a lower cost than expected, can be considered a technically successful operation carried out with minimum disruption of local conditions. ■



Mali: Solar pumps

In Mali, as elsewhere in Africa, it is possible to guarantee the rural populations a supply of clean water as well as sufficient reserves to carry on market gardening, and even reforestation. Technically, the operation poses little difficulty largely due to the use of photovoltaic solar pumps. Whereas foot or hand pumps can only supply a fluctuating 6-8 m³ a day, solar energy pumps can pump 30-80 m³. However, the pumps remain an exception and in several places, the rural and pastoral populations do not yet have a guaranteed water supply. It is true that the cost of solar pump systems remains prohibitive for rural communities: to install a 1 400 Wc¹ pump costs 31 000 ECU (about 10 million FCFA, while the minimum salary is 23 000 FCFA).

Since 1977, European non-governmental organizations (NGOs), have been installing photovoltaic pumps in Mali, co-financed by the EEC. Some 1.8 million ECU has already been spent on various programmes of which 54 % has been financed by the Community. Under the terms of their agreement, the EEC contribution is only to be spent on equipment and material, not running costs.

Flexible administrative procedures and quick decision-making often mean that a project can be implemented within six months of its submission. Ten projects submitted by Mali Aqua Viva (MAV) and Ile de Paix have been co-financed in this manner with the Community. Other

¹ GWh – gigawatts per hour, equivalent to 1 000 megawatts.

NGOs are involved in different aspects of these projects.

One of the Ile de Paix projects is situated in Koriomé, in the Timbuktu region; its aim is to restore late palm plantations in a zone where they were all but wiped out during the 1973-74 drought. The inhabitants and authorities wanted to preserve the environment and the economy of the region by planting fruit trees. In response, Ile de Paix started citrus fruit and date palm plantations. The former were dropped owing to farmers' lack of interest in growing a type of fruit that was new to them. The date palms, on the other hand, which had been grown for generations, went down well.

MAV was created in 1974 and has a lot of experience of village water projects. It has bored 1 400 wells and installed more than 900

35 000 km² around the town of San, 400 miles east of Bamako. Most of these projects combine the supply of drinking water for people and livestock with a market gardening project. One project, however, is particularly concerned with the development of irrigated 'dah'. Industrial production of this crop has enabled the plantation to supply a factory making bags and sacks which previously had to import jute from Pakistan to cover up to 30 % of its needs. In this sense, the project is helping Mali to improve its trade balance.

Generally, MAV only installs the equipment if the village requests it and pays a fixed contribution of 2 million FCFA (20 % of the total cost). 'At Woloni', says the pump keeper, 'it was the village chief and the elders who decided to collect the money, with each family contributing a share'. There are, however, excep-

ance for months. In spite of this fact, breakdowns are always possible and MAV signs an annual maintenance contract with villages where solar pumps are installed. The contract compels the NGO to pay a maintenance visit at least once a year, and make as many repairs as required. ■

¹ Wc – Crete watts refer to the sun's power at midday, when it is possible to pump up to 3 000 litres of water an hour from 20 metres below ground.



Niger: Improved cooking stoves

The Sahel countries, already encroached upon by the desert, are experiencing serious shortages of fuelwood. In Niger, woodfuel alone represents 88 % of total fuel consumption. An estimated 6 million m³ are used, which represents the output of 12 million hectares. On top of this timber for traditional building takes about another 3.5 million hectares. Last but not least, consumption is increasing at an annual rate of 4.2 % – that is, twice the rate of population growth.

Niger has an estimated 14 million hectares of woodland, but due to the increasing destruction of vegetation in recent years, this area is unevenly wooded. This means that Niger consumes more fuelwood than it produces. A reliable gauge of the shortage is the soaring cost of fuelwood: up 300 % in eight years. The areas most affected are those around the big towns – Niamey, Zinder, Aga-

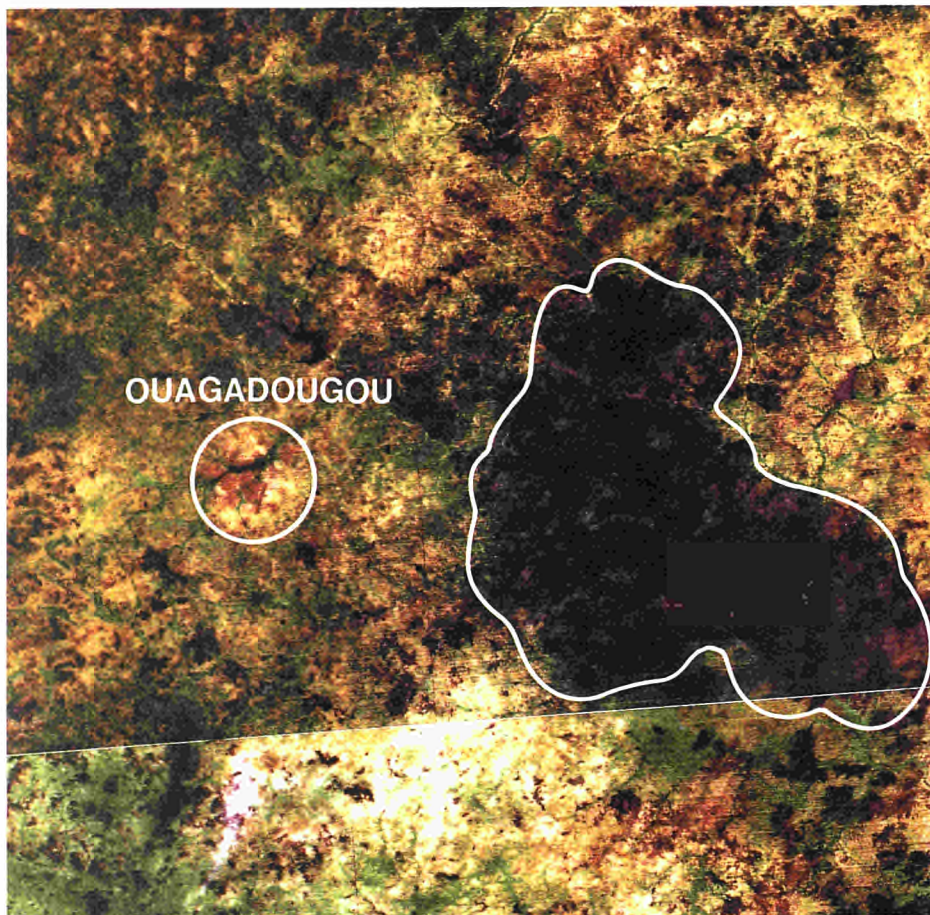


Solar pump for a Malian village

mechanical pumps. MAV subsequently branched out into solar energy, and has installed some 50 solar pumps since 1977. The Malian authorities have recognized its competence in this field and in 1980 MAV was given special responsibilities under the government's water programme. Today, MAV is involved in 13 localities scattered over an area of

tions to the rule: schools, for example. In some other cases, the village pays its contribution partly in cash and partly in labour.

The quality of the equipment has improved considerably and the systems now used do not give the same technical problems as their predecessors. The equipment is designed to function without checks or mainten-

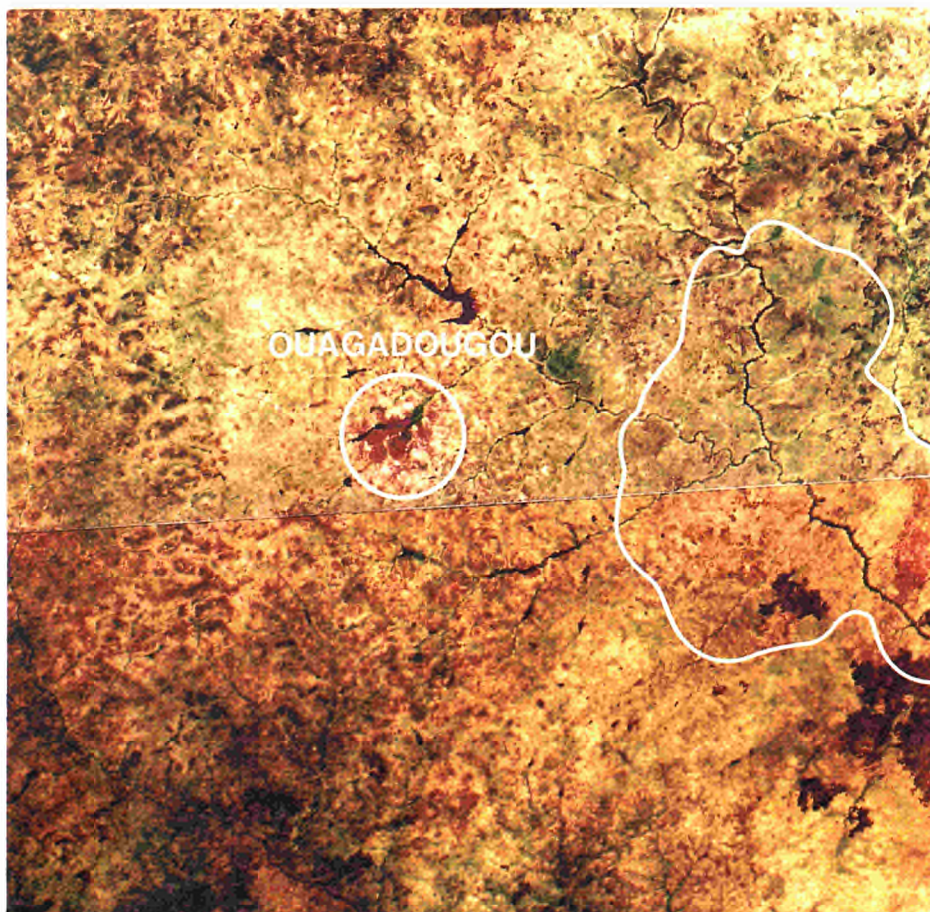


Burkina Faso, Landsat 1972

Deforestation of the Sahel shown by satellite pictures

'Wooded' area

Burkina Faso, Landsat 1985



'Wooded' area

dez, Tahoua; densely populated agricultural areas where the need for farmland and fuelwood have upset the Sahel's precarious balance; and the edges of the pastoral zones where the extension of crop-growing has already caused serious damage.

With the help of various donors, the Niger Government has launched several projects to improve the situation: tree planting, rational use of forests, irrigated industrial plantations, promotion of alternative sources of energy like bricks made from groundnut shells, solar or hydroelectric energy; and lastly, the use of improved cookers which use less fuel.

Improved cookers are made from clay, cement or metal and use fuelwood. Heating capacity varies according to the model, but in general, locally made cookers with an improved stove that has holes for pots and pans and a short stovepipe for draught, burn only half as much wood as a traditional 'open air' fire.

A campaign to promote the improved cookers was undertaken by several NGOs and co-financed by the Community. The Association Française des Volontaires du Progrès (AFVP) spent 100 000 ECU training smiths to make portable improved cookers, assisting in their production and creating women's teams to 'sell' the cookers to Niger women. The training of both smiths and the women's teams was completed within five months. Within two years, 6 000 cookers had been sold in the two towns of Agadez and Zinder, which meant that nearly one third of all families in the two towns had bought one. Similar programmes were being carried out in other towns at the same time; and the EEC was co-funding research into the improvement of the heating capacity of the various models.

In spite of encouraging results from the different programmes (which have now been taken over by the World Bank with substantial funds), it is interesting to note that it was not the fuel-saving argument which prevailed when women decided to buy improved cookers: it was the shorter cooking time. The experiment brought out different reactions in towns and in rural areas: in Niamey, the considerations were

economic simply because the price of fuelwood that a carrier had fetched and transported 70 km to the capital was too high. In the villages, where fuelwood could be found within 2 km, people adopted the cooker less readily. This is why information campaigns must be adapted to the populations they are aimed at.

In order to get people to use the new cookers, their promoters had to create a distribution network and carry out promotion campaigns with the help of the local radio and TV stations. On National Tree Day,¹ posters, stickers and pamphlets were handed out.

To keep interest in the new cookers alive after the project was over, both the smith's profit margin and the customer's purse were considered in fixing the price of the cookers. It was also decided that these should be subjected to quality control inspections for strength, size and draught.

Saving on fuelwood is an important step, but it is only part of the answer to the problem; it slows down deforestation but does not stop it. This is why the European Community is co-funding research into new sources of fuel. Ongoing scientific experiments are trying to recover animal and plant biomass. The possibility of using rice husks or millet stalks as fuel is being investigated. Niger has three rice-husking factories. At present, the husks are considered as waste and thrown away. But they could be recovered for fuel just like groundnut shells, which have been 'recycled' in this way since two compactors were installed. Up to 2,800 tonnes a year can be compacted and made into briquettes and logs. ■



Traditional cooking fire ...



... and improved cooker

(Photos: Association Bois de Feu)

¹On National Tree Day, every inhabitant of Niger, from the youngest child to the President, must plant a tree which must then be tended for the remaining 364 days of the year.

Mining

At the time of the Lomé I negotiations – 1973-74 – the mining industry was still booming more or less everywhere, and no particular provision was made in the first Convention for mineral-producing ACP countries. Iron ore was included in the list of products eligible for the new Stabex transfers – otherwise, it was left largely to the European Investment Bank to continue providing support for mining development.

Unbeknown to the negotiators, 1975 was to see not only the signing of the first EEC-ACP Convention, but also the end of the boom years for mining and the start of a prolonged economic recession. A combination of much higher energy prices (mining operations are heavy on fuel), and a fall in demand for metals in the industrialized countries as a result of recession, product substitution (the use of optical fibres instead of copper in telecommunications, for example) and more recycling forced operating costs up and metal prices down. Bad news for the mining industry, particularly in the economically weaker developing countries, where investment dried up rapidly. Unfortunately, this trend has persisted, with only temporary improvements, to the present day.

A number of ACP countries are substantial mineral producers: Liberia and Mauritania (iron ore), Gabon (manganese), Togo (phosphates), Guinea, Jamaica and Suriname (bauxite), Zimbabwe (a variety of minerals), Papua New Guinea, Zambia and Zaire (copper and cobalt) are examples. For some of them, minerals are their main source of income; for Zambia, copper provides virtually all of the country's foreign exchange.

These countries, hard hit by the recession which was biting deep by the late 1970s, had a powerful interest in maintaining their income from mineral products. The Community, as a major importer of ACP minerals, has a clear interest in safeguarding supplies of products essential to its manufacturing industry (despite product substitution, 60 % of the Renault 5 motor car, to take just one example, is still made with raw materials imported from developing countries).

This convergence of economic interests resulted in the inclusion in Lomé II of a new financing facility to help restore productive capacity in ailing ACP mines. Under the scheme, known as Sysmin, ACP countries with falling mineral revenue can – providing certain criteria are met – apply to the EEC for substantial loans on easy terms (1 % interest, 40 years' repayment period with 10 years' grace) to help finance the renovation and maintenance of their mining equipment. Since the scheme was introduced, something like a dozen applications have been sent in. The example given below concerns the biggest Sysmin loans granted to date, to Zambia.



Zambia: Sysmin loans for copper

Of all the ACP mineral-producing countries, Zambia is one of the most dependent on the earnings of its mining industry.

At present prices, Zambia's reserves of copper ore will only last for about another 15 years. The country is having to prepare for life after copper in the next century. Whatever diversification measures it takes will require money. The major source for the rest of this century will be mining. Therefore it is absolutely vital for Zambia to maintain its output of copper for as long as possible.

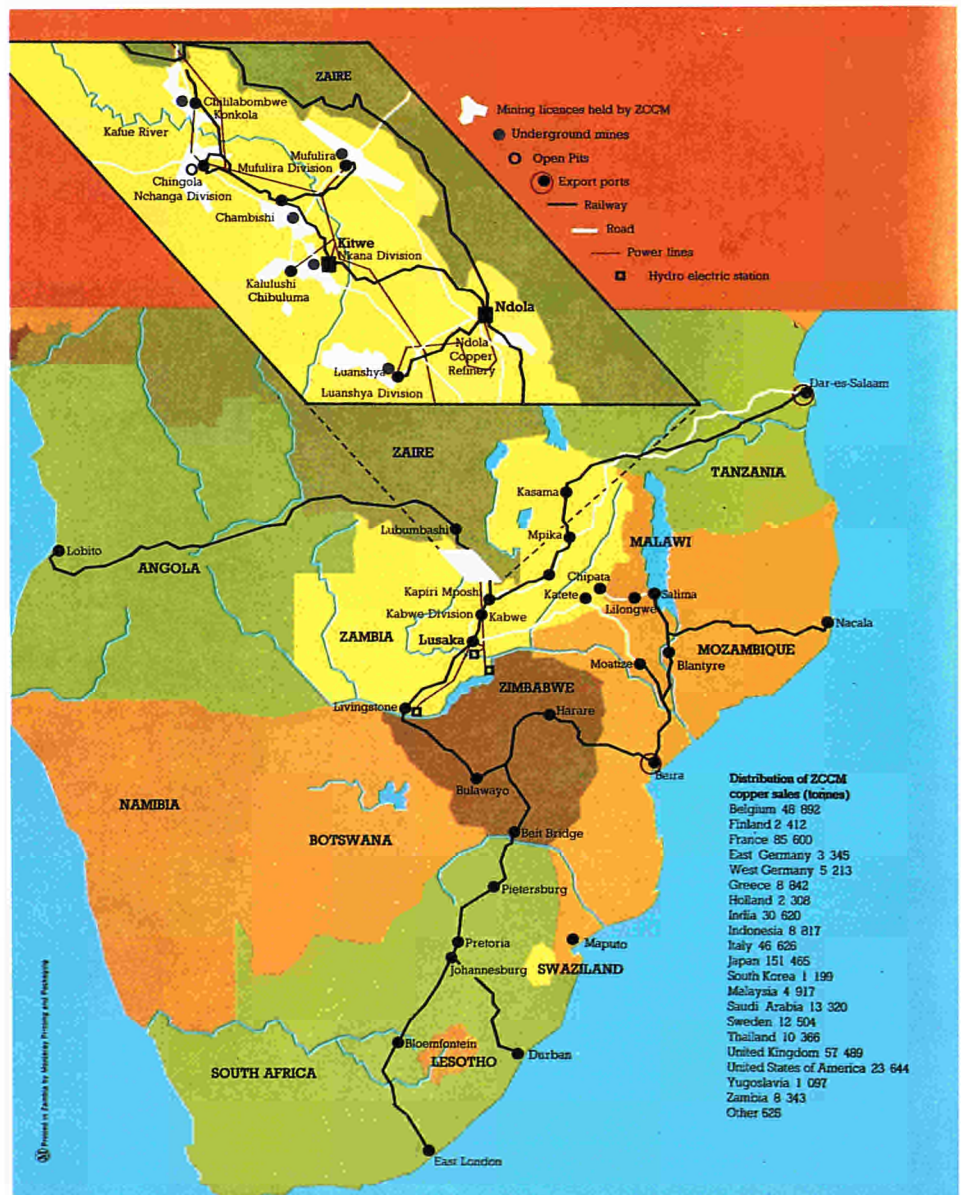
In 1975 the price of copper, in line with metal prices generally, began to fall. Demand, weakened by recession in the West and by the substitution of other materials for copper in some industries, has never fully picked up. A tonne of copper in 1985 was sold for less than half its 1974 price.

In addition, the closure of the Benguela and Beira railways as a result of wars in neighbouring countries, and the limited capacity of the Tazara line to the congested port of Dar-es-Salaam, forced the Zambian mines to use the longer and more expensive South African route to Durban to ship out much of their copper.

These factors combined meant reduced revenue and higher transport costs for the mines, which had less and less money to spend on renewing obsolete, ageing or damaged equipment. As a result their machinery broke down more often, and it became increasingly expensive to produce the same amount of copper. They were in the position of the owner of an old motor car who cannot afford to buy a new one, and who finds he has to spend more and more to keep his old car on the road.

By the time the Zambian

Government applied for assistance from the Sysmin fund in 1981, Zambian Consolidated Copper Mines Ltd (ZCCM) were making a loss, and the production of copper, which had fallen from around 700 000 tonnes in the early 1970s to 587 000 tonnes, looked set to fall much further. A massive injection of cash seemed the only way to prevent a free fall. The



first Sysmin loan of 55 million ECU¹ together with the World Bank and African Development Bank loans (USD 75 million and 27 million) which followed it, were the shot in the arm which the Zambian copper industry desperately needed.

With the foreign exchange from these loans, ZCCM, once it had become familiar with international tendering procedures, set about the systematic replacement of worn-out plant and machinery. Methodically, division by division (there are eight different mines in the Zambian copperbelt, each mine corresponding to a division of the company), hundreds of items of equipment have been ordered, mostly from Europe, some from Zimbabwe or Zambia itself, and installed in the mines: shovels, fork-lifts, bulldozers, locomotives, weightometers, electrical equipment, a giant computer . . . the list is endless. More equipment is being ordered and installed with the second Sysmin loan of 28 million ECU, continuing the necessary process of modernization. Two examples are given in the inset to illustrate these purchases and the savings they can achieve.

In parallel to the Community's Sysmin loan, ZCCM decided to close their least profitable mines, in an effort to rationalize the company's operations. This was a politically difficult and courageous decision to take, since it meant that jobs would be lost and less copper would be produced and therefore less foreign exchange earned, at a time when the Zambian Government was already deep in debt.

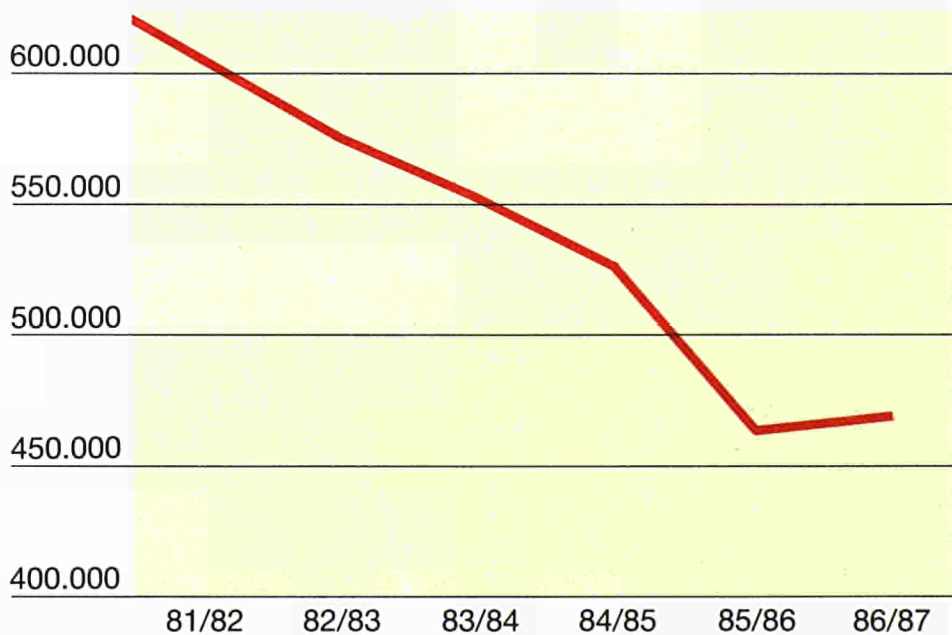
Efforts have been made on other fronts. The EIB has helped the company, with a 25 million ECU loan, to continue recovering copper from waste dumped on tips in the copperbelt from 1939 to 1974 – a process which can produce an extra 30-45 000 tonnes of copper per annum without incurring the cost of mining the ore. On the social side, partly thanks to

the Sysmin Social Fund, housing and water supply have been improved in some of the mining townships; and on the training side, the number of qualified Zambians employed continues to rise (there are now less than 2 000 expatriates in the Zambian mining industry, as against 8 000 at independence in 1964).

The main object of the Sysmin loans is to help arrest the decline of viable copper production. ZCCM's production graph, reproduced below, shows that in 1986, for the first time in five years, the fall in output of finished copper levelled off, due, in part at least, to the new equipment bought with the Sysmin and other loans. ■

Copper

■ Production (tonnes)



¹ First Sysmin loan to ZCCM: 55 million ECU, 1982; second Sysmin loan to ZCCM: 28 million ECU, 1985.

New face shovels for Nchanga open pit



Face shovel loading copper ore, Nchanga open pit

Nchanga, the largest open cast mine in Africa and the second largest in the world, mines over 7 million tonnes of high grade copper and cobalt ore per year. Two new 12 m³-capacity face shovels have been ordered to replace an old one that has exceeded its economic life and is expensive to maintain. As the old shovel costs 293 kwacha per hour to operate, and the new one will cost 80 kwacha per hour, ZCCM calculate that the new shovel will save a million kwacha a year in operating costs. In this way the outlay on the new shovels (3.5 million kwacha) ordered from Europe will be recovered in three years. ■

Electrification at Mufulira underground mine

The haulage system at Mufulira, the copperbelt's largest underground mine, is currently diesel-powered. At present large quantities of materials are moved into the mine via this system, to develop an area which will provide 50% of the mine's production in

the medium term. Once developed, the railway will be used to transport 5.5 million tonnes of ore out of the mine over the next seven years. Electrifying the haulage system (by ordering 400 000 ECU worth of electrical equipment and locomotives from

Europe) will substitute cheap, locally produced hydroelectric power for expensive imported diesel, and the capital expenditure will be recouped in energy savings. ■

Extraction of ore from Mufulira underground mine

(Photo: J. & P. Hubley)



Tourism

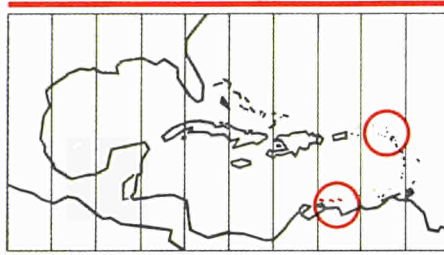
From the aristocratic Grand Tour of the 18th century, and the first package tours of the late Victorian era, tourism has mushroomed, in the second half of the 20th century, into a huge worldwide industry. According to figures released by the World Tourism Organization, international tourist arrivals, which numbered 25 million in 1950, had risen to 325 million in 1985. Over the same period receipts from international tourism (excluding fares and domestic travel) rose from 2000 million dollars to a staggering 105 000 million dollars – equal to 5 % of the total value of world exports in 1985.

Tourism has become, then, one of the biggest money-earners, particularly in Europe, which accounted for two thirds of arrivals and 56 % of receipts in 1985. It is far from negligible, however, in a good number of the developing countries, which are estimated to earn between them as much as a quarter of world tourism revenue. Africa, which had half a million international visitors in 1950, recorded 8 million arrivals in 1985, and receipts of over 2000 million dollars. Similar arrival numbers were recorded in the Caribbean.

For many of the smaller island ACP States in the Caribbean, the Indian Ocean and the Pacific, tourism is the largest source of foreign exchange and employment. The development of this industry cannot be financed by the private sector alone, because of the high cost of infrastructure and the danger to the environment of uncontrolled tourism. And so it is natural that these countries should look to institutions such as the European Community for financial and technical assistance in developing tourism.

Under both the Yaoundé and Lomé Conventions the European Investment Bank has provided loans for hotel development in several African countries, and for small and medium-scale tourist ventures. The Bank's 25-year report, published in 1983, showed that up till then hotels and tourism had taken just under 3 % of its total lending to ACP countries.

The Commission, through the European Development Fund, has provided grants and soft loans – on a similarly modest scale so far – for tourism infrastructure, promotion and technical assistance, especially to the smaller island States most dependent on tourism. Many of these are in the Caribbean, and our examples are taken from this region. All the Caribbean countries are keen to attract a larger proportion of European visitors who, although they only represent 10 % of tourist arrivals to the area, provide 20 to 25 % of tourist revenue, because they stay longer and spend more than visitors from North America. Two of the examples we have included show how the Community, in association with professionals in the trade, can effectively promote Caribbean tourism in Europe.



Infrastructure in the Netherlands Antilles and Aruba

Five islands make up the Netherlands Antilles. Two of them, Curaçao and Bonaire lie off the coast of Venezuela in the southern Caribbean Sea; the smaller islands of St Martin, Saba and St Eustatius lie at the northern end of the graceful arc of the Lesser Antilles.

Aruba, also lying off the Venezuelan coast, was part of the Netherlands Antilles until it seceded on 1 January 1986.

All six islands depend heavily on service industries, and particularly tourism. As overseas countries and territories (OCTs) they receive Community assistance in much the same way as ACP countries.

Over a period of 23 years, from 1964 to 1987, the Community invested a total of some 30 million ECU in substantial infrastructure projects of direct benefit to the tourist industry on four of the islands:

airports on Curaçao, St Martin, Bonaire and Aruba, a hotel training school on Aruba, and a tourist road network on Bonaire. Here are details of three of these projects.

Surrounded by crystal clear waters full of wonderful fish and plants, Bonaire attracted deep sea divers in the 1960s – but in small numbers, because it was difficult of access. In 1971 the island turned to the Community for assistance to build an airport. A sum of over 2 million ECU was provided, and the airport, built by local firms, was opened in 1975. The same year a further 3.5 million ECU was approved to extend and widen the runway. Since 1980 large passenger aircraft have been able to land at Bonaire, and direct flights have been organized from Miami (until then all passengers for Bonaire had to stop at Curaçao or Caracas to change planes).

The following year the Community agreed to finance an extension of the pocket-sized aerodrome on St

Martin, the most northerly island of the Netherlands Antilles. This involved extending the parking area to accommodate all aircraft from two-seaters to jumbo jets, laying out a car park, enlarging the terminal and building a cargo shed. These major works were completed at a cost of some 8 million ECU, and the new facilities were officially inaugurated on St Martin's Day 1985.

A few years earlier, the Commu-



Hotel and training school, Aruba



Underwater paradise, Bonaire

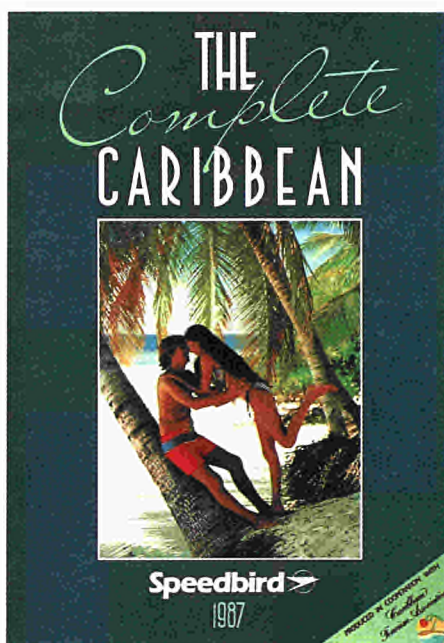
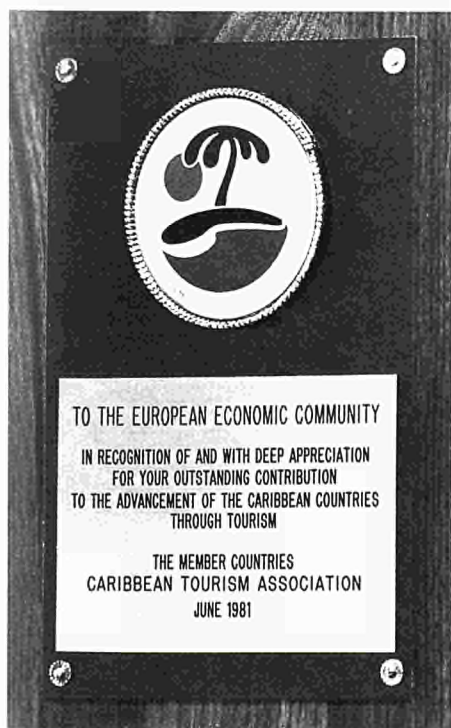
nity had approved a grant of 3.5 million ECU to build and fit out a 50-bedroom hotel with training facilities on the island of Aruba. The whole complex, complete with swimming pool, car park, garden and teaching rooms, was built by a local firm in two years and opened in 1982. The school takes some 250 trainees in the hotel trade, from Aruba, neighbouring islands and even Suriname.

All these projects have had a visible impact on the economy of the islands. These have all recorded increases in passenger arrivals: Bonaire, for example, has seen the number of hotel nights rise from 60 000 in 1977 to nearly 150 000 in 1985. The airports have encouraged private investment: hotel capacity has increased on St Martin from

1 500 bedrooms in 1978 to 2 700 in 1985, all financed by the private sector. And, as well as providing work for local building firms, the Community's investment on Aruba is being repaid in jobs: graduates of the hotel training school have no difficulty in finding employment – indeed, the Dutch Government is funding an extension, so that the school can run an extra 100 rooms a year. ■

'The complete Caribbean'

Mango juice for breakfast, a rum punch or two at sundown, and a long lazy day on a sun-drenched beach in the Bahamas or Barbados in between ... this would sum up the Caribbean for many people in the British Isles, and for most French speakers too, except that the beach would be in Martinique or Guadeloupe.



In reality the region has much more to offer – over 20 countries and island groups, with a variety of scenery, different historical connections, different mixes of language and race, to which numbers of European tourists could be drawn, if they knew how to get there and at what cost.

To attract more European tourists to the Caribbean, two leading European tour operators each produced a comprehensive brochure on the region for the 1986-87 season, in conjunction with the Caribbean Tourism Association and the European Community. The Community assisted with the preparation and publication of the brochures, in cooperation with the requesting countries featured.

'The complete Caribbean', produced for the British market by Speedbird, a subsidiary of British Airways, covered 20 destinations, including some of the lesser known ones like Belize or Dominica, and Spanish, Dutch or French-speaking islands (Puerto Rico, Curaçao, Martinique). Similarly, the brochure produced for the French-speaking market by Jet Tours, a subsidiary of Air France, included detailed information on hotels and tourist attractions in the English-speaking islands as well as in Martinique and Guadeloupe.

Both operators recorded a substantial increase in the numbers of

Caribbean holidays they sold during the 1986-87 season: a 160 % increase for Speedbird, and an 80 % increase for Jet Tours. Good news for the Caribbean tourist industry, anxious to reduce its dependence on North America (which currently provides 66 % of its visitors); and proof for the Community that a modest investment (35 000 ECU in this case) in a professional exercise can achieve striking results. ■

The Berlin Fair

Since 1966 the city of Berlin has hosted what has become the tourist industry's biggest fair – the International Tourismus Börse. In 1987 the Berlin Fair featured exhibitors from 141 countries, brought together 23 500 professionals – tour operators, travel agents, hoteliers, representatives of airlines, shipping lines, coach companies and car rental firms – and attracted 70 000 members of the general public. For anyone in the tourist trade, Berlin's annual March show is a must.

Every year since 1977 the European Community has sponsored the participation of associated developing countries at the Fair, chiefly by funding the construction of their stands. Since 1980 these have been grouped together in regional villages. For the 1987 Fair, some 130 000 ECU was spent on the Caribbean village – a colourful affair with palm trees, a waterfall, individual huts for each of the seven OCTs and 10 ACP countries present, and even an orchestra playing traditional music.

The warmth of the atmosphere in the village, heightened perhaps by the northern European winter outside, attracted many visitors, and

proved conducive to business. A total of 1 275 professional business contracts were recorded in the Caribbean village during the six days of the Fair.

Contacts do not always lead to contracts, but statistics returned by a number of the Caribbean OCTs and ACP countries confirmed the impression that tourism was on the increase in the region. The Bahamas, Belize, Dominica, St Christopher & Nevis, St Lucia, St. Vincent, Anguilla, the Turks and Caicos Islands and the Netherlands Antilles registered between them 3 712 404 tourist arrivals in 1986 – an increase of 440 000 over the previous year. These figures suggest that efforts to promote tourism in the Caribbean, consistently supported by the Community over the last 10 years, are bringing results. ■



Caribbean Village, Berlin Fair

Trade

Since the 1960s the developing countries, which form the 'Group of 77' (now in fact over 120) in Unctad, the United Nations Conference on Trade and Development, have consistently called for greater stability of commodity prices and for better access to the markets of the industrialized countries. The first – price stability, or at least compensation for price fluctuations – is vital for countries which depend heavily on their exports of primary products. The second is seen as a necessary step on the road to industrialization.

These demands lie behind the slogan 'Trade, not aid' which has been repeated in Unctad for at least two decades. An understandable slogan, in view of the colossal scale of world trade. In 1985, the total value of world exports was something like 1 900 thousand million dollars, and the developing countries' exports were worth nearly 300 000 million dollars. A lot of money, by any standard.

The Community, as a major market for many of the developing countries (it absorbs one third of all their exports, which in 1985 meant goods to the value of nearly 100 000 million ECU), has been attentive to their requests on the trade front. Its response has taken three principal forms: Stabex, trade preferences, and trade promotion.

Stabex, the Community's system for stabilizing export earnings, has already been mentioned in the first chapter, in connection with cash crops.

Trade preferences are granted under three arrangements: the Lomé Convention, for all ACP countries (duty and quota-free entry for almost all – 99.5 % – of their exports to the Community, on a non-reciprocal basis); the agreements with eight southern and eastern Mediterranean (SEM) countries (similar, with somewhat less preferential treatment for agricultural exports); and the Community's scheme of generalized preferences, for all members of the 'Group of 77' (duty-free entry – within certain limits in some cases – for all industrial products, and tariff reductions for many agricultural products without any limits on quantity). In practice, the Community's GSP scheme is used by non-ACP and non-SEM developing countries.

Trade preferences are given to products from developing countries over the same products from industrialized countries. They mean that, for example, jams, fruit jellies and some marmalades can enter the EEC duty-free from any ACP State, while they enter with an 8 % duty from, say, Brazil or India, and with a 30 % duty from the United States of America or Canada; or, to take an industrial product, while rubber shoes could enter the Community in unlimited quantities at 0 % duty from, say, Zimbabwe, and at 0 %, up to a certain quantity, from South Korea or any 'GSP' country, they would face a 16 % duty on entry to the Community if made in, for example, Australia or Japan.

While trade preferences are no guarantee of increased trade, let alone of instant industrialization, the two cases we have included in this chapter – Mauritius for the Lomé arrangements and the Asean countries for the GSP – suggest that they can be of real help if used well.

Trade promotion involves financial and technical assistance for a variety of activities – market research, sales campaigns, importer/exporter contacts, attendance at trade fairs. The Community has not had large sums to spend in this area (some 70 million ECU for 60-odd ACP countries for the five years of Lomé II, for example). Its assistance has been most visible on attendance at trade fairs. Here it has assisted individual firms (the Ghanaian toy firm and the Nuremberg Fair, mentioned earlier in this chapter, is a case in point) and national stands, such as the 15 stands of the 'PTA village' at the 1986 Nairobi Fair (Africa's Preferential Trade Area has 15 member countries, whose 'village' in Nairobi constituted an example of EEC support for South-South trade).

The Community's experience with trade fairs has shown that good results are only achieved if participation is prepared well in advance. At the 1987 Paris Leather Week, for instance, nine ACP stands received enquiries for 56 million ECU and took firm orders for 39 million ECU (as against enquiries for 25 million, 15 million and 9 million ECU in 1985, 1984 and 1983 respectively).

Solid commercial results of this kind are not achieved by hastily throwing a stand together at the last minute and sending a government official to man it. They stem from careful preparation and good organization along the whole chain from production to delivery.

The Community's concern, which is not new, to invest its aid in the whole chain, and not just the stand at the end, is reflected in the phrasing of the third Lomé convention, which refers to the 'development of trade and services' rather than just 'trade promotion'. It is also reflected in the example presented here – its support for the tropical fruit and vegetables liaison committee, COLEACP, over the 10 years of the first two Lomé Conventions.



Mauritius and the Lomé trade arrangements

This island State in the Indian Ocean, 500 miles east of Madagascar, was traditionally a one-crop economy. Sugar occupied half the land, one third of the work force, and provided 80 % of export earnings.

Soon after independence in 1968, the government embarked on a programme of economic diversification, to reduce dependence on sugar and to provide jobs for a growing population (Mauritius now has about one million inhabitants). It looked to tourism and export-oriented industry for new jobs and extra revenue.

To encourage exporting industry, Mauritius introduced 'free zones' in 1970, within which local and foreign investors were offered inducements such as tax incentives, exemption from import duties, and the right to move profits and capital freely. In addition, the country joined the Yaoundé Convention, Lomé's predecessor, in 1972 – the only ex-British colony to do so – thereby obtaining duty-free access to the EEC market for unlimited quantities of any industrial goods it could produce, so long as they met the EEC rules of origin (60 % made in Mauritius).

The Lomé Convention, which Mauritius signed in 1975, brought two further trade advantages: duty-free access, carried over from Yaoundé, was made non-reciprocal (i.e. Mauritius could charge customs duties on imports from the EEC); and a sugar protocol was attached to the convention, under which the EEC agreed to buy up to 1.3 million tonnes of cane sugar from ACP pro-

ducers every year at a price close to the maximum price paid for Community sugar. Mauritius, the biggest producer, was allocated the largest quota – 487 200 tonnes – corresponding to about three quarters of its annual production.

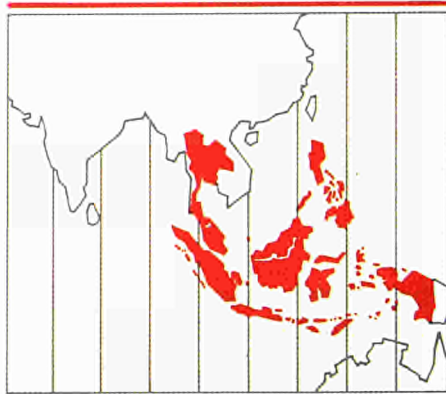
Because it offers a guaranteed outlet and a stable price for three quarters of the island's production, the protocol has rid the sugar industry in Mauritius of the uncertainties usually inseparable from an international commodity. In a decade which has seen the world market price of sugar drop to one third of its 1980 level, the difference between the world price and the Community price has been substantial:

Sugar marketing year	1981/82	82/83	83/84	84/85	85/86
Price difference per tonne	139 ECU	260 ECU	239 ECU	330 ECU	308 ECU
Price difference for Mauritius (x 487 200)	67 million ECU	126 million ECU	116 million ECU	160 million ECU	150 million ECU

On the industrial front, efforts to diversify the economy have met with considerable success. As well as a tourist boom, textiles and clothing, electrical components, tinned food and cut diamonds in particular have done well. Over a period of 15 years, some 100 000 new jobs have been created, and non-sugar exports have risen from 20 % to over 50 % of total export earnings. ■

Mauritian exports to the EEC
(in million ECU)

Selected products	1976	1981	1985
Sugar	154	169	174
Textiles, clothing	23	80	150
Tinned fish	1.3	5.4	12.4
Total exports to EEC	193	298	431



Asean and the GSP

Indonesia, Malaysia, the Philippines, Singapore and Thailand – the original members¹ of the Association of South East Asian Nations, or Asean – have used the Community's scheme of preferences since its introduction.

All these countries, whose economies are based on agriculture except for the city State of Singapore, have encouraged the growth of an industrial sector. In addition to primary products – oil, timber, tin, rubber, coffee and manioc – they export processed goods to the EEC, notably electrical goods, clothing, textiles and palm oil.

In 1976 their combined exports to the Community came to 3 385 million ECU, which was 5.8 % of the total value of the EEC's imports from the 56 developing countries using its GSP scheme. Asean products worth 576 million ECU were imported into the Community with GSP preferences. Their exports included a higher proportion of manufactured goods (40 %) than those of the majority of GSP users, and they were making fuller use of the Community's GSP scheme (see table '1976').

Keen to increase their exports, the Asean countries obtained the inclusion of palm oil in the Community's product list, and, more recently, bamboo shoots. Under the EEC-Asean cooperation agreement, signed in 1980, the Community furthered the possibilities for the region

1976		
All 56 developing countries using GSP	million ECU	of which Asean countries million ECU
Total exports to EEC	58 613	3 385
Exempt from duty (raw materials)	43 778 (75 %)	1 597 (47 %)
Eligible for GSP	10 185 (17 %)	1 375 (40 %)
Benefited from GSP	3 102 (5.3 %)	576 (17 %)
Use of GSP possibilities	30 %	42 %

1985		
All 59 developing countries using GSP	million ECU	of which Asean countries million ECU
Total exports to EEC	97 730	10 719
Exempt from duty (raw materials)	52 710 (54 %)	2 754 (25 %)
Eligible for GSP	34 000 (35 %)	5 619 (52 %)
Benefited from GSP	14 724 (15 %)	2 441 (23 %)

by allowing cumulative origin: for example, a radio set assembled in Malaysia using electrical components made in Singapore (or any other Asean country) could be imported into the EEC duty-free.

By the mid-1980s the proportion of Asean exports eligible for preferential treatment, and of Asean exports that actually benefited from tariff reductions, had increased significantly. In 1985 the overall situation was as shown in the table for that year.

These figures show not only an increase in the proportion of processed goods exported to the Community (from 40 % eligible for GSP in 1976 to over half (52 %) of

Asean's exports to the EEC in 1985), and a substantial rise in their total value; they also show that the five Asean countries boosted their share of GSP users' exports to the EEC from 5.8 % in 1976 to almost 11 % in 1985, with exports totalling nearly 11 000 million ECU.

As in the case of Mauritius, preferential access to the Community market, while not the only factor, most probably helped them to achieve this result. ■

¹ Brunei joined Asean in 1984.

COLEACP: Tropical fruit and off-season vegetables

Europeans are developing a taste for tropical fruit. Mangoes, papayas, passion fruit, guavas and lychees are increasingly sought after by European consumers and are now to be found in most supermarkets. Exotic in origin, appearance and taste, they come from afar and require special treatment. Many ACP countries do or could produce them; some, and their number is growing, export them. ACP exporters are finding that the trade can earn substantial revenues and this is partly thanks to the work of COLEACP.

COLEACP – the Committee for Liaison on the Promotion of Tropical Fruit and Off-season Vegetables from ACP countries – organizes co-operation between ACP producers/exporters and European importers of these products. It was set up in May 1973 on the initiative of the European Community and ACP and EEC professionals. Its work can be divided into three categories: trade promotion, trade information, and technical and commercial assistance. These activities are carried out by various institutions, but the kingpin of the organization remains its general delegation, appropriately based at Rungis international market in France, the biggest in Europe.

One of the first things that its Promotion Committee (in charge of trade promotion campaigns) did in 1975, was to run a 300-day mango campaign funded by the EEC. It was so successful that ACP producers were unable to keep pace with the demand generated. Consequently, the EEC asked COLEACP to carry out a survey in ACP countries to assess levels of production and potential, check export facilities and organize a producer-importer information system to keep production in line with demand from Europe.

The survey was completed in 1978. It comprised a study of the European market, laid down targets for African producers, and outlined a programme of technical assistance which included an EEC-funded multiannual trade promotion campaign. As a result, the ACP/EEC group approved a programme of 600 promotion days to be held in the



COLEACP

main cities of the Community each year between 1979 and 1981. A second programme began in 1982 to finance 1 000 promotion days, followed by another in 1985 aiming at 1 500 days. The first COLEACP data bank was also set up to telex details of prices on the European markets and importers' requirements (quality and quantity) to ACP countries once a week; in return, details of ACP supplies (export planning, crop progress and harvest) were sent to European importers every fortnight.

Since its creation, COLEACP has tried to include all the ACP countries in its programmes. In February 1981, the Committee organized an information mission to the Caribbean, which led to COLEACP running a special trade promotion scheme on Caribbean products in Europe and Canada, as well as a technical seminar in the Caribbean. Stemming from the latter, a technical assistance programme for Caribbean products was set up, providing specialists to introduce and reproduce fruit and vegetables in experimental orchards and nurseries, to ensure that quantity and quality were up to scratch, and to advise on packaging, wrapping, storage and transportation. Similar missions have since been organized in other regions, notably Central and East Africa and the Indian Ocean.

Perhaps the best measure of the impact of COLEACP's work is provided by the figures for ACP exports of fruit and vegetables to EEC countries. For fruit, these are impressive: total sales to Europe increased from 92 852 tonnes in 1976 to 226 912 tonnes in 1985. The total value of 1985 exports was four times that of exports in 1976. The most popular products are pineapples (two thirds of the total) followed by mangoes, grapefruit, coconut pulp, cashew nuts, fresh coconuts and oranges.

The picture is a little different for vegetables. In 1976, ACP countries exported less than 20 000 tonnes of a variety of off-season vegetables to the EEC (string beans, green peppers, aubergines, courgettes, tomatoes, etc.). By 1985, armed with better knowledge of the European market, ACP producers had greatly reduced their exports of tomatoes, courgettes, green peppers and aubergines, which face stiff competition from Mediterranean producers, concentrating instead on string beans, where they are in a better position to meet off-season demand in the Community. Between 1976 and 1985, Community imports of string beans from ACP countries increased by 200 %, and the value of these imports increased by over 300 %.

Under the sixth EDF, the Community is continuing its efforts to encourage exports of ACP tropical fruit and vegetables by co-financing a follow-up project which includes investigation into the possibilities of processing these products locally. The cost of the project will be borne partly by COLEACP members and partly by the Community.

The work undertaken by COLEACP over the period 1987-90 should lead to the elimination of various technical and commercial obstacles to the export of ACP fruit and vegetables, increased diversification (into drinks, sweets, etc.) and greater matching of exports and demand; better-qualified ACP operators; and of course increased export earnings for ACP countries and higher incomes for ACP producers. ■

Education, training and health

The most valuable resource of any country, rich or poor, is its people. The Community and its partner countries are well aware of this and have always endeavoured to devote a significant proportion of Community funds to the improvement of educational and health facilities.

The 'social' sector accounted for a little under 9% of all Community commitments up to the end of 1986. Its share rises to over 10% if urban water supply and drainage projects are counted as public health works. As social projects represent only a very small proportion of Community-financed operations in Asia and Latin America, our examples are taken from ACP and Mediterranean countries.

In the field of education and training, these – with one exception – do not concern primary or secondary education, and they highlight the content of training courses and research programmes rather than infrastructure. Consequently they give no idea of the number of schools and colleges which the Community has financed since the first EDF. The following table shows the number of educational buildings constructed, extended or renovated with Community funds, and the number of scholarships financed, over the 20 years covered by the first four EDFs:

	Primary schools (Number of classrooms)	Secondary schools	Higher institutes	Scholarships
EDF I	2995	154	12	1610
EDF II	902	32	12	5762
EDF III	583	18	9	5595
EDF IV	1108	181	50	20533
Total	5588	385	83	33500

Similarly, in the field of health, our examples include a Community-financed hospital and an urban water supply, but they do not give any idea of the extent of the Community's support for public health infrastructure over the years. It is worth recalling that in ACP countries alone nearly one hundred urban water-supply or drainage projects were financed from the first five EDFs, while Community support for medical infrastructure in the ACP countries can be seen at a glance from the following table:

	Hospitals	Number of beds	Clinics and health centres
1960–75	18	4907	429
1975–85	53	4149	289
Total	71	9056	718

Education and training in developing countries

The acquisition of knowledge and skills is fundamental to the social and economic development of the Third World. Needs in this area are immense and varied, ranging from initiation in simple technical skills to advanced university education.

Education and training are however very expensive. Infrastructure, teaching materials and teacher training require substantial human and financial resources. Third World countries do not have sufficient resources to satisfy all their requirements in this area, and they need some outside assistance to speed up their development.

The Community has been providing them with financial and technical assistance in the educational field since the first EDF. Its aid has taken two principal forms: help with educational infrastructure, teaching materials and training in the developing countries, and the award of scholarships for higher education in Europe.

The examples included in this chapter give some idea of the diversity of the developing countries' needs. The first two are long-running programmes in West Africa, one to support the education and training of young farmers in Burkina Faso, the other to support two agricultural colleges for agronomists and technicians from a number of countries in the region. The third is a more recent scheme to assist qualified Africans resident in Europe to take up suitable employment in African countries, in this case Kenya, Somalia and Zimbabwe.

In the Arab world, Egypt provides an interesting illustration of cooperation between universities in Europe and in a number of southern and eastern Mediterranean countries.

Our final example outlines a programme which is just getting under way in Algeria to raise the level of management skills in industry, a sector of great importance for that country.

Burkina Faso: School for young farmers



Group discussion at a training centre for young farmers

They are young, live in the rural areas and would normally have no opportunity to attend school. At the age of 18, they will become farmers. In order to give them a basic education and some training in farming, an original system was introduced in Burkina Faso at the beginning of the 1960s, quite different from the traditional approach.

The programme, entitled 'Formation de jeunes agriculteurs' (FJA) or 'Training for young farmers', runs useful courses for 15-18 year-olds. The idea is to familiarize them with modern farming techniques which will enable them to improve their output, both qualitatively and quantitatively.

From its inception, FJA wanted to set up pilot farms where new methods would be tested. Crop rotation to preserve the soil's fertility, inter-cropping to increase yield, and the use of compost to improve soil are some of the methods taught in FJA centres.

The course is spread over a period of three years and includes teaching of the local language, arithmetic, and geography. In order to facilitate rapid assimilation texts used are all related to various farming activities: preparation of soil and seedlings, weeding and crop protection, farm-

ing activities during dry and rainy seasons, cereal prices, harvest, stock-keeping, etc.

During the 1960s, the project received a great deal of foreign aid. The European Community was one of the major donors and has been one of the most constant, contributing some 8.3 million ECU in all over the first five EDFs. Its aid has been used to build 329 centres, associated accommodation and offices, to build and equip two teacher training centres and to provide technical assistance for rural education.

For many observers, FJA training courses offer a number of advantages over more traditional systems.

Firstly, the school year does not follow the usual September to June calendar. The academic year begins in April and ends in February, so as to include farming activities during the rainy season.

Secondly, the FJA system is designed for adolescents in the 15-18 year age group. This is important because children under 15 are neither physically strong enough to control an ox-drawn plough, nor psychologically mature enough to wrestle with the complex problems of farming.

Thirdly, courses are held in each village where there is a field cultivated by the young trainees. Mixed farming (crops and cattle-breeding) is usually the norm. This allows the youngsters to learn on the job, and also brings in some money to help cover costs.

Moreover, those who finish the course start work on their parents' farm before setting up on their own. This gives them the chance to teach their families what they have learnt, and through their families, the whole village.

But, as often happens, there is a gap between theory and practice. On the farming side, the absence of crop rotation and reluctance to let the



land lie fallow have made it difficult to increase output in some regions. On the teaching side, the principle of teaching in the local language, although accepted in 1975, has been applied only very slowly. In fact, today, 12 years later, the local language is only used in some FJA centres – often because the instructor does not speak it, or speaks it with difficulty. The absence of an appropriate language teaching programme does not make the instructors' task any easier – Burkina, a country of 6.5 million people, has eight recognized languages!

But the biggest difficulty is the recruitment of the 15-18 year-olds. At this age, adolescents constitute an active labour force, and their parents often refuse to send them to the centres, preferring to send the under-15s instead. A pity, considering that the project is specifically designed for adolescents who are old enough to actually work on the farm.

In an attempt to overcome this obstacle, a 'Conseil villageois du centre' (village council) was set up for each centre. This is important in the sense that it is the population that decides on the opening of an FJA centre. If the villagers are interested in having one, they are first asked to

form a village council which will then assist the instructors with recruitment and the day-to-day running of the centre.

The Burkina Faso Government has now gone one step further: it is encouraging adults to follow the courses as well. By associating parents as well as their children with the centres, it is hoped that more adults will learn to read and write, and that agricultural output will rise as more of them adopt the new farming techniques.

In the meantime, good solid results already exist and are there for all to see. There are now enough qualified instructors within the FJA system to keep the project going. This is clearly a great asset, because without a body of instructors convinced that the system is a good one, foreign aid could achieve little. The project has played a crucial role in stemming the rural exodus by offering a future for youngsters in their own village.

Over the years, some FJA centres have become 'consultants' to other projects, such as the small-holders' cattle-breeding project in Yatenga, the campaign against soil erosion in Goubre and Somiaga, and the village water project in Yatenga.

Teaching the population to read and write, and in their mother tongue, is also a major contribution which, despite the difficulties mentioned, the FJA centres are making to the national level of education.

Overall, this is an excellent project which meets a real need. This is why the EEC, like other donors, has continued to support it over a good number of years. ■

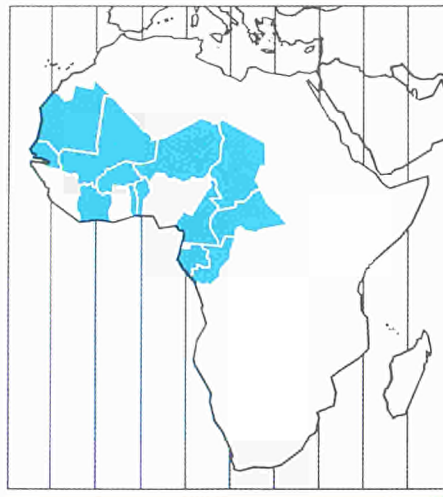


Field work: cotton-picking

West Africa: Training agronomists and technicians

Considering that the majority of the Third World's population lives off the land, it is understandable that agricultural training should be a priority. The supply and treatment of water, irrigation and drainage, the construction of access roads in rural areas, soil science, land use – in all these fields qualified manpower is in acute shortage in many developing countries.

Thirteen French-speaking African nations¹ have taken up the challenge and united their efforts to set up two schools of agronomy: the École inter-états d'ingénieurs de l'équipement rural (EIER), founded in 1970 in Ouagadougou, Burkina Faso, to train agronomists; and the École inter-états des techniciens supérieurs de l'hydraulique et de l'équipement rural (ETSHER), set up in 1973 outside Ouagadougou, to train senior



ships for students to attend the schools.

Demand for qualified agronomists is constantly rising in African countries, and the extension of the two schools became imperative. So the Community stepped in a second time to enable the schools to increase their intake and offer a more varied curriculum: refresher courses, specialization, applied research, etc.

The total cost of the extension was 6.25 million ECU, of which the EEC contributed 4.5 million ECU from the fifth EDF.

EIER

The school offers a variety of courses to students who have obtained a

university diploma in mathematics and physics or chemistry and physics (holders of an equivalent diploma in other disciplines are accepted if they pass an entrance examination).

First, there is a basic three-year course leading to a degree in agricultural studies (Diplôme d'ingénieur de l'équipement rural). The course is equally divided between written and practical work, and covers mathematics, design and topography, soil mechanics and hydrology (irrigation, drainage, water supply).

Secondly, the school offers a one-year postgraduate course for qualified agronomists who have already acquired practical experience and wish to specialize. Up to now, the assistance of European institutions has been necessary to run these courses (WHO and the Swiss Federal Polytechnic for the 1980 course on drainage and sanitation, Unesco and the Dutch and French Governments for the 1982 course on rural water engineering, for example).

Thirdly, EIER offers short proficiency courses of not more than a month. The first such course was held in 1983 on soil and water conservation. The second, in 1984, was on computerization. It is now planned to hold up to eight similar courses a year. Research can also be undertaken at EIER.



*EIER extension:
teachers' housing under construction ...*

technicians to second the agronomists. The two schools, situated on the semi-arid edge of the Sahel, also cater for the needs of the humid tropical regions of French-speaking West Africa.

From the outset, the schools received foreign aid, notably from the EEC and France. The Community contributed 1.26 million ECU from the third EDF to finance the construction of ETSHER, while French aid financed that of EIER. France continues to provide most of the teaching staff and to grant scholar-



... and finished

¹ Benin, Burkina Faso, Central African Republic, Cameroon, Chad, Congo, Côte d'Ivoire, Gabon, Mali, Mauritania, Niger, Senegal, Togo.



ETSHER extension: new dormitories

ETSHER

This technical college can recruit students with varying backgrounds and from different age groups. An entrance examination is organized for students in their final year at secondary school, but students with a *baccalauréat* or higher qualifications may enroll as well. Technicians with field experience can also apply to sit in entrance examination. This recruitment system is not without its disadvantages, and the school has been thinking of making the *baccalauréat* compulsory to narrow the present differences in student levels.

ETSHER's primary aim is to train technicians to second agronomists, and it runs semi-theoretical, semi-practical courses in similar subjects: topography, electrical engineering, water engineering, construction, etc.

The calibre of the staff make these two schools invaluable. At EIER, 10 out of 16 teachers hold a diploma or doctorate. All are qualified agronomists or are specialized in civil engineering, or irrigation.

At ETSHER, half of the staff are qualified technicians, with experience in such areas as the construction of rural feeder roads, public works and other rural infrastructure, while other members of the staff have experience of feasibility studies and project management.

Unfortunately, all these teachers are expatriates, and as funding is also largely external the long-term future of the schools is not assured. The West African countries and the board of governors are alive to the need to 'Africanize' the staff, but have not so far managed to replace expatriate staff by suitably qualified Africans.

In the meantime, the extension of both schools, largely financed by the EEC, has enabled them to take in more students and offer a greater variety of courses, thereby helping to meet the growing demand for qualified manpower in West Africa. ■



Kenya, Somalia, Zimbabwe: Reversing the brain drain

Profession: Doctor, dentist, veterinary surgeon, engineer, scientist, architect, lawyer, accountant, economist

Nationality: Developing country.

Place of work: Industrialized country.

The 'brain drain' is an acute problem for developing countries in Africa. They need qualified manpower in all sectors, and yet many of their educated classes have left to work in Europe or North America.

Three main reasons are given to explain this phenomenon: lack of suitable employment opportunities in Africa; inadequate salaries; and, in some countries, an unstable, undemocratic political climate.

Whatever the reasons, the exodus is a poor reflection on governments which have failed to keep an invaluable human resource, and a net loss for countries which have invested much time and money in the education of their professional classes.

To try and stem the tide and reverse the flow of talent, the European Community and the United States of America launched a pilot project in 1983 entitled 'Re-integration of qualified African nationals.' Its aim was to assist qualified Africans living in industrialized countries to find suitable employment in Africa.

Three target countries were chosen: Kenya, Somalia and Zimbabwe. The programme was to be run by the Intergovernmental Committee for Migrants (ICM) whose headquarters is in Geneva. The US agreed to finance the repatriation of 150 Africans, and the EEC the return of 300 Africans to the three countries.

The EEC made available 3.3 million ECU to cover administrative costs and the return journey Europe-Africa for each returnee and his family (plus some other incentives like medical insurance and any necessary professional equipment) once agreement had been reached on the employment offered in Africa.

The ICM played the role of an employment agency. First, it had to find suitable vacancies in Kenya, Somalia and Zimbabwe through contacts with those in charge of planning, education, human resources, research institutes, State and private enterprises; and then recruit Africans with corresponding qualifications living in Europe and willing to go back to work in Africa.

The project proved to be more successful than originally expected. The EEC had planned for 300 returnees over a period of three years, but the ICM received 1 000 applications, all eligible for assistance. Confronted with this avalanche of candidates, the Community agreed to release a further 450 000 ECU to increase the number of beneficiaries.

Between January 1983 and July 1987 a total of 365 qualified Africans had returned under the programme to take up suitable employment in Kenya, Somalia and Zimbabwe.

The ICM received applications from 315 Zimbabweans, 167 Kenyans and 62 Somalis. Of the other applicants, the largest contingent were Ghanaians followed by Ethiopians, Nigerians, Cameroonians, and Zairians.

As regards professional qualifications, statistics from 1986 covering 230 returnees showed that nearly 100 of those recruited (41 %) possessed a doctorate or master's degree; 60 had a first degree (25 %) and 70 held a technical diploma (30 %). As for their 'origin', 66 % had been living in the United Kingdom, 11 % in the USA, 9 % in West Germany and 8 % in Italy.

After repatriation

Over 80 % of Africans who migrate to industrialized countries do so to pursue higher education. But once they have finished, various factors – political, economic and cultural – make their return home difficult.

The EEC/USA/ICM project has enabled a good number of these intellectuals to overcome the problems they faced and return to Africa. Four years after the start of the project, what is the situation?

In 1985/86, the ICM polled 65 people repatriated between January 1983 and December 1984. Questions asked included the role played by the integration programme in their decision to return to Africa, the problems experienced on return, and the degree of job-satisfaction in their new position.

The replies showed that the facilities offered by the project significantly influenced their decision to return. In order of importance, the factors that played a major role were: transportation of their personal belongings, the offer of the air-fare, and prior contact with their new employer.

Without this assistance, only 10 % said they would have stayed abroad, while 63 % said they would have worked to save enough money to go back later.

As regards the process of integration, 70 % said they experienced financial problems and suffered from culture shock, shortage of suitable equipment and research facilities. Among those who experienced problems, 40 % had lived abroad for 4-7 years, over 32 % for 8-12 years and 17 % for more than 13 years. But 83 % felt their job corresponded to their qualifications. Nearly 37 % found their working conditions good, and 52 % found them satisfactory.

These replies show that the project corresponded to a real need amongst educated Africans. It has also been appreciated by the countries concerned. Reintegrating qualified Africans, as well as working out cheaper than recruiting foreign experts, helps them solve their manpower problem while increasing their self-reliance.

Their appreciation is reflected in a recent decision to continue and extend the repatriation programme to other countries. A larger sum – 7 300 million ECU – is to be provided from the sixth EDF to finance the return of 550 qualified Africans to three new countries – Ghana, Uganda and Zambia – as well as to the three initial target countries. The programme will be flexible, and other countries will be able to join the scheme if they choose. ■

Egypt: Inter-university scientific cooperation

Barely 4 % of Egypt's land is cultivated. To feed its people in coming years Egypt must either put more land under cultivation or produce more on land already farmed. This is a technical problem and good technical answers are the fruit of scientific research. Research is another area of cooperation between the Community Member States and the developing countries. The Commission has been supporting scientific cooperation projects involving Egypt and various European countries since the early 1980s: 3 million ECU were allocated between 1981 and 1986 and a further 3 million are currently being allocated to a second group of projects. The first group of projects concerned medicine and soil science.

Medicine

Three European universities have long-established research links with Egyptian counterparts. During the period in question, the Community has given a helping hand, providing technical assistance and additional



financing for these exchanges. Some 600 000 ECU was allocated for co-operation between the Pasteur Institute and the radiation centre of Cairo University's Medical School. The aid was used to buy an electron microscope, to provide assistance in training technicians, and to translate scientific documents into Arabic, so ensuring that the microscope is used to the best possible advantage. This project has been very successful and may well be extended to other technology transfers and other types of training. In time, the Egyptian centre will become a scientific reference point for the whole Middle East.

Cooperation between Cairo University and another institution, the University of Glasgow, has also been fruitful. The aim here was to set up a School of Nephrology and promote exchanges of teaching staff. The total amount involved was

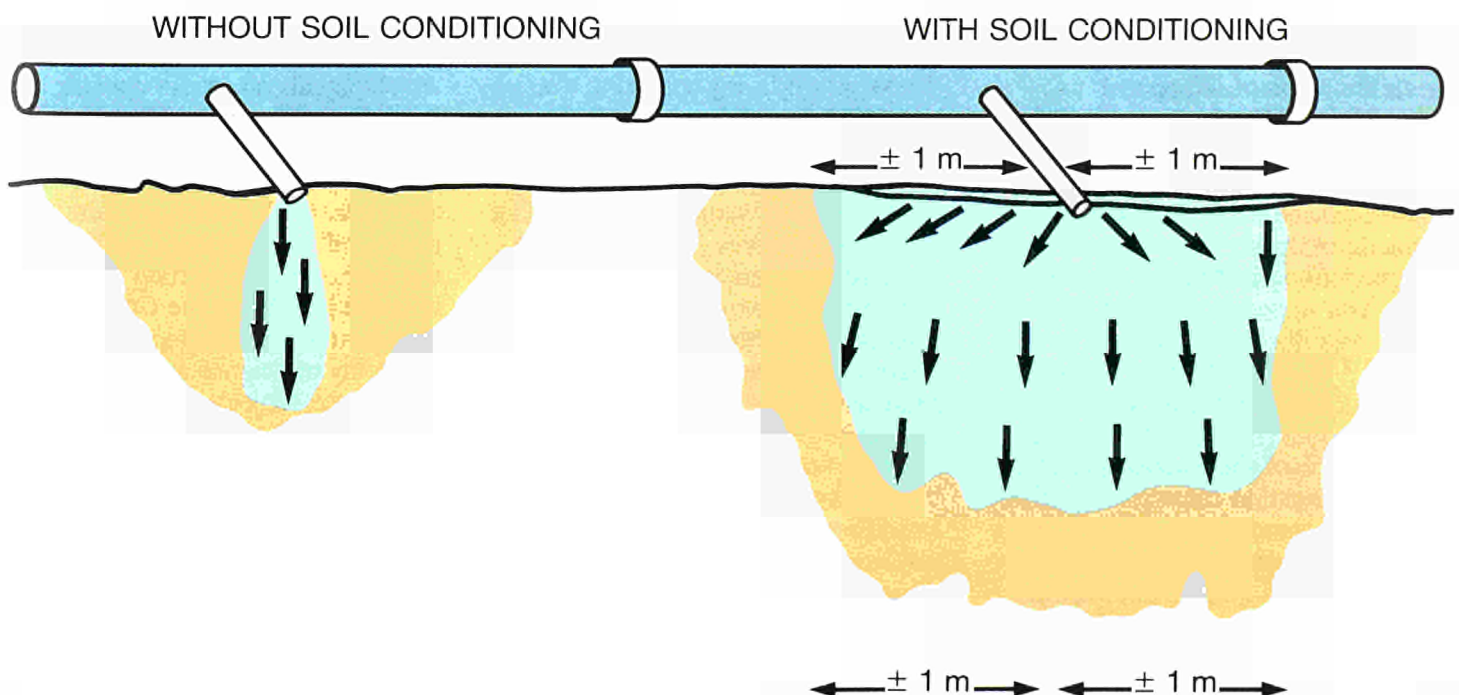
230 000 ECU and the result has been to boost considerably Egypt's research, treatment and training capacity in the field of kidney disease, caused, among other things, by bilharziasis.

Soil science

However, the lion's share of the work and resources (2.4 million ECU) has gone into soil science. Research here is a priority for a country like Egypt which is confronted by the encroaching Sahara, wind erosion, the scarcity of fertile soil and the not always optimal use of good soil. The University of Ghent in Belgium has built up a great deal of know-how in this field over decades of work in Central Africa, Asia and the Near East and thus its soil science department became the European partner of three Egyptian institutions, Cairo University, Ain Shams University and the soil science laboratory of the National Research Centre.

The project entails cooperation in research and training, the objective being to improve water management and the physical condition of soils in

DRIP IRRIGATION ON DESERT SOILS





Drip-irrigated field

order to maximize output. There have been exchanges of scientists between the universities and, above all, the possibility of studying at Ghent for 12 Egyptian students. Once these researchers have finished their studies, they will become the cornerstone of Egyptian soil science research. They have received an education based on original research, which is also directly applicable to Egyptian conditions. Three laboratories were also equipped as part of the project, two small and one large. The large laboratory is exactly the same as that which has helped forge the reputation of Ghent University.

This brand new laboratory has been the scene of interesting research into the physical characteristics of poor and desert soils under the guidance of an expatriate, soon to be replaced by a counterpart trained at Ghent. This research could well benefit agriculture in the region.

From the laboratory to the farm

Barely 30 % of the water supplied through irrigation channels actually serves the growth of crops. The rest is lost in the sand or percolates down too far.

Soil science research could provide an answer to the problem. With the aim of making the most of every

drop of water, the Ghent researchers have been trying to create soils that are water-receptive and good distributors of water. The aim is to slow down evaporation and encourage water to percolate not downwards but outwards so that moisture remains close to the surface for as long as possible. The root systems of vegetables, cereals and trees could then develop soundly in all directions, making for healthy, flourishing plants.

The solution developed in Ghent and adapted and applied in Egypt is based on soil aggregation. The rows of plants are sprayed with a bitumen emulsion which has a hydrophobic side (upward facing) blocking evaporation, and a hydrophilic emulsifying side (downward facing) that acts as a sponge, keeping moisture close to the surface. With this quick-drying film, drip irrigation, which, without it, moisturizes an area of only a few centimetres, now creates a moisture zone one metre in diameter. The water is trapped around the plant roots and seeds. Where once only one plant grew with difficulty, two can now flourish with three or four times less water. Obviously, in an area the size of a garden similar results could be obtained using a sheet of plastic. But for cost and clean and easy use this soil conditioner is by far the best solution. It is biodegradable, non-phytotoxic and

cheap. One ECU is enough to treat plants along a drip irrigation line of two to four kilometres!

In addition to saving water and improving agricultural yields, the technique also prevents the build-up of saline deposits, caused by fast evaporation.

The treatment also makes for a soil texture that resists wind erosion. This latter quality opens up new possibilities – huge areas could be treated, the sand stabilized, the dunes levelled. In short, the advance of the desert could be halted and protective belts created around living and farming areas. The Egyptian soil science laboratory set up with Community financing is studying the properties of this soil conditioner and its possible applications. It is also looking into alternative conditioners using urea-formaldehyde produced locally and which Egyptians have used since the time of the Pharaohs.

This hydrophobic-hydrophilic conditioner (highly water-resistant on top and a water trap below) makes it possible to use slow-acting fertilizers and pesticides. Here, the chemical agent is released only slowly under the effect of moisture and the breakdown of the emulsion. In Egypt fertilizers and pesticides have been added to the emulsion before application and have remained active for weeks. Mixed with sand and polyurethane, the soil conditioner can be made into a cheap, ultra-light, insulating brick particularly suited to the region.

This is what North-South scientific cooperation can achieve. These developments are doors opening into the future. The discoveries made in our laboratories can usefully be transferred and applied in developing countries. Such exchanges were organized, as mentioned earlier, in the framework of a group of projects initiated in 1981 by the Community, European universities and Egypt's Academy of Science and Technology. These projects are now almost completed – Egypt has been given the means and its own researchers will soon be spreading their wings.

However, a new round of scientific projects and exchanges was launched in 1986. Ghent University has now been joined by Liverpool University in a project to develop the training, teaching and applied

research capacity of the Suez Canal University (Al Ismaila) in marine biology and fish farming. The Belgian side is focusing on the production of the brine shrimp *artemia*, used as feed for fish, and the British are helping set up a marine biology department. Of the 3 million ECU allocated, 2 million ECU will be spent on a laboratory and 1 million ECU on applied research relating to *artemia*. ■



Algeria: Management training for industry

Algeria possesses substantial reserves of petroleum and natural gas, and these have been the foundation of the country's industrialization. Revenue from sales of oil and natural gas accounted for 30% of GNP in 1983, when Algeria supplied, for instance, 28% of the EEC's gas imports. But, alongside energy, Algeria has built up other industries – steel and metalworking, mining, mechanical engineering, electricity.

Heavy industry has enjoyed priority and the creation of a limited number of very large industrial concerns has been encouraged. Over the past two decades huge amounts of public money have been invested in the industrial sector.

However, while there is no lack of raw materials or technical know-how, some industries have failed to achieve levels of performance that would make it possible for government support to be reduced. Heavy industry is now being re-organized: previously concentrated in five big State concerns, it has been broken up into about 40 companies, to which the government is intending to grant an increasing degree of independence. But without good management, economic development could slow down.

Algeria therefore needs capable administrators and managers if the new policy (company independence, worker commitment, greater involvement of the private sector in foreign trade) is to achieve results. The ambitious and unusual project presented here is a step in this direction.

It is ambitious, in that it aims to train 6 000 senior staff in Algeria's heavy industries. It is unusual, because it represents a break with the traditional practice of sending teachers from the northern industrialized world to train people in the developing countries of the south, and having students from the south come to study in the north.

Algeria naturally has its own training schools for engineers and technicians, and a group of companies runs a school of administration, but courses are aimed at middle management and office staff. The idea of this project is to help 6 000 high-level staff occupying positions of responsibility in industry to master administration, finance, accountancy, marketing, production, human resources and project management – all of which influence a company's performance.

With the help of the Community and business schools and universities in Europe, the Algerian authorities have launched a training programme for management instructors (the most important and innovative part of the project), top managers and senior executives.

The core of the project is the training of instructors. These are senior members of staff in industrial firms, of proven professional competence and experience. They are being trained to teach all aspects of management; their training includes practical work and seminars. Once trained, they will become responsible for instructing their colleagues. The courses they are to run will consist of a number of one-week sessions spread over several years. In this way, no one will be taken away from their company and job for too long. As well as running the courses, the instructors will be responsible for devising teaching materials and course contents. They will also act as business advisors.

Since the instructors are the key element of the project, they are being followed throughout their training by 'tutors' who are all products of European business schools or universities. These European supervisors are handing on their own experience and methods in order to further the objectives of the programme.

The emphasis is on practical training based on real needs and readily applicable to everyday situations – how to solve companies' administrative problems, knowledge of the technical aspects of management and its practical application. About 60 instructors will be trained over a period of five years.

The 'top management' programme, to consist of six one-week sessions in the space of a year, will provide some 40 managing directors with insights into business strategy and company management.

A 'senior management' programme spread over five years is designed to give senior staff a solid foundation in various fields: more than 4 000 executive staff will be concerned.

A specialist programme will cover topics not dealt with fully in the senior management programme. It will cover narrower, more specialized

fields and will be organized during training to meet specific requirements. About 1 500 staff are expected to attend specialized courses.

The different partners in the project each have their own responsibilities and requirements. The Algerian Government deliberately asked the Community to fund this project in order to obtain multilateral assistance. The project leader (*Les Hautes Études Commerciales*, a French business school) and its other European partners have agreed to Algeria's wish to have most of the training organized in Algeria with Algerian instructors from the staff of industrial firms.

On the Algerian side, the Ministry of Industry is responsible for the project's implementation. It has set up an inter-company body for the specific purpose of coordinating the project. The Ministry is also providing

the training centres (all training sessions will be held in the three big towns of the north: Oran, Algiers and Annaba) and is paying trainees' board and lodging, expatriate supervisors' expenses and Algerian instructors' salaries.

The Community is putting up the money for experts, teaching materials and awards for training courses in Europe. Its aid will total 3.9 million ECU over five years.

The project will improve the management skills of 6 000 staff in Algerian industry and so, it is hoped, improve the economic performance of the sector as a whole. It is important for the development of the country. It will also serve as a pilot project: once all the training courses are organized, tried and tested, they can be used by State training schools for other sectors of the economy and for small and medium-sized businesses. ■

Health in the Third World

For the majority of people in developing countries, improving living conditions is more important than curative or preventive medicine in the promotion of good health. Bad housing, poor diet, lack of clean water and sanitation, and the accumulation of refuse are the root causes of much ill-health, and the reason why the diseases still common in the Third World are often referred to as diseases of poverty.

In Europe, many such diseases have disappeared as a result of improvements in living conditions, rather than as a result of medical progress or hospital building programmes. If Europe's experience is anything to go by, health problems in developing countries should be tackled on several fronts at the same time.

However, some advances in medicine have had a considerable impact on the situation in the Third World. The development of vaccines, for instance, has helped reduce infant mortality significantly over recent decades. But in many countries the delivery of health care is very inefficient.

Several common problems can be identified: one is that hospitals and dispensaries tend to be concentrated in urban areas, whereas some 80 % of the people in developing countries live in rural areas. These facilities are therefore inaccessible to most people.

Another cause of inefficiency is the priority given to curative medicine (i. e. care focused on the individual) at the expense of medicine and health education that would benefit the whole community.

Shortage of medical staff and their uneven distribution is a further handicap. Third World doctors, whether trained at home or abroad, are often reluctant to practice in remote rural areas, where facilities, at best, are basic.

It is to address problems such as these that international organizations, including the European Community, provide aid for the medical sector. The EDF has concentrated on funding the construction of dispensaries and health centres, rural hospitals, maternity wards and mother and child health centres where these facilities are most needed. Infrastructure projects of this kind account for more than 90 % of the funds allocated to health projects. Most of the rest has been spent on training personnel, to ensure that existing hospital facilities are not under-utilized for want of staff.

In addition to health infrastructure and training in Chad, and an architecturally innovative hospital in Mauritania, we have included one example of an EEC-funded urban water supply – a form of assistance which is essential for public health but one that is often taken for granted.

Medical research has not been entirely neglected, although only very small sums have been devoted to it; two examples are given, each dealing with a different aspect of health problems in Africa.



Chad: Restoring the health network

Chad has one of the poorest health-care systems of any country. The situation has been aggravated by civil war and natural disasters which have partially or totally destroyed what little there was in the way of health infrastructure. Sadly, the country has the highest rate of infant mortality in Africa: 200 children die out of every 1 000 born.

However, since 1982, despite continuing civil war, the government has been trying to restore hospitals and dispensaries as part of its difficult nation-building task. Needs are immense: trained staff, hospital equipment, drugs are all in short supply – the list is endless.

The EEC – the principal donor in this sector – decided to grant emergency aid for the most pressing needs, and then to support the government's health programme over the longer term.

It has spent 10 835 000 ECU either in the form of emergency aid or in supporting the government's 'Restoration of the hospital and health network' project. This project, which consumes 40 % of external aid, is the biggest in the health sector.

It covers the nine administrative areas in northern Chad which have suffered most from war and drought. Hospitals and dispensaries in these areas had been partly or totally abandoned, medicines and equipment were in desperately short supply, and the lack of vaccination campaigns had led to a resurgence of



Training and equipment are both essential to rebuild the health service in Chad (Photo: MSF)

infectious diseases. There was, in addition, a critical shortage of food.

The project is based on a long-term plan of action, of the kind advocated by the third Lomé Convention, under which the European Community can provide continuous support in the form of technical assistance at managerial level and training of local staff. In this case, the technical assistants are the staff of the Belgian NGO 'Médecins sans frontières', which has 25 doctors, 2 architects and teams of administrative and paramedical staff in Chad backing up the local personnel of 10 doctors and 300 nurses.

Project staff are responsible for ordering drugs, managing stocks and distributing supplies to out-lying areas on a regular basis. MSF are

hoping to introduce the radial distribution system which they have set up in Mali (where the Community provided 1 million ECU to buy essential drugs). In Mali, MSF vehicles carry pharmaceutical products from the capital to wholesale drug stores in each of the different regions. These retail the drugs to district depots, which in turn supply the clinics and mother and child health centres in the sub-districts. The system includes a 'health garage' with a workshop and a stock of spare parts to keep the project vehicles in running order.

In Chad, for the time being, a specialized pharmacy, separate from the one supplying the public sector, has been set up with responsibility for distributing medical supplies in the northern region. It is eventually

intended to bring this pharmacy into the orbit of the public sector, and place the entire distribution network in the hands of Chadians.

In addition to distribution work, project staff have produced index cards which explain what the drugs are for and how they should be taken; established a permanent radio link between the capital and the provincial centres; and are training Chadian nurses and midwives on the job. In exchange for these different services, the Chadian Government is required to carry out a number of practical measures: it has undertaken to examine the possibility of paying adequate salaries to local staff, to encourage the return of Chadian doctors and to re-launch the mother and child health service.

The ultimate aim of the project is to create an efficient health service run by Chadians. At the moment the country is concentrating on building a sound basis, and the aid provided by the Community since 1983 through MSF has certainly been instrumental in restoring medical services in the northern districts. ■

Mauritania: Kaédi hospital

For some 10 years now the term 'self-reliant development' has been on the lips of development theorists. We ourselves use it in this brochure. With the entry into force of the third Lomé Convention, EEC projects make specific reference to the involvement of the local population and the use of local resources. Indeed, *the use of local resources* – materials, labour, techniques and technical assistance – is an important part of self-reliant strategies since it does more to further the development process than the importation of inputs from Europe.

Construction is a sector of activity which lends itself wonderfully to this approach. Vestiges of buildings that were unsuitable for both their function and the environment litter the developing countries. These turnkey projects – schools, hospitals, lodgings, etc. – have deteriorated, battered by the wind, sun, water, or quite simply ordinary wear and tear.

Whatever the location, environment or final purpose of buildings, great care must be taken to adopt the right approach to the use of local resources because it is a complex process which involves local people, puts usual economic channels in turmoil and brings in its wake new ways that inevitably entail change.

This brings us to Kaédi in Mauritania where an extension to an existing hospital was designed and built with the emphasis on local resources. The 3.4 million ECU project, first mooted in 1977, was slow to get off the ground. In 1981 an architect who thought it a project suited to local



conditions and the use of local resources was appointed project leader.

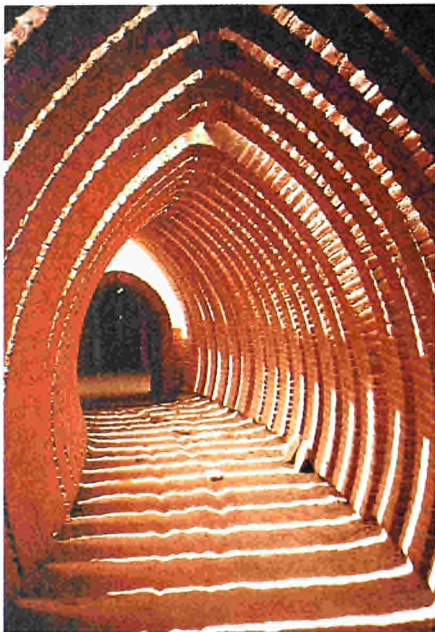
His idea was to enhance the prestige of local materials through radical technological innovation and creative design. The materials and the architectural organization of space were studied together, not seen as separate problems.

As to the materials, the use of clay had to be improved upon, something which proved easy enough. It was decided to produce bricks made of clay and rice husks, fired in kilns, themselves fuelled by rice husks available from a nearby rice mill. These bricks are completely resistant to erosion by wind, sand and the – rare – rains. The sand and clay come from the bed of the Senegal River which runs close to the site.

Materials for the hospital are supplied by a small-scale industry employing over 40 people, which has become the third largest of the town. Some 25 000 bricks are produced weekly in 10 kilns.



With its domed wards, Kaédi hospital is reminiscent of an African village



The spaced arches of the hospital corridors let in light and air

Output is barely sufficient for the project's construction requirements but in future, when the project is finished, the new material can be used by others – plans have been drawn up for hotels, private houses, an amphitheatre, publicly subsidized housing, a shopping centre, etc., all based on the same architecture and the same materials. Lime, used for whitewashing, is also produced on site. The design of the kilns, devised on the spot, is very simple and can be employed elsewhere.

The layout of the hospital is in the form of a tree with many branches, i.e. corridors leading into the various wards, which are round, domed buildings housing 1-12

patients. Each ward is accessible to the patients' families, who can camp outside and care and cook for their sick in the African tradition.

Tools and materials for the interiors have been designed and made by local craftsmen, potters, carpenters and boilermakers. Some of them have even exported their 'new' products to the capital, Nouakchott. By using brick (of clay, straw and water), imports of cement were kept down. As the buildings are domed, the roof and wall are built as one with no join.

The hospital/brickworks complex, run by the architect and his assistant, the only two expatriates, has many economic links with the local population: the local workforce (over 100 strong), suppliers, tradesmen, craftsmen, haulage firms, donkeymen, etc. Between 60 and 70 % of the project budget has been spent locally, an unusually high proportion since a large part of most project budgets goes on imported inputs.

All the techniques used in the Kaédi project could be reproduced elsewhere and the local staff trained on the site are capable of starting up similar projects themselves. A young Mauritanian architect who did a spell of practical training at Kaédi is drawing up the plans for a village, to be built on similar lines. The former head of the brickworks and two of

the masons have set up on their own and are training other masons.

This type of building making use of local inputs reduces running costs (no air-conditioning system) and building maintenance considerably. The hospital will be less expensive to use than traditional designs. Furthermore, it offers the added advantage of a more welcoming environment for families from the psychological point of view and an organization of space closer to that of traditional culture. ■



Zaire: Kinshasa water supply

The rapid growth of Africa's main cities, such as Kinshasa, has given rise to a variety of social problems. Inadequate public health facilities, shortage of housing, unemployment and, all too often, insufficient access to clean water aggravate living conditions in the built-up areas.

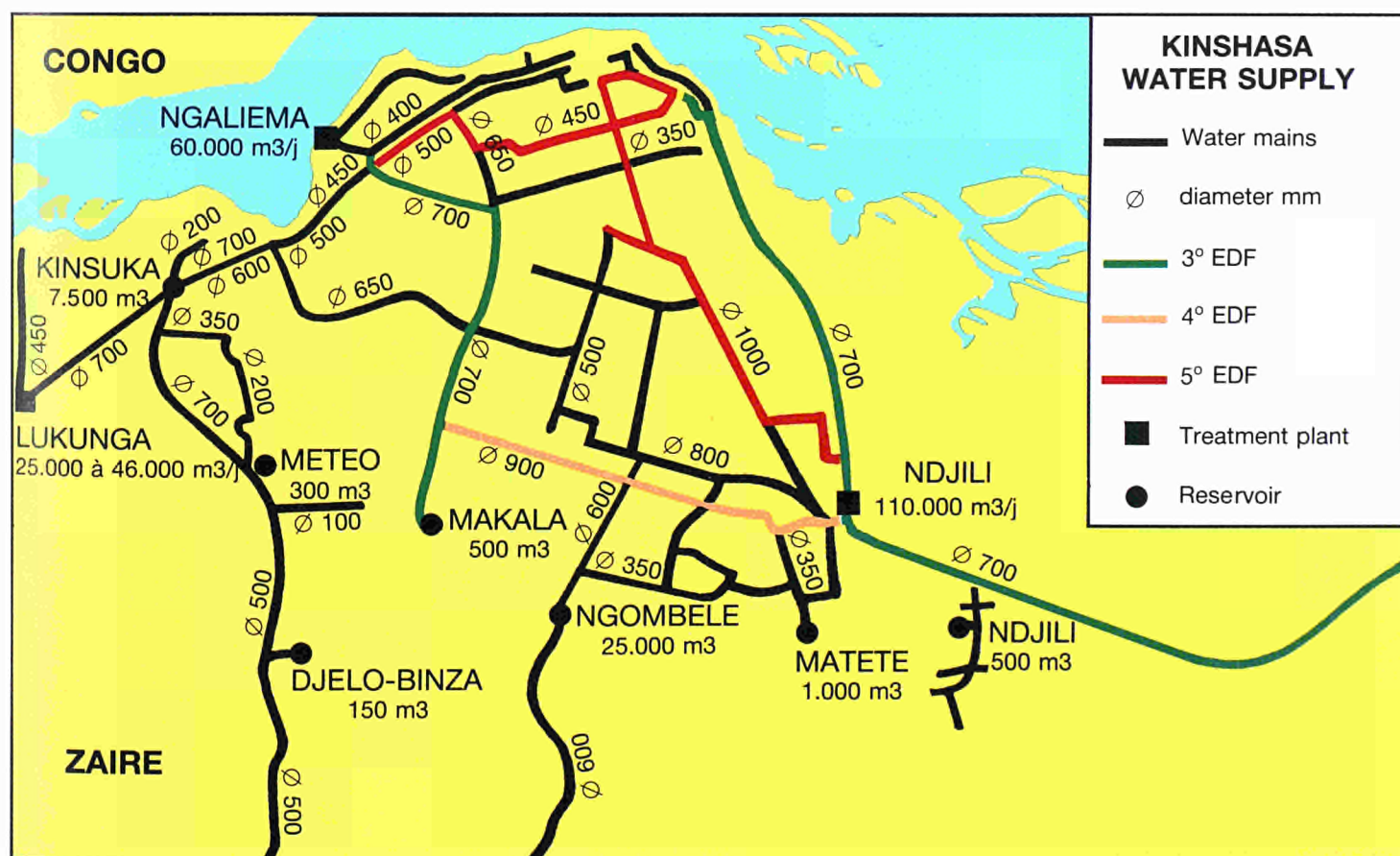
Despite these problems, African cities still draw people like magnets,

and this is true of Kinshasa. In 1960, the year of Zaire's independence, Kinshasa's population numbered barely 800 000. Today it is estimated at 3 million. As a result of uncontrolled urbanization and population pressure, new districts have sprung up and the city now sprawls over a vast area.

It was extremely difficult for the Water Board (Regideso) to keep pace with this growth in size and

population. Water mains were extended somewhat haphazardly by connecting new pipes to existing ones as and when required.

To put future extensions on a sounder footing a master plan was drawn up on the basis of studies carried out in the mid-1960s. These pinpointed the needs of the new districts as well as the gap between supply and demand in those districts already connected to the main water supply.





Upper left: Brazzaville and the first of the rapids which make the river impassable below Stanley Pool.

Right: The southwards expansion of Kinshasa, a city which has trebled in size in 25 years.

Execution of the plan began in 1968 with the Community's aid. Since then there have been five successive phases:

- (i) repair of existing installations and expansion of the Ngaliema plant (1968-70);
- (ii) construction of the Ndjili water treatment plant, which doubled Kinshasa's water production capacity (1970-72);
- (iii) extension of the primary network and construction of Makala reservoir (3rd EDF);
- (iv) construction of a link between the Ndjili water treatment plant and Makala reservoir (4th EDF);
- (v) supply of drinking water to the new suburbs, together with improvements to the primary network and, where necessary, its rehabilitation (5th EDF).

This fifth phase of the project, costing 7.5 million ECU, has provided the capital's main new suburbs with good quality water. There are two methods of distribution: the better off are connected individually to the main supply, while public standpipes are provided in the poorer areas. These standpipes, which have been managed by private individuals on a contract basis since 1980, have proved very satisfactory. A 'social' rate is charged for water from public standpipes (it is in fact sold at below production cost).

There have been a number of positive results from this project. Besides providing drinking water for 42% of Kinshasa's population (the city's aim under the 'water decade' is

to supply 70% of the urban population with water) the project has encouraged shops and small businesses to start up in the newer suburbs.

On the social side, living and health standards in the districts supplied by the Water Board have improved: illnesses such as amoebiasis, verminosis (from worms), dysentery and diarrhoea are less widespread than they used to be; and the extension of the water supply has brought a measure of control to the growth of the city. ■



Ethiopia: Research on malnutrition

Nutritional deficiencies are a major health problem in the Third World. Pictures of children with swollen faces have become only too familiar to television audiences in Europe.

The consequences of malnutrition, for children and pregnant women, are very serious. Kwashiorkor (protein deficiency) and marasmus (calorie deficiency) seriously stunt the physical as well as intellectual growth of the child.

Moreover, malnutrition, which weakens resistance to disease, is the cause not only of a number of illnesses but also of a high rate of infant mortality. It is often the poorest section of society which is the worst affected, and it is widely believed that only the improvement of living conditions can effectively combat malnutrition in the Third World.

However, the adoption of valid nutritional policies which the Third World authorities are trying to adopt require serious and inter-disciplinary studies if they are to be effective. It is futile to impose a particular diet on people without first considering their eating habits, the climate in which they live and the production capacity of their country.

The EEC's research division has commissioned specialized European institutions to carry out surveys in some countries to find out which solutions would meet the needs and capabilities of the populations concerned.

Several surveys have been under-

taken in various countries which each have a different traditional diet. One such survey concerns Ethiopia, carried out by the National Institute for Nutrition in Rome. It was begun in Shafina, in the south-eastern district of Sidamo, and its initial purpose was to obtain an accurate picture of the economy of the region and of local eating habits.

The region, with 245 inhabitants per km², is one of the more densely populated in the country. The population was still semi-nomadic 40 years ago, but now lives from farming. Dwellings are scattered far and wide; every family has a large field around its hut. Situated at an altitude of 1 800 m, the region enjoys a temperate climate suitable for the cultivation of several types of cereal such as maize or red beans. Like the rest of the country, the region has two main rainy seasons: the short rains in March and April and the long rains from July to September.

Coffee is grown as a cash crop while the main food source is ensete, a tuber plant rich in starch. The men work the land, while the women look after the ensete and its processing.

Goats and cows are uncommon and therefore meat consumption is rare. On the other hand, butter mixed with ensete is eaten almost every day.

Once the population's eating habits had been broadly identified, the survey took a representative sample of 30 women with between two and five children aged from 1 to 12 years. The women were observed for six months in order to identify any seasonal changes in eating habits. The study also tried to observe the group's behaviour on important occasions (celebrations, births, deaths, etc.) which have an influence on eating habits.

The survey has not yet been completed, but the preliminary results based on the substantial amount of information collected so far show that the major nutritional problem in the region, as elsewhere in the Third World, is chronic calorie deficiency. ■

Swaziland: Traditional and modern medicine

The image of the befeathered African witchdoctor in tribal regalia 'throwing the bones' and muttering ritual incantations is steeped in popular mythology.

But in fact traditional healers in Swazi culture have largely dispensed with these traditions and now play an important role in health care in Swaziland.

And helping them in their efforts to gain recognition for the useful part they play in caring for the sick, is an EEC-funded, 22 000 ECU research grant, awarded to a Chemistry Professor at the University of Swaziland, who set out to compile written records on the traditional system of medicine. Her research team includes students and nurses whose experience in the health field is a great advantage.

This research work was essential to distinguish between myth associated with witchcraft and the reality of a system developed to a level where it could be used effectively in health care.

It is the first time that a major study has been carried out on the indigenous system; its concepts, methods and materials as well as the

specializations of the various types of healers.

At present there are two systems of medicine operating side-by-side in Swaziland, both enjoying considerable popularity, in the modern and traditional sectors.

There are more than 5 000 healers in Swaziland. Thus, in a population of 600 000 there is one healer for every 110 Swazis, whereas there are only about 50 medical doctors and two psychiatrists in the whole country.

For most Swazis, illness is thought to be caused by sorcery – that is, the deliberate use of spells and medicines for harmful purposes, or less commonly by ancestral displeasure resulting in the withdrawal of spiritual protection.

So far all information on traditional medical practices has been by word-of-mouth. The keeping of records will not only preserve past and present knowledge but will also provide a source for future researchers in the social and scientific fields.

EEC funding has made it possible to interview over 200 traditional healers as well as to carry out research into plants which may help eradicate bilharziasis.

This disease continues to be a major obstacle to development



Traditional Swazi healer



objectives among nations in South America, Asia and especially Africa.

Over the years, imported synthetic drugs and medicines of natural origin have become expensive and beyond the reach of many people in the Third World. Imports of such pharmaceutical products are a heavy financial burden on the government and traditional medicine has become an attractive complementary alternative.

Thus, if efforts in Swaziland to grow plants whose berries can be used to treat bilharziasis are successful on a large scale, the benefits would be enormous, and could lead to the birth of a secondary industry based on local materials. ■

Regional cooperation

The European Community, itself a regional organization, has consistently encouraged regional integration among the developing countries.

Since the first Lomé Convention was signed, a substantial proportion of the funds available for ACP countries has been set aside for financing regional operations: 10 % of Lomé I resources, 11 % of Lomé II resources and nearly 12 % of Lomé III resources. For the Asian and Latin American countries, regional cooperation is the only area apart from rural development in which Community funds can be used. Only in the Mediterranean countries has Community aid been almost exclusively national in character.

Over the past 20 years or so a considerable number of regional organizations have been set up, to further economic integration or to coordinate the efforts of their member countries and of donors. The Community cooperates with many of them. The Association of South-East Asian Nations (Asean), the Andean Pact in South America, the Economic Community of West African States (Ecowas), the Southern African Development Coordination Conference (SADCC), the Caribbean Community (Caricom) and the South Pacific Bureau for Economic Cooperation (SPEC), to name just six, have all obtained EEC funding for their regional programmes. Our first example, outlining Community support for the Andean Pact's activities, illustrates this type of cooperation.

Operations involving a large number of countries need to be coordinated by a regional body. Thus, the Community's support for telecommunications in the Pacific is coordinated by SPEC, and its programme of regional aid to the Caribbean is drawn up with Caricom. Other operations, such as a power grid connection or the improvement of a border road, may only involve two countries; in this case there is no need for a special organization, and a request for regional aid from the two States concerned is sufficient.

Regional cooperation is not limited to any one sector. The Andean Pact's programme touches on industry and agriculture; other operations described in this chapter deal with university education, animal disease and telecommunications. In the years ahead desert control is likely to become a major regional activity. To date, however, it is the transport and communications sector which has

accounted for the lion's share of Community regional funds, and four of our examples describe efforts to improve regional transportation in different parts of Africa.

Although not wholly financed from regional funds (many of the West African roads were built before they were introduced), these operations have been selected because of their undoubted regional importance. They should not obscure the fact, however, that many, many other projects have been financed in the transport and communications sector. Under the first three EDFs alone, nearly 8 000 km of asphalted roads and 2 000 km of earth roads were financed, along with improvements to over 1 600 km of railways and the design and construction of 26 major bridges. A similar effort was made under the fourth and fifth EDFs, which financed the construction or rehabilitation of over 10 000 km of hard-surfaced roads, countless feeder roads, and a considerable number of jetties, wharves and landing strips. Overall, transport and communications rank as the third largest sector of Community aid, accounting for 22 % of all commitments to the end of 1986.

Latin America: Andean Pact

The Andean Pact was established in 1969 under the Cartagena Agreement signed by Bolivia, Chile, Colombia, Ecuador and Peru. Four years later Venezuela joined, but membership returned to five in 1976 when Chile was obliged to withdraw.

The agreement provided not only for the removal of trade barriers but also for a true economic union based on joint industrial planning and harmonization of economic policies. The five countries subsequently re-adjusted their aims in line with changes in their economies: agriculture and rural development now figure as prominently as industrial development.

The institutional design of the Andean Pact is similar to that of the European Community: its 'Comisión' is our Council of Ministers and its 'Junac' our Commission. The organization also possesses an economic and social committee, a court of justice and a parliament, and an Andean currency, the peso.

The Community established official relations with the Andean Pact countries in 1970, which led to application of the most-favoured nation clause, of the Community's scheme of generalized preferences and of voluntary restraint agreements, and financing for investment projects. In December 1983, the EEC and the Andean Pact negotiated a non-preferential cooperation agreement covering three fields: trade, development cooperation and economic cooperation. Of the three, development cooperation is perhaps the most significant.

From 1976 to 1986, Community aid to the Andean Pact countries came to 275 million ECU, of which 50 million were devoted to regional cooperation proper for financial and technical cooperation (35 million ECU) and for energy projects and trade promotion and economic cooperation activities.

The 35 million ECU set aside for regional financial and technical cooperation via the Junac has been used essentially for pre-investment operations in the fields of agriculture (75%), industry (23%) and energy (2%). The term 'pre-investment



operation' means any activity leading up to the formulation of regional policies and any studies preceding projects or programmes. The potential stimulus for the economy of the Andean countries which these pre-investment activities represent is very considerable. For each operation undertaken, the Junac and the Member States of the Andean Pact contribute between 30% and 50% of the total cost, in support of the EEC's contribution.

EEC-Andean Pact cooperation falls into two distinct periods. The first, up to 1983, was a period of specific, circumscribed projects. The second, which began with the negotiation of the cooperation agreement, is characterized by programmes

centred on food strategy on the one hand and industrial development on the other.

These two programmes, both orchestrated by the Junac and each supported by a Community contribution of 7 million ECU, consist of a coherent series of pre-investment operations: appraisals, studies, analyses, recommendations and training.

The object of the programme 'Food strategy and food security' is to reduce the Andean Pact countries' increasing dependence on imports of basic cereals and short-cycle oils and fats (maize: 10.4 million USD in 1970, 361.4 million USD in 1980; oils and fats: nil in 1970, 323 million USD in 1980) by developing the traditional crops – maize and sorghum – and expanding the production of rice, which can also be used in agro-industry. These products are being studied step by step, from the planning stage through production proper, including agro-industrial production, to marketing.

As regards the programme 'Industry and regional trade', the activities supported by the Community are furthering the Andean region's new industrial strategy, the main aims of which are: the encouragement of more coordinated investment, support for small and medium-sized businesses, the defini-



Seat of the Andean Pact, Lima, Peru, and statue of Simon Bolívar

tion of technical standards for the Andean region, joint action to develop tourism, reduce border formalities and harmonize customs legislation, and the development of joint production and marketing of the products of the lama.

The EEC is supporting other projects of a regional nature which are of benefit to the same Andean Pact countries but which involve other institutions with responsibilities in a particular sector. An example is the Condor project, which aims to equip the region with a system of telecommunications by satellite. At the request of the Andean Pact, the Community financed the feasibility study. This study, now completed, is being examined by the Andean Telecommunications Association, but the EEC has already said that it is willing to finance the next stages of the project, particularly as links with European research programmes like Eureka or Ariane may be possible.

New activities involving the Community and countries in the region are in preparation, especially in the fisheries sector (with the Pacific coastal countries: Colombia, Ecuador and Peru) and in the field of science and technology. ■



East Africa: Northern and Central Corridors

The Northern Corridor is the name given to the system of communications linking the landlocked countries of Uganda, Rwanda, Burundi and north-eastern Zaire with the Kenyan port of Mombasa on the Indian Ocean. It consists today of a railway as far as Kasese near the Zairian border in Uganda, a road 2000 kilometres long between Bujumbura and Mombasa, and a pipeline from Mombasa to Nairobi.

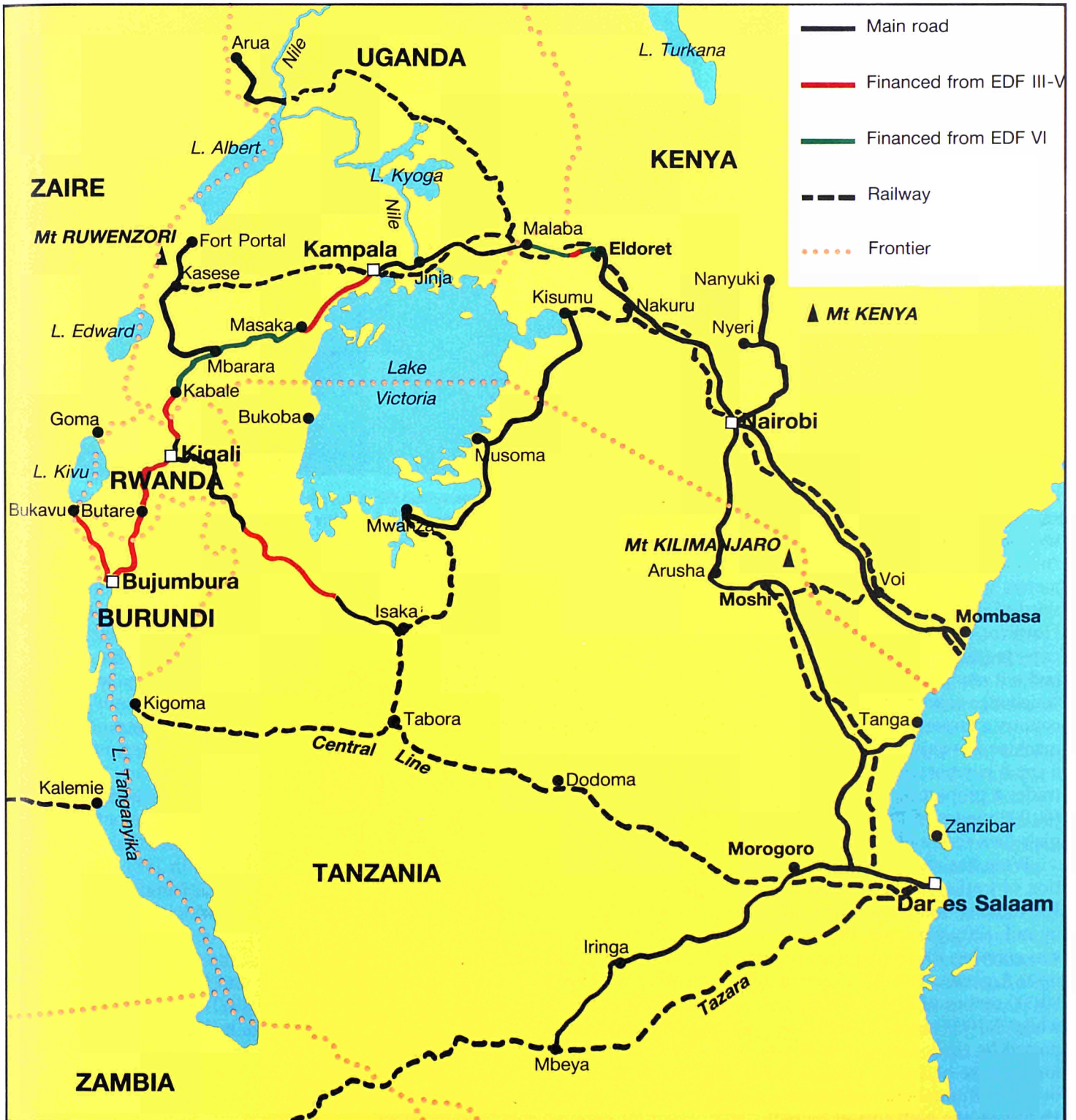
The Central Corridor is essentially the railway from Dar es Salaam to Kigoma 1250 kilometres to the east on Lake Tanganyika (there has never been an all-weather road between the two), with a branch to Mwanza on the southern shore of Lake Victoria. It is the most direct outlet to the sea for eastern Zaire, Burundi, Rwanda and eastern and central Tanzania. Cargo boats on the lakes and a new road under construction between the railway and Rwanda complete the system.

These two routes have seen much of East Africa's history over the past hundred years or so. By the middle of the nineteenth century the 'Central Corridor' had become a much-trodden trade route. In the 1860s it was estimated that half a million caravan porters a year passed through the trading post of Tabora. But trade was one way only – ivory and slaves from Central Africa to the coast and Zanzibar. The early European explorers – Burton, Baker and Speke – followed the trade route in their quest for the source of the Nile. It was at Ujiji, south of Kigoma on the shore of Lake Tanganyika, that Stanley found Livingstone in 1871.

The northern route was little used in comparison. The reputation of the Masai, and the difficulty of crossing the great waterless Taru plain inland from Mombasa, kept the numbers of caravans down to a minimum. The 'Northern Corridor' really came into existence with the building of the railway from Mombasa to Lake Victoria (1895–1901).

The railways were great agents of change. Watching a locomotive haul a long line of wagons into the port of Dar es Salaam (the Central Line was built between 1905 and 1914), it is hard to remember that only a little more than a century ago Stanley took 3½ months to reach Lake Victoria from Zanzibar. For the traveller on the overnight sleeper from Nairobi to Mombasa, it is not easy to imagine that in 1893 an exceptionally fast caravan reached Kampala from the sea in 75 days. That caravan did not pass through Nairobi, for Kenya's capital did not exist until the railway was built.

The railways proved to be powerful instruments of economic development. A century ago ivory was the only commodity exported from



Uganda. In 1935, four years after the railway reached Kampala, the port of Mombasa handled a million tonnes of cargo, a figure which had doubled by 1944. Ugandan cotton accounted for the highest tonnage. Quantities were lower on the Central Line, but even so this carried over a quarter of a million tonnes of goods in 1948, with sisal accounting for a third of total tonnage.

The economic importance of the Northern and Central Corridors has not diminished with the passage of time. The northern route is of course vital for Kenya, but it also carries 90 % of Uganda's exports and imports – half a million tonnes a year. A similar proportion of Rwanda's trade (300 000 tonnes annually) passes along the Northern Corridor, and the province of Kivu in Zaire exports coffee and tea and imports fuel via the same route. Even Burundi, the best part of 2 000 kilometres from Mombasa, receives one third of its imports via that port. However, the bulk of Burundi's exports (essentially coffee), are shipped out along the Central Corridor, which also carries two thirds of the country's imports (150 000 tonnes of machinery, vehicles, food and fuel), a small percentage of Rwanda's trade, a proportion of Zaire's copper (60 000 tonnes in 1983), and Tanzania's own sisal and cotton.

What has changed is the distribution of traffic on the northern route. Far more is now moved by road than by rail. Fifty years ago the railway was carrying 400 000 tonnes a year up to Uganda. In 1982 it moved only 80 000 tonnes of Uganda's imports, while 200 000 tonnes were transported by road. Convoys of heavy lorries have become a familiar sight between Bujumbura and Mombasa. However, the high cost of long-dis-



Northern Corridor: approaching the Kikuyu escarpment on the international line to Uganda and Lake Victoria (Photo: G. Petiot)

tance road transport and the increasing use of containers, which add to wear and tear on the roads and can equally well be carried by rail and ship, should ensure a more balanced use of the different modes of transport in the longer term.

The decline of the railways was hastened by the break-up of the East African Community (Uganda, Kenya and Tanzania) in 1977, and its regional transport body the East African Railways. The previously harmonious system of transport and documentation was thrown into confusion, worsened two years later by the Ugandan Liberation War; fighting blocked and damaged the road, provoked awkward and expensive traffic diversions round the southern shores of Lake Victoria, and even led the EEC to finance emergency airlifts of fuel to Rwanda and Burundi.

These events brought home the need for regional cooperation. Since

the low ebb of 1979, coordination between the countries using the Northern Corridor gradually improved, until in 1985 they were in a position to sign a transit agreement governing traffic along the corridor. The European Community made a significant contribution to this improvement in the regional affairs of East Africa.

In 1980 the EEC hosted the first of a series of meetings between transport officials of the countries concerned, and in 1981 financed a study which prepared the way for the Northern Corridor Transit Agreement (NCTA), signed by the Transport Ministers of Kenya, Uganda, Rwanda and Burundi in 1985 and by Zaire in 1987. The NCTA entered into force in 1986. It provides for closer coordination between the railways; a common insurance scheme for motor vehicles; the harmonization of road taxes (important for



Northern Corridor: road traffic on the Kabete-Limuru stretch north of Nairobi

the upkeep of a road used by heavy lorries from several countries); and the introduction of a single transit document to simplify customs procedures and thus save time and money.

Shortly before the agreement was signed, the EEC arranged for customs officials from the signatory countries and Tanzania to attend a training course in Europe to familiarize themselves with the simplified customs declaration system to be introduced on the Northern Corridor. The 15 countries belonging to Africa's Preferential Trade Area are thinking of adopting the single transit document which the NCTA provides for.

In addition, the EEC has been financing the Interim Secretariat set up in Nairobi in 1986 to monitor and accelerate the implementation of the Transit Agreement. The existence of the agreement, and of the Secretariat, has made it much easier to identify investment priorities, with the result that EEC resources available for infrastructural improvements, and particularly EDF regional funds,

have been used much more fully of late.

Up to 1985 the Community had financed the construction of a long stretch of the Northern Corridor road in Rwanda and Burundi, the repair of a badly worn section between Kampala and Masaka in Uganda, and the supply of 35 tank wagons for the Ugandan Railways. Since the NCTA was signed, the Community has agreed financing for the construction of the last 21 km of the road in Uganda, the rehabilitation of sections of the road in Rwanda, in Uganda (the 280 km section between Masaka and Kabale) and in Kenya (the 122 km stretch between the Ugandan border and Eldoret which is used by a thousand vehicles a day), and the construction of 17 kilometres of dual carriageway on a section north of Nairobi used by over five thousand vehicles a day. The EEC is also to finance new customs facilities, notably a lorry park, at Malaba on the Kenya-Uganda border. In addition, Community funding for major repairs to the

entire stretch of the Northern Corridor in Burundi is under consideration.

By the end of 1987 the Community's financial support for the Northern Corridor totalled 191 million ECU. When current and planned roadworks are completed, it will have helped to improve over 900 kilometres of one of Africa's busiest roads.

The Community's support for the Central Corridor has been somewhat similar; it has financed both a preparatory study for a proposed transit agreement, and improvements to the infrastructure of the Corridor.

In the past transit traffic on the Central Corridor was regulated by an Anglo-Belgian agreement known as the Belbase Accord dating back to 1921. This agreement has not been adapted to the present situation, and the Community has financed a study which analyses the problems associated with the transportation of goods in transit along this route. However, to date no new transit agreement has been negotiated between the countries using the Central Corridor - Tanzania, Zaire, Burundi, Rwanda and Uganda.

As regards infrastructure, the Community has financed a number of improvements in the different ports, in particular the rehabilitation and extension of the port of Kigoma; and it has funded various improvements to the central railway line, increasing the supply of ballast, spare parts and workshop equipment. It has also financed the construction of 127 kilometres of the new road being built between Rwanda and the railway at Isaka in Tanzania (the first stretch from the Rwandan frontier was financed by the African Development Bank).

The purpose of this road and of

the planned terminal at Isaka is to provide a shorter, cheaper alternative to the Northern Corridor for the transport of goods to and from Rwanda and neighbouring land-locked countries. The Community is currently considering the possibility of funding the Isaka road-rail terminal, and of co-financing the last stretch of the road with the African Development Bank. To date, EEC support for the Central Corridor amounts to 54 million ECU.

The Commission has always seen the two Corridors as complementary, for neither Mombasa nor Dar es Salaam can cope alone with the trade of the six countries concerned. Since the signing of the first Lomé Convention, the Community has provided a total of nearly 250 million ECU for the two routes.¹ The princi-



Port of Dar es Salaam

pal results of its investment are the introduction of a transit agreement for the Northern Corridor, improvements to the railways and handling facilities on both Corridors, and the construction, repair or widening of more than a thousand kilometres of asphalted roads. A substantial investment certainly, but one that is amply justified for two great trade routes

which together carry between two and three million tonnes of goods every year to and from six countries of East and Central Africa. ■



Central Corridor: chests of Rwandan tea for export

¹ Not counting the 180 km stretch of asphalted road to the east of Lake Victor between Mwanza and Musoma, built at a cost of 45 million ECU from Tanzania's Lomé allocations. This road, now almost finished, will provide a useful link between the two Corridors.



West Africa: Opening up the Sahel

For a good many African countries, the lack of an outlet to the sea is a serious economic handicap. The colonial powers of the past were aware

of the problem and invested heavily in waterways and railways to transport the products of the interior to the coast.

Since the early 1960s most African countries have been trying to establish good road networks to connect their economic and cultural centres. They have also tried, with the backing of aid donors, to link their networks with those of neighbouring countries to give a regional and international dimension to their trade and communications.

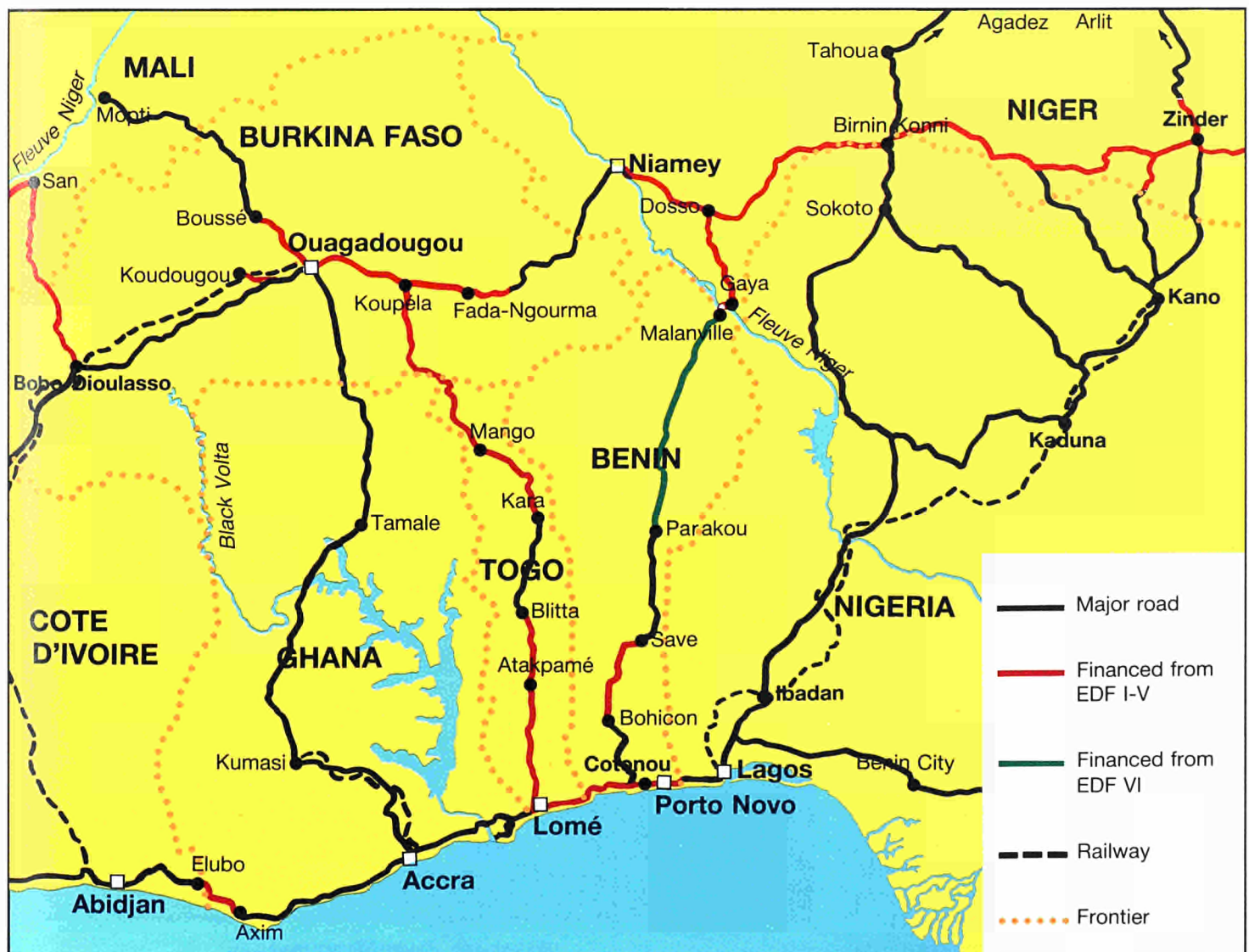
For some, this is the overriding consideration. Being landlocked, they have to pass through the territory of neighbouring countries to import basic necessities and export their resources. In West Africa Mali, Burkina Faso and Niger are in this situation. Mali and Burkina Faso have rail links between their capitals and major ports (Bamako-Dakar and Ouagadougou-Abidjan). Niger has

only road links.

In theory Niger has four routes to the Gulf of Guinea – through Benin (1 100 km), Togo (1 250 km), Côte d'Ivoire (1 700 km, road and rail combined) and Nigeria (2 000 km of road) – and one to the Mediterranean through Algeria (3 500 km overland across the Sahara – decidedly more theoretical than practical!).

Only the first two are in regular use. Over the years the Community has provided massive financial support for these two routes, which link four countries: Niger, Burkina Faso, Togo and Benin. In the last two decades the Community has undoubtedly been the leading source of aid for the construction and improvement of roads in the region.

Since the first European Development Fund in the early 1960s the bulk of the Community's aid to Niger has been spent on roads. A



total of 110 million ECU has gone into building over 1 300 km of roads, and of that amount 85 million ECU has been spent on the Zinder-Niamey axis. Originally built to a width of 3.5 m, the road has since been widened to 6 m (again with EDF funds) in order to cope with increased traffic, to improve traffic safety and to bring down maintenance costs. It is part of the Mali-Chad international route (of which only the section in Niger is asphalted) and is of key importance to the national economy.

In 1986 the Community financed the building of the first section of the north-south Agadez-Zinder road link, which is part of the trans-Saharan highway. When this is completed, it will be possible to transport goods from the shores of the Mediterranean to eastern Niger, and then on to Chad. It also financed the construction, improvement and/or surfacing of two sections of road linking Niger with the road network of Black Africa's economic giant, Nigeria. The Community has also rebuilt part of the road (and modernized the rest) between Dosso and Gaya, on the Benin border, the first stretch of the road to Cotonou and the Gulf of Guinea. More recently it has financed studies for the road between Niamey and the Burkina border, the first stage of the route through Burkina Faso and Togo to Lomé.

Most of the roads financed by the Community in Burkina Faso – 933 km for a total cost of 85 million ECU – serve to link it with neighbouring countries: this is true of the 207 km stretch between Ouagadougou and Fada towards Niger, and of the Burkina-Mali road between Bobo-Dioulasso, the second largest town in the country, and the Malian border (leading to San, Ségou and Bamako). A further 200 km between Ouagadougou and Côte d'Ivoire, plus the section between Koupéla and the Togo border have also been financed by the Community. These two roads provide an outlet to the sea and almost all imported goods travel along them, the Abidjan-Ouagadougou railway carrying only a small proportion.

In Togo 78% of the 690 km north-south road linking Burkina



Niger: one of the first roads financed by the EDF

Faso and Niger with the port of Lomé was financed by the Community. Various sections of this vital road were built, improved, surfaced and/or modernized under the second, third and fourth EDFs. Further work was done in 1984. The Sahel countries – Niger, Burkina Faso and Mali – use the Togolese 'corridor' mainly to bring in imports. About 400 000 tonnes transit along it every year and

this is expected to rise to 800 000 tonnes by 1995. Between 1960 and 1986 the Community invested more than 80 million ECU in Togo's road network, much of it on the north-south road between the landlocked Sahel countries and the sea.

The same logic governs the Community's assistance in the neighbouring country of Benin, where a substantial effort has been made to improve the north-south road serving the northern part of the country and Niger. The daily volume of traffic on this road in 1984 stood at 450 light vehicles and 240 trucks. Traffic is forecast to increase 50% by 1990. The Community has financed the improvement and surfacing of 131 km of the road and, under the sixth EDF, is now funding the repair and re-surfacing of the 300 km stretch between Parakou and the Niger border. Altogether the Community has spent some 65 million ECU on transport and communications in Benin.

Along the coast, the Community has financed the building of two sections of the vital Abidjan-Lagos road that passes through five countries. In Ghana nearly 40 million ECU were invested in the technically difficult Elubo-Axim section through swamp terrain. In Togo and Benin the Community financed the entire stretch from the Ghanaian border to the



Widening the Zinder-Niamey road

Nigerian border, despite coastal erosion which washed away 43 km of the road, rebuilt by the Community in 1984.

The volume of traffic on this stretch undoubtedly warrants a continuous tarmac road. The Togolese section carries on average 3 500 vehicles a day, and around 16 000 vehicles a day use the built-up 10 km between the Ghanaian border and the port of Lomé. Most of the goods traded between Lomé, Cotonou and Lagos move along this road; in 1986-87, 1 010 light vehicles/day and 77 trucks/day were crossing the Togo-Benin border. For many travellers this is the only really feasible land route from Lagos to Accra.

But roads are expensive to build and maintain. The cost nowadays of building one kilometre of road in Africa is between 150 000 and 250 000 ECU, and just repairing a surfaced road costs 40 000-80 000 ECU per kilometre. In Niger, for example, 15 million ECU of the country's 108 million ECU Lomé III allocation has been earmarked for the upkeep of just a part of its road network.

Nevertheless roads are essential. Not only do they help develop trade, they also give access to the sea for the landlocked Sahel countries, most of whose imports travel up the south-north roads. In drought years these become veritable lifelines, making it possible to transport thousands of tonnes of food aid to the most remote communities of the Sahel.

The Community is fully aware of the fundamental importance of roads for these countries' development – a reliable road network is of particular importance for the production and distribution of food – and over the last 25 years it has invested nearly 340 million ECU in the construction and repair of 3 263 km of roads in this region. ■



Central Africa: Rail and sea links

The Congo-Ocean Railway

African railways were designed, like the road networks built later, to move imports from the coast to the interior and to carry the products of inland plantations and mines to the ports: cocoa in Ghana, groundnuts and cotton in Nigeria and mineral riches from far-flung provinces in Zaire and Zambia.

The People's Republic of Congo is well-placed geographically. It is a coastal State bordering on five other countries – Gabon, Cameroon, Central African Republic, Zaire and Angola – and it possesses, in the River Congo (Zaire) and its tributaries, many miles of navigable inland waterways. Unfortunately this network of waterways suffers from one serious handicap – a series of rapids making navigation impossible in the lower reaches of the Congo. Whence the idea of linking the navigable stretch of the river upstream from Brazzaville to the ocean by rail.

Although first proposed in the last century, the Congo-Ocean Railway was not opened until 1934 after 12 years of Herculean efforts to link the port of Pointe-Noire with Brazzaville through the Mayombe mountains running parallel to the coast 50 miles inland.

The Congo-Ocean Railway (CFCO) is the backbone of communications in the region. It plays a vital role in the economic development not only of the Congo but also of its neighbours. The line carries all Congo's own coast-bound exports, 50% of the Central African Republic's exports, much of Chad's cotton, all the manganese mined in Gabon and timber from eastern Cameroon. Sixty per cent of the goods transported inland to Brazzaville from Pointe-Noire are destined for one or other of the neighbouring countries.

With 5 660 employees and a turnover of CFAF 22.2 million, the CFCO is one of the country's largest companies.

Towards the end of the 1960s it became increasingly clear that the railway was unable to move the constantly growing volume of goods anything like fast enough.

Designed to carry 500 000 tonnes annually, the CFCO saw goods traffic rise from 162 000 tonnes in 1939



CFCO realignment: the long tunnel

to 1 265 000 tonnes in 1982, to which had to be added the 1.5 million tonnes of manganese transported yearly from Gabon by the Ogooué Mining Company, whose line was connected to the CFCO in 1963.

On top of rising traffic, the railway had to cope with the difficult



The Congo-Ocean railway

(Photo: Pascal Maitre/Jaguar Ed.)



The newly-built 'Pague' leaving Europe for Sao Tomé

crossing of the Mayombé mountains, where gradients varied between 15 and 27 per thousand and numerous curves kept the speed of trains to a minimum. Track and rolling stock were subjected to abnormally heavy wear and tear and loads had to be reduced, which slowed down traffic considerably.

Given the difficulty of renewing the track while keeping trains running, and the predicted increase in traffic, the project's backers opted for a partial realignment of the permanent way. This involved building 91 km of new track, five stations, three crossing points (the railway is single line), 19 bridges, one of which is 221 m long and 34 m high, and three tunnels 459 m, 237 m and 4623 m long. Boring the tunnels was the trickiest part of the work because of the instability of the terrain. It took eight years to complete the longest tunnel.

This costly project (300 million ECU) was supported with Community funds totalling 33.5 million ECU from the second, third, fourth and fifth EDFs. The two most recent contributions were made from regional funds, an indication of the neighbouring countries' interest in the project.

CFCO trains can now cross the Mayombé at an average speed of 60 kilometres per hour and can move 30% more goods per day than in the past.

The future for Congolese railways and transport in general is rosy. Economic activity is expected to pick up after the recession of the early 1980s. In particular, Gabon and the Central African Republic could open up new sources of timber, and new mineral deposits could be worked in Gabon and Cameroon.

The CFCO is part of a regional communications network that includes roads from as far afield as Chad, navigable rivers (the Oubangui and the Congo) and a 75 km goods funicular bringing over a million tonnes of manganese a year to the Gabon-Congo railway line. Extensions to the network are possible: there is, for example, a plan to link Kinshasa and Brazzaville, so that Zaïre could use Pointe-Noire, the most efficient deepwater port in the Gulf of Guinea, for some of its

imports and exports. Whatever comes of these plans, the CFCO will remain a lifeline to the ocean for the landlocked regions and countries which it serves.

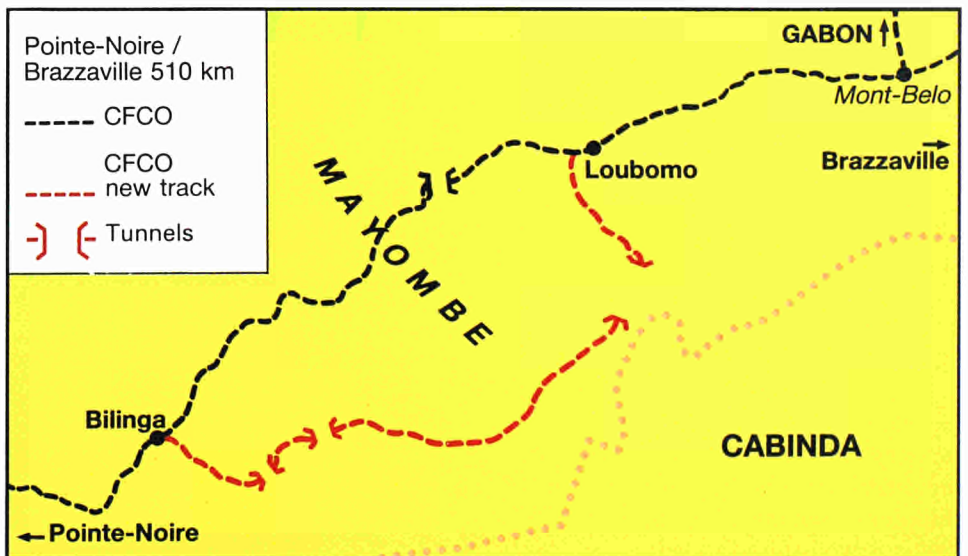
A regional shipping line in the Gulf of Guinea

The archipelago of Sao Tome and Principe in the Gulf of Guinea is made up of two islands which are 300 km off the coast of Gabon and 150 km from each other. This small ACP State was never a regular port of call for the big shipping lines, and has been looking for ways to emerge from its isolation and establish better links with the mainland.

Until very recently transport was a major stumbling block to the development of a whole range of activities. The 100 000 inhabitants of the two islands had great difficulty in travelling from one island to the other or in getting to the mainland. Sao Tome boasted a 35-seater Fokker aircraft, often as not out of service, and an elderly wooden trawler, the *Elizabete*, which, despite sterling services rendered over the years, was simply not up to meeting the country's transport requirements.

The government, aware of the need for better access to the outside world, made the improvement of air, sea and land communications a priority of its 1982-85 development plan. As far as sea links were concerned, a coaster seemed to fit the bill, and would also help to solve the problem of getting EEC food aid to the islands (the country grows little apart from cocoa, the predominant cash crop, and relies heavily on food imports).

Sao Tome consequently asked the Community to finance an ocean-going coaster. Obviously the vessel had to be suitable for the job it was expected to perform: transporting freight and passengers between the islands, and between the islands and the continental ports, principally Libreville in Gabon. It had to have a shallow draught for rapid turn around and it had to be of modest



tonnage, in proportion to the size of the country. Commercial shipping companies will not as a general rule load less than 500 tonnes. As a result, freight for Sao Tome and Principe could wait for weeks at the dockside in Libreville or Pointe-Noire until the necessary 500 tonnes had accumulated and the goods could be embarked.

It was decided to build a 40-metre vessel which could carry up to 200 tonnes and would be equipped with a loading crane, for independent freight handling. Invitations to tender were issued in June 1983 and the boat was built within 12 months. The project also provided for an initial set of spare parts, and training for the crew locally and in Europe. Three months before completion of the vessel the captain, his chief mechanic and the electrician, all formerly of the *Elizabete*, visited the yard where it was being built to familiarize themselves with their new ship. The total cost came to 2.15 million ECU, half of which was provided from Sao Tome's allocation and half from regional cooperation funds (an additional study had shown that the project was of regional as well as national interest).

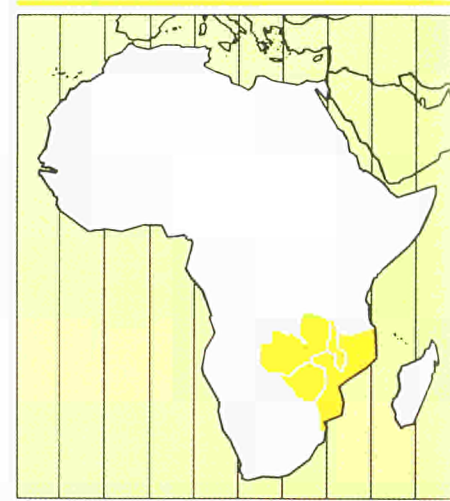
Exactly a year to the day work began, the vessel was launched and headed south for Sao Tome via Dakar. Christened the *Pague*, (the name of the island in the local language) the coaster was due to enter service in August 1984. Expectations ran high – regular domestic supplies, frequent runs to the continent, more passenger traffic, development of relations with neighbouring countries in the Gulf, development of regional trade, etc. – but in fact it took longer than expected to start up a regular service and it was not until June 1985 that one really got going. In the first two months the *Pague* undertook a number of runs between the ports of Cameroon, Equatorial Guinea and Gabon at the request of these countries. The results were encouraging for Transcolmar, the Sao Tome State-run shipping company which operates the boat. They confirmed a real demand for goods and passenger services between the ports of the region, an area neglected by the big shipping companies and which the *Pague* is well-suited to serve. ■

Southern Africa: Tsetse fly control

Trypanosomiasis in cattle (sleeping sickness in humans), a disease transmitted by the tsetse fly, constitutes a sizeable obstacle to the agricultural development of the African continent. Estimates are that it affects an area of 10 million km² covering some 37 countries. It seriously restricts the development of livestock breeding on the fringes of the tropical forest: the fly lives and reproduces in the savannas and underneath humid foliage near waterways and lakes. A bitten contaminated animal loses appetite, becomes feverish, anaemic and lethargic and dies within a short time.

What makes the disease particularly devastating is the fact that the parasite – trypanosome – which the fly injects into the bloodstream of its victims adapts itself perfectly to the different immunological reactions of the organism. This explains why to this day no effective vaccine has been found. Immunization is not the best way of combating the disease; research has only just enabled a better understanding of the genetic mechanisms of the parasite. Instead, eradication of the carrier, the tsetse fly, is necessary.

The method most widely used is spraying the infected zones with insecticides. But the products do not yet work satisfactorily in certain environments (dense forests and



mountainous regions); on the other hand, the use of insecticides carries risks and the effects of the application of insecticides on other living organisms have to be closely checked. In recent years, however,



The tsetse fly ...

and in the project presented here, at least one insecticide has been satisfactorily used, while the testing of other insecticides is under way.

The fight against the tsetse fly is costly. African governments have taken up the challenge with the help of the international community. Obviously, the disease and its terrible carrier respect no borders, and no country, whatever its resources, can stop them ravaging its territory if the fly should come from a neighbouring country which has not managed to keep it under control. Bearing in mind the need for concerted effort on a regional level, the Community has lent its support to a regional programme for tsetse fly control in Malawi, Mozambique, Zambia and Zimbabwe, four southern African countries which are particularly affected. The programme supports national action taken by the four countries, and complements the efforts of other international donors: FAO, Britain and the World Bank.

The region's affected area is equal to the surface area of Zimbabwe alone (322 000 km²) and the zone at risk is bigger than France: 567 000 km². The disease especially affects agriculture to the extent that it saps the strength and limits the use of draught animals and prevents the making of natural fertilizer for crops.

In view of the positive results obtained, the programme, which was conceived as an experiment, will serve as a basis for subsequent campaigns to stamp out the tsetse fly altogether. It represents both a qualitative and quantitative breakthrough in tsetse control. It deals with all aspects of the problem: eradication using new and sophisticated means on a large scale, monitoring of treated and adjacent zones, and

training of staff to supervise future operations and conduct research into their ecological and social impact.

The eradication programme is being carried out within an area of 12 600 km² in north-east Zimbabwe. A similar operation is planned for an area of 8 000 km² across the border in Zambia. The spraying is often done by aircraft: aerial spraying is faster, covers larger areas and



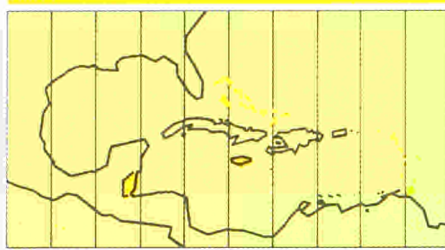
requires less logistical support than ground spraying. But the project lays emphasis on developing even more environmentally safe methods, and is consequently experimenting with traps and baits to catch the fly.

This double operation is combined with constant monitoring and surveys of damage caused by the insect, before, during and after treatment of infested zones, but also elsewhere, as for example in neighbouring Mozambique. This is one advantage of regional cooperation: information gathered in one country can be useful for similar operations across the border.

Special attention is paid to the use of land once it has been cleared of the tsetse fly. Care is taken to ensure the increased use of cattle and other domestic animals for draught power; and the use of game as a source of protein is given much attention.

Every year, 40 trainees from the four countries are to follow various training courses at the FAO Centre in Lusaka on methods of monitoring the fly, its movements and the damage it causes as well as on the application of the various control techniques.

The whole programme is supervised by a regional Committee composed of representatives from the four countries who meet four times a year; it is implemented by a permanent Secretariat which circulates information and facilitates contacts between the institutions and partners involved in the different countries. ■



Caribbean: University of the West Indies

The University of the West Indies (UWI), founded in 1948 in a special relationship with the University of London, was granted independent university status in 1962. It is engaged in teaching and research for students from 16 English-speaking West Indian States and territories: the Bahamas, Barbados, Dominica, Grenada, Jamaica, St Vincent and the Grenadines, St Christopher and Nevis, St Lucia, Trinidad and Tobago, Anguilla, Belize, Antigua, Montserrat, the British Virgin Islands, the Turks and Caicos Islands and the Cayman Islands. This area has a total population of 5.5 million, with a very high proportion of young people. There is a strong demand for education, and particularly for higher education.



The University comprises three campuses: Mona in Jamaica, St Augustine in Trinidad and Tobago, and Cave Hill in Barbados. It has eight faculties with several associated departments and institutes: education, humanities, social sciences, law, medicine, natural sciences, agriculture and engineering. The student population currently numbers 10 000, of whom roughly half are studying in Mona, about a third in St Augustine and the remainder in Cave Hill. There are about 800 teaching staff.

In addition, extra-mural centres in each of the non-campus territories provide support for in-service training via the University's distance education system.

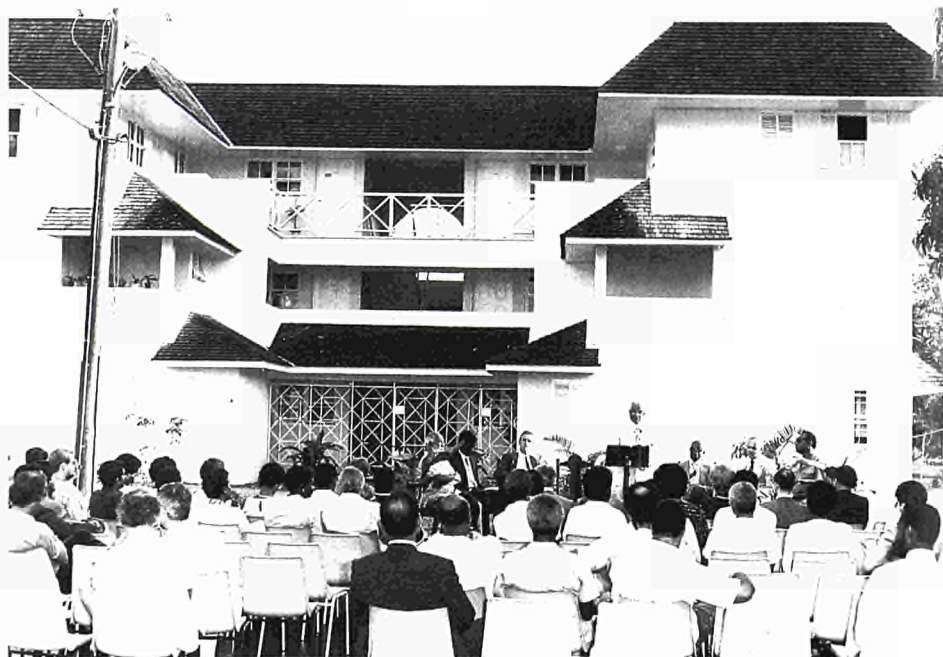
The University is financed partly by Caribbean governments and partly by external donors. The former contribute roughly 70 % of UWI's budget. The principal external source of finance is the United Kingdom; other donors include Usaid, the Kellogg Foundation and, in recent years, the European Community.

The University takes care to ensure that its teaching and research activities are relevant to the development needs of the region. Today, the Caribbean faces problems of overpopulation, high unemployment coupled with shortages of skilled labour, increasing food imports, malnutrition, massive rural exodus into the already overcrowded urban areas, over-dependence on a single export crop and a relatively low level of technical skills. These are the development issues its graduates are called upon to tackle.

In order to keep the University's teaching and research activities in line with the region's needs, plans were laid in the 1970s to expand infrastructure, modernize equipment and adjust the content of the courses offered. However, economic difficulties in the Caribbean led to public spending cuts and forced the University to look for additional sources of financing. One of these was the European Community.

In view of UWI's regional nature and function, it was entirely logical that the Community should respond to the University's request – submitted through Caricom – with grants from regional funds for the Caribbean. An initial grant of 3 million ECU under Lomé I was followed in 1984 by a second grant, this time from Lomé II regional funds, of 10.4 million ECU.

Assistance under Lomé I took the form of infrastructure, equipment and scholarships. In the first category, three buildings were erected on Mona campus in Jamaica: a library for the Institute of Social and Econo-



Official opening of the postgraduate housing complex at Mona Campus, Jamaica

mic Research, an extension (a third floor) to the existing Entomology, Geology and Science Library, and a building to house a small atomic reactor at the University's new Centre for Nuclear Sciences. All three were completed in 1983 and have been in constant use since then. They were designed and built by local firms.

A wide range of equipment, much of it sophisticated, was supplied to different faculties in each campus. The biggest single item was the atomic reactor, the first such facility to be installed in the English-speaking Caribbean. The peaceful applications of nuclear science are numerous. One that promises to be of importance for the whole region is the analysis of soils to identify the trace elements they contain. Trace elements are mineral substances, such as zinc, copper, molybdenum, etc., whose presence in the soil in minute quantities is necessary not only for plant growth but also for animal and human health. The data which the Centre for Nuclear Sciences is currently collecting will be used in the preparation of maps that will show the distribution of trace elements throughout the region. These maps will be of value in planning agricultural land use.

On the training side, the EEC funded three postgraduate scholarships – in entomology (the study of insects) or aquaculture – in Jamaica and 20 undergraduate scholarships –

in agriculture or agronomy – in Trinidad. These students came from 10 different Caribbean countries, including eight of the poorer ones.

To reassert the University's regional character in a time of particular economic difficulty, the Community agreed, under Lomé II, to co-finance a programme of scholarships for students from the smaller, poorer Caribbean islands to attend courses at UWI's main campuses. A total of 118 awards have been made from this programme over the period 1985–88. Costs are shared between the EEC (50%), UWI (40%) and the students' country of origin (10%).

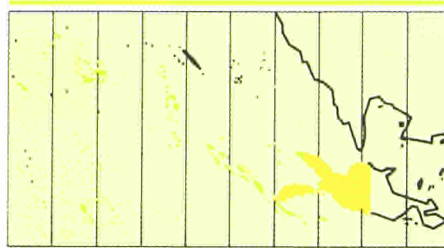
In addition to these LDC student awards, Lomé II assistance has included 11 overseas training missions for members of the teaching staff, to help them keep abreast of advances in their respective sciences. Such refresher courses are seen as necessary to the maintenance of the high academic standards associated with UWI.

More building was undertaken with the Lomé II grant. The University possessed no postgraduate accommodation prior to 1986. Two of the three campuses now have a hostel for postgraduate students, and the third has a building where they can work. The library at Mona, which had become too small, has been extended. Workshops for the maintenance and repair of the University's electronic equipment

have been built in Jamaica and Barbados; and Trinidad's agricultural field station will be rebuilt and re-equipped.

Because UWI's research facilities are limited, laboratories and laboratory equipment are being provided for disciplines which are seen as of importance for the region: pest control, aquaculture, biotechnology. Although apparently diverse, the facilities and equipment provided with Lomé II regional funds are designed to strengthen the University's teaching and research in two priority fields: agriculture and energy, particularly solar energy. Concentration on two areas was considered preferable to a dispersion of aid among a number of scientific disciplines, as had occurred to a certain extent with the first Lomé grant.

The University of the West Indies is a well-established institution enjoying strong local support. Its recurrent costs have always been met from local resources rather than external aid, which has provided infrastructure and equipment. Over the past 10 years – difficult ones economically for the Caribbean – UWI has needed additional buildings and more up-to-date equipment to meet the demand for higher education and to cater for the changing needs of the region. In providing these, the Community has helped the University to fulfil its role as an instrument of regional development in the Caribbean. ■



Pacific: Telecommunications

The ACP group includes eight South Pacific States: Papua New Guinea, Solomon Islands, Vanuatu, Kiribati, Tuvalu, Fiji, Tonga and Western Samoa. These countries include myriads of coral or volcanic islands or islets scattered over a vast area – 3000 miles from east to west – of the Pacific Ocean. Between them they have a population of some 4.5 million (Papua New Guinea accounts for two thirds of the total) representing a variety of cultures and ethnic groups. Some countries are Melanesian, others Polynesian while Kiribati is Micronesian. Their economies are far from identical. In short, everything seems to separate them: population, distance and resources.

However, they have enough in common to be able to establish genuine regional cooperation: language, religion, the same ocean and democratic systems of government. What nature seems to have tried hard to divide, men have brought together. These countries have joined six others from the region, including Australia and New Zealand, in the 'South Pacific Forum', to tackle questions of a regional nature. The Forum's Secretariat, the South Pacific Bureau for Economic Cooperation (SPEC), was mandated to coordinate regional programmes financed by the EEC.

The absence of good communications has been the biggest obstacle to cooperation and trade between different islands of the same State as well as between different countries. It was therefore logical that the EEC should choose to concentrate on this sector.

Since Lomé I, significant regional programmes coupled with national ones have been undertaken to provide the South Pacific with an adequate telecommunications network. Most governments in the

region wanted to diversify their economies by increasing agricultural output, expanding the manufacturing sector, promoting the services sector and developing the tourist industry. To do this, telephone, telegraph and telex services of international standard were needed.

The South Pacific Forum set up the South Pacific telecommunications development programme in 1983. SPEC was given responsibility for coordinating activities in this area. The EEC and other partners like UNDP, Australia, New Zealand, the International Telecommunications Union (ITU) and the United Kingdom went to work to modernize and upgrade equipment to international standards, and to provide a majority of the population with easier access to these services. The EEC has been, and still is, the major donor for regional telecommunications programmes in the Pacific.

Under Lomé I, it financed the installation of high quality telephone and telegraph services in Fiji, Tonga and Western Samoa, and the construction of an Intelsat¹ earth station in Western Samoa, for a total cost of 4.3 million ECU. Under Lomé II, similar stations were built in Kiribati and Papua New Guinea while Fiji, Tuvalu, Vanuatu and Western Samoa received aid for various items of equipment connecting them to the international network, at an overall cost of 8.86 million ECU. Under Lomé III all of the Pacific ACPs except Papua New Guinea are involved in the third phase of the regional telecommunications programme: ship-to-shore radio and satellite communications are among the facilities to be funded from the sixth EDF, for an expected cost of some 5.6 million ECU.

Lomé I:

In the second half of the 1970s Fiji, Tonga and Western Samoa, anxious to encourage the integration of their populations scattered over a great number of islands, to strengthen their links with the outside world and to diversify their economies, approached the Community for assistance under Lomé I regional funds, which prompted the setting up of a 'Regional telecommunications network' programme financed from the fourth EDF. Western Samoa wanted to develop its secondary sector and promote tourism; Fiji, where revenue from agriculture was not increasing, also wished to attract more tourists; and Tonga planned to diversify its economy. For all three countries, good telephone, telegraph and telex services were essential to communicate with partners, customers, and buyers, and to exchange goods, services and information.

On the advice of the International Telecommunications Union, each of the three governments opted for small earth stations linked to the 'Intelsat Pacific' satellite. The EEC installed a complete satellite receiving station in Western Samoa, extended the existing one in Fiji and installed a telex exchange in that country, and supplied Tonga with a powerful telephone exchange. All the equipment was designed so that it could incorporate future technical advances and cope with probable future increases in traffic. Local companies together with a specialized European firm were given responsibility for managing the network and training technical staff.

Lomé II:

The second convention provided the means to finance a more ambitious plan to equip all countries in the region by the end of the 1980s with telephone, telegraph and telex services for regional and international

¹ Intelsat is an international organization with 112 members which maintains a network of satellites and earth stations for the worldwide transmission of telephone and telex messages, computer data and television programmes.

communications. Much was achieved under this second phase of the programme. The capacity of the telex system in Fiji was increased; an earth station which could be connected to all international networks was built in Kiribati; a direct communications system with the rest of the islands was installed in Papua New Guinea, cutting out the need to route calls through Australia, thereby reducing their cost; and Tuvalu was equipped with a telex system, and its telephone and telegraph network was connected to Fiji's.

The Community-financed regional telecommunications programme has

provided the Pacific ACP countries, previously over-dependent on Australia, with their own system of communications. For the first time, small remote islands have been linked to their capitals and the outside world; in this sense, the programme has made a significant contribution to regional cooperation. With the exception of Tuvalu, where the initial cost was considered too high because of the tiny volume of traffic (Tuvalu is the world's least-populated country), the programme has been shown to be potentially viable everywhere from a strictly economic and financial point of view.

Lomé III:

Phase III is now getting under way. It will consolidate the existing systems and touch on other areas of regional cooperation. The Solomon Islands and Tonga have requested a ship-to-shore radio station, Western Samoa a standard 'A' satellite earth station, and a satellite link between Christmas Island and Tarawa, the capital of Kiribati 2000 miles to the west, is also under consideration.

Ship-to-shore radio is important for the safety of shipping in seas full of barely submerged coral reefs and swept by cyclones. It should also make for better management of port services, freighting of boats and transit of goods. The Solomon Islands archipelago to the west and Tonga to the south-east have been chosen as sites for the construction of two new ship-to-shore radio stations.

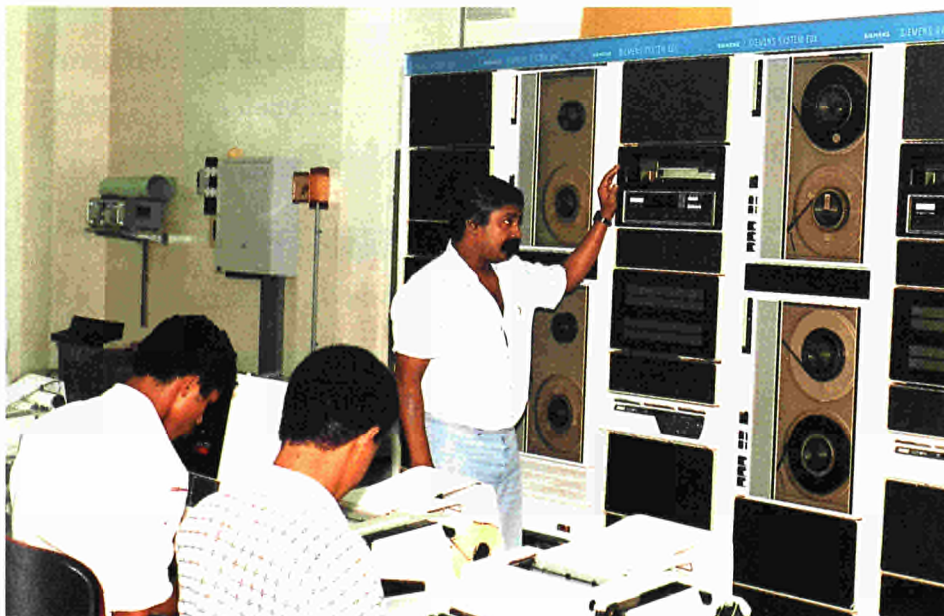
The programme includes provision for technical assistance to look at the management and viability of the telecommunications systems, in order to maximize benefits and returns for the future.

The efficiency of a sophisticated telecommunications network depends to a great extent on the competence of its management and maintenance staff. For this reason, staff training has always been included in each programme. Over the past 10 years two training centres have been set up in Papua New Guinea and Fiji, the latter with EEC assistance. These, and the training funds in the Lomé III programme, should ensure a nucleus of local supervisory and technical staff to run and maintain the South Pacific telecommunications network in the future. ■



Intelsat earth station, Kiribati

Telecommunications Training Centre, Suva, Fiji



Glossary

EC: European Community – association of 12 States (Belgium, Denmark, Federal Republic of Germany, Spain, France, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, United Kingdom) which have signed the treaties setting up the European Coal and Steel Community (1951), the European Atomic Energy Community (1957) and the European Economic Community (1957). The executives of the three Communities were merged in 1967.

EEC: European Economic Community

Institutions

CEC: Commission of the European Communities

EIB: European Investment Bank

CDI: Centre for the Development of Industry (joint ACP-EEC body)

FAO: United Nations Food and Agriculture Organization

WFP: World Food Programme

WHO: World Health Organization

NGO: Non-governmental organization (e.g. Oxfam, Caritas, Médecins sans Frontières, etc.)

EC aid recipients

SEM: Southern and Eastern Mediterranean States (Maghreb and Mashrek countries) which have signed bilateral comprehensive cooperation agreements with the EC

ALA: Asian and Latin American States (formerly known as ‘non-associated’ countries) which have signed bilateral and, in some cases, regional agreements with the EC

OCT: Overseas countries and territories associated with the EC (e.g. Netherlands Antilles, French Polynesia, British Virgin Islands, etc.)

ACP: African, Caribbean and Pacific States which have signed the Lomé Convention with the EC

EC – ACP – OCT relations

Legal basis	Period covered	Beneficiaries	Financing
Implementing Convention annexed to Treaty of Rome, Part IV	1958-63	OCTs	EDF I
Yaoundé I	1964-69	18 Associated African States and Madagascar (AASM)	EDF II
Decision 64/349/EEC		OCTs	
Yaoundé II Decision 549/70/EEC	1970-75	18 AASM OCTs	EDF III
Lomé I Decision 76/568/EEC	1976-80	46 ACPs OCTs	EDF IV
Lomé II Decision 1186/80/EEC	1981-85	57 ACPs OCTs	EDF V
Lomé III Decision 283/86/EEC	1986-90	66 ACPs OCTs	EDF VI

Miscellaneous

EDF: European Development Fund

ECU: European currency unit (average 1987 value: 1 ECU = BFR/LFR 43.041, DKR 7.885, DM 2.071, PTA 142.165, FF 6.929, DR 156.268, IRL 0.775, LIT 1494.91, HFL 2.334, ESC 162.616, UKL 0.704, USD 1.154)

GDP: Gross domestic product

GNP: Gross national product

GSP: Generalized system/scheme of tariff preferences

ha: hectare = 2.47 acres

kg: kilogram = 2.2 lbs

tonne: metric ton = 1 000 kilograms

m: metre = 3.3 feet (1.1 yard)

km: kilometre = 0.6 mile

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