

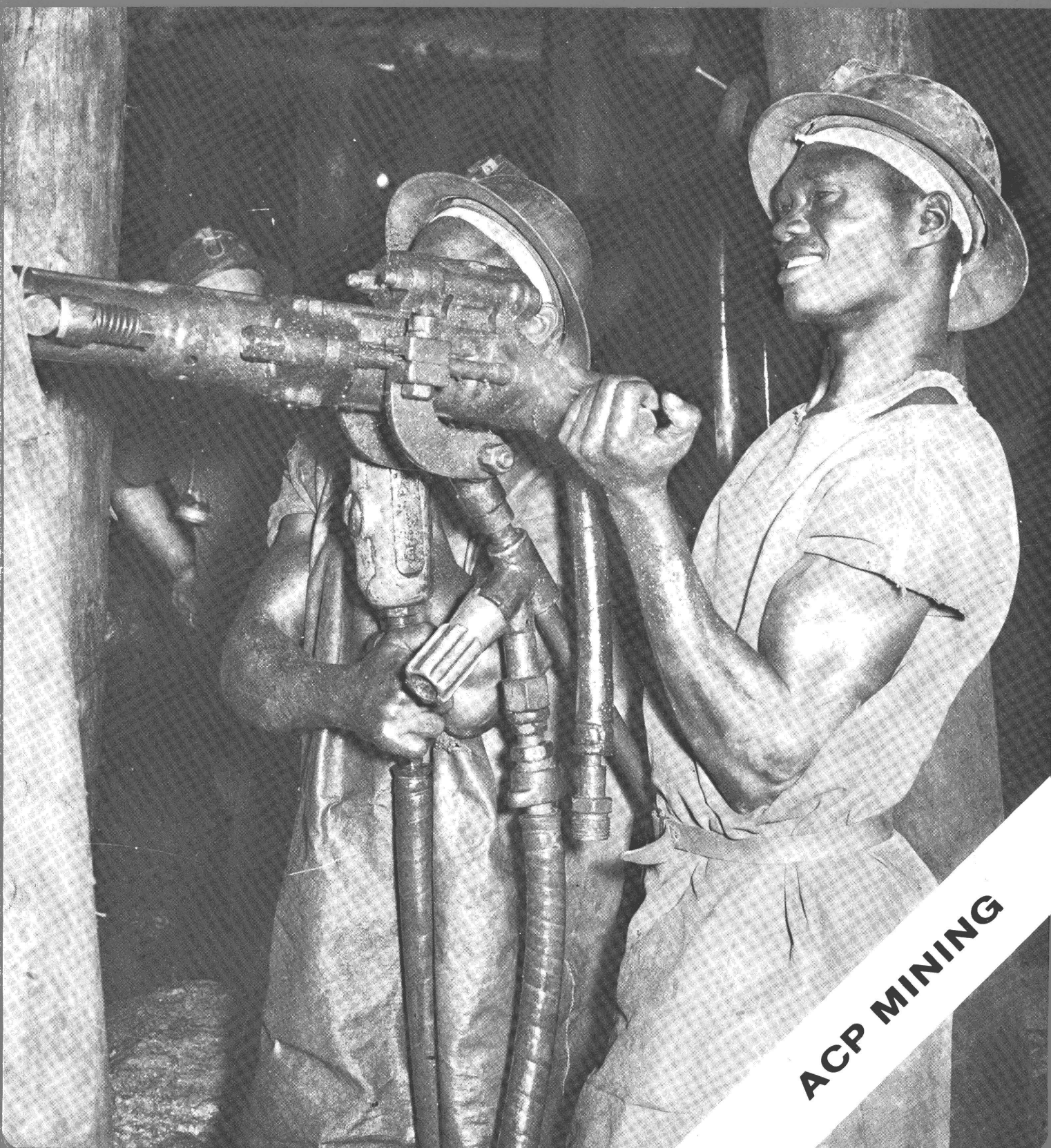


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EUROPEAN COMMUNITY — AFRICA-CARIBBEAN-PACIFIC

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ACP MINING

THE EUROPEAN COMMUNITY

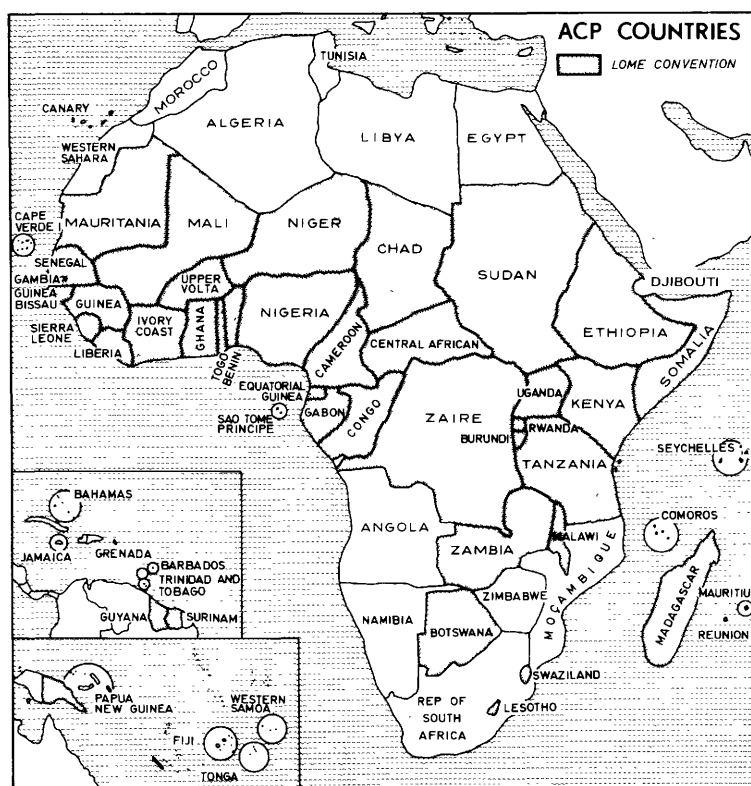
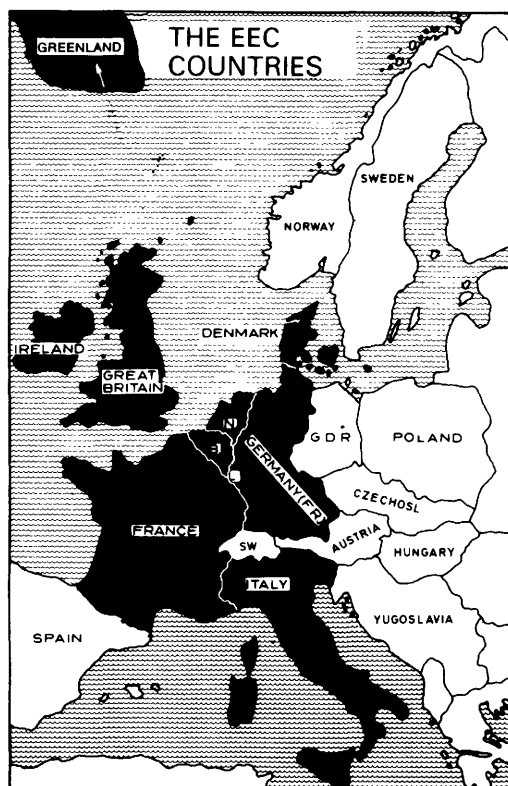
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TONGA
TRINIDAD and TOBAGO
UGANDA
UPPER VOLTA
WESTERN SAMOA
ZAIRE
ZAMBIA**



ACP-EEC — The ACP-EEC Council of Ministers, the third joint ministerial session since the Lomé Convention was signed on 28 February 1975, met in Brussels in mid-March only five months before the opening of negotiations for the next ACP-EEC pact. The Council took stock of the two and a half years of operation of the Convention, emphasizing the positive aspects of implementation as well as the problems encountered in certain sectors, for which solutions were discussed. P.J. Patterson, chairman of the ACP Council of Ministers, describes the concerns of the ACP countries and says they will be negotiating "a new convention", not an extension of the present one. **Page 3.**



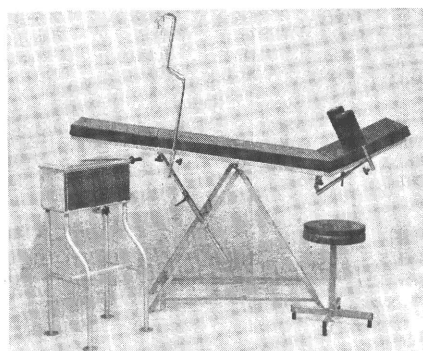
Burundi — Burundi, like neighbouring Rwanda (see *Courier* n° 48), is a country of a thousand hills, landlocked and economically dependent on a few cash crops. Since the new republic was proclaimed, the Bujumbura government has been trying to speed up the country's development by diversifying resources, primarily by introducing tea growing. The Prime Minister, Lt Col Edouard Nzambimana, describes the new economic strategy and how the EEC will be helping with it. **Page 20.**



Zambia — Zambia is one of the ACP states that depend economically on a single export product, in this case copper. Landlocked in southern Africa and badly affected by the political situation there, Zambia depends for more than 70% of its earnings on sales of copper ore. International recession and the slump in prices means that the future of this beautiful country is precarious. The Zambian ambassador to Brussels indicates how the government is tackling its priority aim of reducing the country's dependence on copper. **Page 34.**



Dossier — Mining in the Third World is slowing down alarmingly. Foreign and national investments are declining badly and the price slump is not the only cause. But if mining does not expand again, there will be a raw materials shortage similar to the oil crisis, and again the industrial nations will not be the only victims. Our dossier takes stock of the mining sector in the developing countries. **Page 46.**



Appropriate technology — The transfer of technology involves not only knowing what to do but how to do it. Our practical example this time shows how to make a wc without the w—every home should have one, if running water is not available. We also look at a way of providing technology that has been highly successful in equipping hospitals and could be applied in other fields—the "nearly new shop" approach. **Page 86.**

THE COURIER

EUROPEAN COMMUNITY —
AFRICA - CARIBBEAN - PACIFIC

No. 49 — May-June 1978

CONTENTS

2. **EDITORIAL:** Participants, not just suppliers
3. **ACP-EEC Council of Ministers meets in Brussels**
Interview with Percival Patterson, chairman of the ACP Council of Ministers
8. **Results of the third ACP-EEC Council**
11. **The ACP Committee of Ambassadors in pictures**
14. **Namibia: SWAPO leader Sam Nujoma visits the Commission**
- Regional cooperation**
16. **CEAO: the challenge of animal production**
17. **OCAM: the schools in francophone Africa**
- AFRICA - CARIBBEAN - PACIFIC**
20. **Burundi: interview with Lieutenant-Colonel Edouard Nzambimana, Prime Minister**
24. **Basic facts and figures**
27. **Progress to date of the indicative programme**
30. **The Economic Community of the Countries of the Great Lakes**
32. **The management and development of the Kagera River Basin**
34. **Zambia: reducing the economy's dependence on copper**
37. **Guyana: the success of the fishing and shrimping industries**
38. **Botswana: the desertification problem**
41. **CID: regional production sharing**
44. **Race against time for arid zone farmers**
45. **In perspective: economic projections... social projections?**
46. **DOSSIER: Mining in the ACP countries**
48. **The contribution of mining to economic growth**
52. **Distribution of world mineral production**
54. **Sharing the mineral wealth of the sea**
57. **The importance of mineral exploration and geological surveys in the developing countries**
59. **European mining investments in the developing countries**
62. **European support needed for minerals procurement**
63. **The evolution of prices of non-fuel minerals**
65. **From production to processing**
For a better control of the markets
67. **Copper: ten years of CIPEC**
69. **Bauxite: the IBA**
72. **South-West Pacific: mineral exploration and exploitation**
- Mineral resources and national development: three ACP cases**
75. **Botswana**
78. **Mauritania**
80. **Surinam**
- Community aid in action**
82. **The EDF's role: the transgabonese railway**
83. **The EIB loans for the mining industry**
85. **Investment proposals of the Commission**
Useful reading
- DEVELOPING WORLD**
86. **Appropriate technology: the nearly new shop approach**
87. **The biopot**
89. **Books: Africa's industrial wager**
91. **Environment**
- EDF PROJECTS**
93. **Ethiopia: training grants**
94. **Mali: sun power for agriculture**
- ARTS**
95. **Lesotho: marketing handicrafts**
- BOOKS (inside back cover)**
- NEWS ROUND-UP (yellow pages)**

Participants, not just suppliers

Some experts, seemingly unperturbed by drastic simplifications, calculate that the total mineral production of the world from the birth of mankind to 1937 was worth something like \$300 000 million—the same figure as for mineral production between 1937 and 1957. Although these are only vague estimates, they do give an idea of the astonishing rate at which human activity gathers momentum. The fact that, in the short term, world recession may dampen demand for minerals (which very much depends on economic activity in the industrialized world) only provides the minimum of breathing-spaces. However, even accounting for progress in the techniques of mineral enrichment and the future exploitation of the resources of the sea bed, as things stand, and as they are likely to stand for several decades to come, many developing countries seem well placed as far as a good number of mineral ores are concerned. Recent estimates show that between half and nearly all the western world's supplies of five essential minerals (cobalt, tin, phosphates, tungsten and copper) will come from the developing countries in 1985.

African countries and certain ACP states in the Caribbean and Pacific are in an enviable position in the developing world. Africa is the world's leading producer of diamonds, cobalt and gold and a leading producer of copper, manganese, antimony, platinum, phosphates and more. However, if it is to exploit and increase its advantages, there are many problems which it must be willing to tackle. We should like to emphasize a number of these.

First, mining is always a long-term affair requiring a great deal of research, financial assistance, technical and commercial help far beyond the scope of a single nation, transport infrastructure and so on, and

it may well be 10 or 15 years after the survey of an ore deposit that the first consignment reaches the docks for export.

Then, mining raises what are often considerable financial problems. Prospecting is always a chancy business and the risks are considerable. Mining itself demands a large amount of capital and the ACP states, short of financial reserves, generally have far too many calls on their national budgets to do without foreign financing. And then the quest for a new international economic order often implies new contractual relations between the foreign investor and the country concerned, involving respect of the principle of sovereignty over national resources.

There has been a considerable drop in investment in mineral prospecting. The major mining companies of Europe devoted 57% of their total expenditure to it in 1961 and only 13.5% in 1973/75. Hence the EEC Commission's recent attempts at boosting mining investments.

A further risk should be stressed. Mining, using powerful technical means, is being developed alongside traditional economies and does not always bring about improvements to the area in which it is carried out or to the economy of the country as a whole. A postcard produced by one of the ACP countries shows a truck loaded with ore dwarfing a woman going home from the plantation with her basket on her back. It unintentionally symbolizes the danger of modern mining companies seeming to grow like foreign bodies on the traditional economy.

Arnold Toynbee, author of a monumental history of the world, once claimed that everything in the modern world can be analyzed in terms of a race between education and disaster. There is some truth in this. Toynbee shows that, ultimately, everything

is conditioned by man's progress towards knowledge and by awareness of complementarity. Qualified staff are required to extract and process minerals, but they are often in short supply and training in the past has often been geared to producing political, legal and administrative élites rather than people qualified in the technical and economic sectors which are so essential to the development process.

But none of these difficulties or dangers should discourage the ACP countries from reaping the full benefits of their mineral resources. The part currently being played by certain mining companies in the economy of certain ACP countries is adequate proof of the interest of such enterprises—which must be common enterprises. They are in the interests of the ACP countries, which need the markets, capital and technology of the countries of the Community. And they are in the interests of the countries of the Community, which need the raw materials of partners whose purchasing power is on the increase. This is complementarity in a system of reciprocal guarantees.

Mining is also an element of diversification for countries whose economies are still largely based on agriculture and it can have an effect on education by creating a need for vocational training. Particular emphasis should be laid on this. But prospecting must be stepped up since on this depend the ACP countries' possibilities of acquiring further, often considerable, resources which will accelerate the development process (particularly in industry), of which mining is one stage.

But it must be understood that the countries of the Third World want to be active participants and no longer just suppliers. □

ALAIN LACROIX

ACP-EEC Council of Ministers meets in Brussels as Lomé Convention renegotiations approach

The third ACP-EEC Council of Ministers was held on 13-14 March, at ACP House for the first time. It followed a meeting of ACP ministers on 10-11 March. The co-chairmen of the ACP-EEC session were Jamaican foreign minister Percival Patterson, chairman of the ACP Council of Ministers, and Danish cooperation minister Lise Østergaard (Denmark is chairing the EEC Council of Ministers until the end of June). The EEC Commission was represented by development commissioner Claude Cheysson.

In their opening speeches, the two co-chairmen and Mr Cheysson reviewed the Lomé Convention as an important contribution towards new and better relations between the industrial countries and developing countries. Mrs Østergaard said her country's involvement in the Convention was "widely considered one of the most positive results of Denmark's joining the EEC". She added, "the Community hopes this Convention will constitute a fruitful experience which will give everyone new ideas on cooperation between the developed and the developing countries".

Mr Cheysson said: "there is a treaty between us, that is to say a negotiated reciprocal obligation... This

treaty is an illustration of our desire to make safe our relations, to define them by a contract. The contract being binding, each side knows what it can and should count on. And that is considerably different from the previous approach to relations between the industrial and the developing countries, when the rule was that the rich side made unilateral concessions. This security makes for continuous development, with the assurance of permanence..."

Mr Patterson found cause for congratulations on both sides in each step taken to end under-development. But, he stressed, the ACP countries were concerned about the difficulties that had arisen in the application of some provisions of the Convention. For instance, the ACP chairman said, after two and a half years experience of the Lomé pact, "we really are struck by the fact that the preferential treatment granted to ACP products exported to Community markets is constantly being eroded". In the following interview Mr Patterson details the Lomé Convention agreements that have proved difficult in practice. See page 8 for the official communiqué on the results of the ACP-EEC Council of Ministers on the operation of the Convention.

P.J. Patterson, chairman of the ACP Council of Ministers:

"So far as we are concerned, we are negotiating a new convention"

► Minister, the ACP-EEC Council of Ministers ended on 14 March, two and half years after the signature of the Lomé Convention and a few months before the opening of negotiations for Lomé II. What are your impressions and your general appreciation of the EEC-ACP relationship?

— First of all, I think we had a very successful and business-like meeting. The discussions were conducted in a very positive framework. For the first time we instituted a session devoted to

informal discussions and the ministers on both sides felt that this was extremely useful because it gave us an opportunity for a personal exchange of ideas which is not possible in the formal meetings in which the negotiations take place. I would say that, speaking about the relationship in a wider sense, during the past two years we have got a better understanding and developed a better working relationship with each other. Naturally we have had our disappointments about certain aspects of the Lomé Conven-

tion, and there are other aspects which have worked reasonably well. For instance, the Stabex scheme has been of great assistance to the economies of a number of countries for some commodities. But we think the range ought to be extended and for the future we'll have to examine the level of threshold before one qualifies for Stabex.

Disappointments

► Commissioner Cheysson said the object of the meeting was to identify the sectors where there are imperfections in the implementation of the Lomé Convention. You mentioned some important areas in which there have been disappointments, such as the sugar, bananas and rum protocols. Would you explain the main problems facing ACP exports of these products to the Community market?

— Well, with regard to rum and bananas, which are covered by separate protocols, our concern is that nothing concrete has been done for the im-



Percival J. Patterson

plementation. Where rum is concerned, there are still problems about the issuing of licences, because import licences are issued to European firms which very often do not use them for the import of rum into the Community. Also there remain problems with regard to the resolution concerning the definition of rum. In particular the EEC is contemplating the use of some congeneric tastes which, if accepted, would disqualify rum from the Caribbean countries. We think that it is unacceptable to have someone else determining for you what your product is. At the present time the existing definition includes Caribbean rum, but there are suggestions for a redefinition which will have the effect of excluding rum from the Caribbean.

With regard to bananas there is still no harmonized banana regime in the European common market but a joint banana committee for the ACP and EEC has been established. They have not yet completed their work and we are urging that they do so quickly.

With regard to sugar, we have repeatedly expressed our dissatisfaction with the form which has been applied in the annual review of sugar prices that determines prices to the ACP countries. And when one takes into account the continual escalations in the costs of production and the costs of freight, we believe that the adjustments we have got from year to

year have proved entirely inadequate. We would also like Zambia to be in a position to supply some sugar to the European common market and this question has not yet been determined, although Zambia has supplied pertinent information to the Commission of the European Communities for consideration of their case.

► *But how will you get a satisfactory response if the Convention cannot be modified before 1981?*

— The terms of the protocol cannot be modified before 1981. We accept this. But the terms themselves do provide for other ACP countries to accede to the protocol and our contention is that this need not wait until 1981. Our accession to the protocol does not involve any revision of the terms of the protocol. The interpretation being suggested by the EEC would mean that the section dealing with accession would be meaningless. In response to our suggestion, the EEC has changed its view.

The erosion of ACP trade preferences

► *In general what do you think about EEC-ACP trade relations and the preferences granted to the ACP countries?*

— In my opening statement, I made the point that we are concerned about the erosion of ACP trade preferences that has been occasioned by the implementation by the Community of the generalized system of preferences and proposals for the multilateral trade negotiations which are taking place in Geneva. It is not our belief that the EEC has failed to implement its promise to introduce the GSP, which has benefits for all developing countries. Our belief rather is that by the granting of these preferences, we have lost certain preferential margins and that ways ought to be found in which we should be compensated for these losses. We also feel that before proposals are put forward in Geneva for the MTN⁽¹⁾ there should be consultations between the EEC and ourselves so that we can determine the precise ways in which we are going to be adversely affected. What we are asking is that the Community should consult us at all appropriate stages so that we can determine what steps need to be taken to cushion the effect of these dislocations through the appropriate measures, so that the process of multilateral tariff liberalisation or reduction is not achieved at our expense.

We also note with great concern that there has been an adverse movement in the terms of our general trade. The EEC figures show without a doubt that our share of the EEC market is less than it was in 1974. Although the quantum in value terms has increased, the proportion has been reduced and the increased quantum in value terms is partly due to the effect of the inflation. At the same time the EEC share of our markets is greater in 1978 than it was in 1974. By their own statistics, therefore, the balance of trade continues to be adverse and it is in this context that we remain concerned about the continuing deterioration of our preferential position in the EEC markets and suggest that corrective and compensative measures ought to be considered.

The running of Stabex

► *Although you said the Stabex has been beneficial to a number of ACP countries, the running of the systems, its extension and its indexation were nevertheless of concern to the ACP ministers...*

— Yes, as I said before, a number of states have benefitted from transfers within the framework of Stabex. But, there are numerous cases which still remain outstanding. Particularly the

⁽¹⁾ Multilateral trade negotiations.

claim of Gabon, which the Community rejected on legalistic grounds. We are not satisfied with their interpretation of the relevant provision and so by reference to article 81(2) of the Lomé Convention we decided to refer the matter to the good offices of the two presidencies to investigate the situation and hopefully resolve it. We also had a number of requests from certain states for expansion of the list of products eligible for Stabex. They include sesame seeds, sisal-based products, cashew nuts and tobacco. And we have served notice that when the new convention comes to be negotiated we are going to be pressing for arrangements for mineral products like copper, phosphates and rubber.

► *Financial and technical cooperation is also of concern to the ACP countries. There is a gap, as you said, between the commitments for projects and the disbursement of funds...*

— Yes, about 40% of the total EDF has already been committed, but only about 10% of this has been actually disbursed and there are some areas, particularly the Pacific, that have received neither commitment nor disbursement. We have raised these issues and the Commission has undertaken to see what it can do to expedite favorable consideration and implementation of those projects.

► *What is this due to?*

— I think it is largely due to bureaucratic delays—the requests for statistics, and complicated studies which very often are beyond the capacity of developing countries to supply. In fact, it is also in these areas that we are developing.

► *What is your detailed analysis or criticism of the EDF?*

— Well, I have partly covered this in my previous answer. We have asked that a look should be taken at the whole aspect of administrative and technical preparation of projects before decisions for funding are taken. If this is not done, the consequences will be that in regard to national as well as regional projects, the finalization of EDF contracts will be continually delayed and worthwhile development projects in the pipeline will be frustrated through lack of urgently needed funds. We must remember that half the life of the Lomé Convention has already expired. We want to use all the funds that have been allocated and therefore we have to be expeditious.

EEC



Jules Razafimbahiny, Madagascar's ambassador to Brussels (2nd from the left), with other ACP-EEC ministers at their March meeting

The Community experts

► *Can you specify the reservations you have expressed about the European experts sent to ACP countries?*

— Well, we say two things: first of all, that while we recognise the need for experts to do their own evaluation, and for the support of experts in areas where we are weak, a proliferation of experts tends to cause delays and consumes a very significant portion of the funds that should be made available for project implementation. It should be for the benefit of the ACP countries and not a manner of finding work for or subsidizing experts from Europe. That should not be the primary concern.

Secondly, we say that the experts must be able to take into account experiences and practices within the countries in which they are operating. They cannot just seek to transfer, wholesale and without adaptation, ideas which are based purely on European experience. They must have a great deal more knowledge of the local situation before they make their reports.

► *Can they do this without cooperating with ACP technicians?*

— What we really want is not an expert team coming from the EEC and working in isolation. We want to fuse ACP and EEC expertise. That is the best way of ensuring that the most effective results are obtained.

► *The ACP countries must achieve greater cooperation among themselves to succeed in developing their economies. What are the concrete means and measures taken to foster intra-ACP cooperation?*

— We gave a great deal of thought to improving intra-ACP cooperation, which is one of the basic objectives of our institution. The importance of it was clearly expressed in our declaration in Georgetown, when the group was formally launched, and was endorsed by the Suva declaration last year. We are holding a conference on intra-ACP cooperation in June. And in that meeting we will be concentrating particularly on problems affecting transportation and communication among the member countries of the ACP group.

We have also the UN to study and make recommendations to us on the proposal for an intra-ACP development

bank, which would have as its main objectives facilitating trade and promoting industrial opportunities. The Community has promised us their support in these initial stages.

► *What are the main areas of EEC-ACP cooperation that you would like to improve under Lomé II?*

— First of all there is a tendency to talk about Lomé I and Lomé II which itself would seem to imply that we are merely concerned with textual amendments of the existing Convention. So far as we are concerned, we are negotiating a new convention which must reflect the experiences that we have acquired from the present convention but must take into account the realities of changing economic circumstances and our objectives of security in the international economic order. We think therefore that there have to be significant changes in the new convention if we are to secure the maximum benefit by this convention between 53 developing countries and 9 developed countries to take us further on the road towards the new international economic order.

Human rights, southern Africa and ACP nationals in Europe

► *How about the question of human rights?*



Dr Vasco Cabral, Guinea Bissau's minister of development and planning, with EEC development commissioner Claude Cheysson

— The question of human rights was never raised in this council, neither in the formal meeting nor in the informal discussions which we had. I have heard in the press that some people intend to raise the question. From the discussion I have had with individuals and delegations, there is clearly no unanimity of view within the EEC itself. So we have never had to discuss it with them

because they have no common position on it. Our position however is very clear: we are in an agreement that deals with trading, economic, technical and financial cooperation and the provisions of the new convention should relate to that. We believe that no extraneous matter should be imported. We attach great importance to human rights, but this must be discussed with-

The ACP-EEC Council of Ministers in session at ACP House



in the proper context and framework. And those are matters which are very relevant to the United Nations and the appropriate institutions.

► *On that question of human rights, what do you think of the link that has been made between the situation in southern Africa and the treatment of ACP nationals in Europe?*

— There are two areas of our concern with human rights in southern Africa which are directly related to the Lomé Convention. First of all, there are those countries which, because of their geographical proximity to South Africa, have economies which are very heavily dependent on that country and have been subject to undue and considerable pressures. We believe that we have a duty to give them support and I refer to the particular difficulties being experienced by Botswana, Lesotho and Swaziland. A very forceful and wide-ranging presentation was made by the minister from Lesotho to dramatize the nature of their problem, and all delegations responded favourably to the need to give them special assistance.

The second problem that we had to deal with was the question of aggression committed by Ian Smith's racist regime against Botswana and Zambia, which has served not only to threaten their territorial integrity but causes very acute dangers to their economic survival. We know that Zambia, for instance, has suffered very badly because of the fall in copper prices, and when they have to devote a considerable proportion of their money in defence against an illegal regime instead of to economic development, we think it is a matter of concern to us within the Lomé framework.

So far as other political matters are concerned, like apartheid in South Africa and Smith's illegal regime, our position in individual countries is very well known. We condemn them. We abhor them. But we did not seek to discuss those aspects of the matter within the ACP fraternity. On these we have taken strong positions wherever they are discussed in the appropriate forum.

As far as the treatment of ACP nationals in Europe is concerned, that has not been discussed on the formal agenda or in informal discussions. It has been a subject of concern to a number of delegations. And when we come to discuss the new convention, I would expect that statements and positions about this are going to be included. □

Interview by
LUCIEN PAGNI

Patterson spells out the NIEO

EEC experience valuable for new international economic order

Jamaican foreign minister P.J. Patterson outlined the basis of a new international economic order in a talk to the Europe-Third World Association (1) in Brussels on 15 March.

Mr Patterson, chairman of the ACP Council of Ministers, spoke on "how crucial is the new international economic order as seen from a Third World perspective?" It was crucial, he said, "not only to the developing countries but to all mankind." The present economic order had established "a fundamental interdependence which underpins the political reality of the Third World's fight for justice", but the developed countries—some more than others—were "resisting the establishment of a new order", Mr Patterson said.

The minister condemned the present economic order as being based on a post-war Western model which had not been designed to take the Third World into account and could not be effectively transplanted to the developing countries. Its Keynesian economics only worked for countries that already possessed "structures for sustained economic growth" and that were "responsive to modern technology", he said. It was therefore necessary to go back to first economic principles. "Tinkering with the system is not enough".

Pointing to the recent economic problems of the developed countries, Mr Patterson said their "crisis of confidence" sent shockwaves of disturbance around the world and paralysed attempts at reform because it encouraged governments to adopt "self-destructive" restrictionist attitudes. A comprehensive package of balanced measures was necessary to restore long-term stability.

These measures should:

- establish a "new energy order";
- reform international monetary institutions;
- achieve an effective transfer of resources;
- relieve the Third World's debt burden;
- and stabilize commodity prices.

For the first three of these, Mr Patterson has suggested the creation of new UN commissions.

The developing countries' debts had doubled in five years and now stood at some \$200 billion, which forced them to choose between repayment of buying essentials. "Debt relief would help everyone," Mr Patterson said, in that the sooner the Third World could earn its living, the sooner it could afford to buy from the industrial countries.

Stabilizing commodity prices through the proposed common fund was essentially the same idea as the EEC's common agricultural policy fund. In this, as in its regional policy (transfer of resources) and the innovative provisions of the Lomé Convention (Stabex, industrial cooperation...) the European Community had provided models for a new international economic order.

"We have learned a great deal from you and don't be surprised if we ask you to make the benefit of these lessons available to the whole world," Mr Patterson concluded. □

B.T.

(1) A private interest group which a wide membership among EEC officials.

Results of the third ACP-EEC Council of Ministers on the operation of the Lomé Convention: official communiqué

At its third session on 13-14 March in Brussels, the ACP-EEC Council first approved without discussion a series of decisions on which agreement had already been reached in the ACP-EEC Committee of Ambassadors.

1. The first of these decisions concerned the improvement of the working methods of the ACP-EEC Council of Ministers; the provisions adopted will enable the Council, by strengthening the role of the Committee of Ambassadors, to concentrate on fundamental political issues or questions which present special difficulties.

2. Welcoming the good relations existing with the ACP-EEC Consultative Assembly, the ACP-EEC Council noted the resolutions adopted by that Assembly at its meeting in June 1977 and agreed that the Presidency would provide comprehensive information on the Council's discussions in time for the meeting of the Joint Committee scheduled to take place in Grenada at the end of May and for the meeting of the Consultative Assembly due to take place in Luxembourg during the last quarter of 1978.

Financial and technical cooperation

3. In the field of financial and technical cooperation the ACP-EEC Council of Ministers agreed, in pursuance of the resolution it adopted in Fiji on 14 April 1977, to convene a meeting of the persons responsible in the ACP states and in the Community for planning and implementing financial and technical cooperation, including representatives of regional groupings, so that a comprehensive balance-sheet could be drawn up of all activities undertaken in this area since the Convention entered into force.

This balance-sheet would be drawn up in the light of the Commission reports on the management of financial and technical cooperation in 1976 and 1977. A detailed examination would also be held at that meeting of the Commission report for 1977.

The ACP-EEC Council of Ministers instructed the ACP-EEC Committee of Ambassadors to draw up, if appropriate, in the light of the outcome of that meeting, a resolution concerning the measures to be taken by the Community and the ACP states to ensure that the objectives of financial and technical cooperation are attained.

4. As regards customs cooperation, the Council of Ministers noted the annual report of the Customs Cooperation Committee and adopted decision n° 1/78 concerning the concept of originating products and methods of administrative cooperation. These amendments had become necessary as a result of recent changes in the international customs nomenclature...

5. Moving on to the items submitted to it for discussion, the ACP-EEC Council of Ministers approved the annual report—called for in article 74(5) of the Convention—covering the period from 1 April 1977 to 28 February 1978.

This report, which reflects the extent and variety of the achievements attained under the Convention, will be forwarded to the Consultative Assembly as the report on activities provided for in article 80(4) of the Convention...

6. The ACP-EEC Council of Ministers then proceeded to examine the various fields of application of the Lomé Convention and first conducted an examination of the application of the Convention in its financial aspects.

This item provided the Commission and the European Investment Bank with an opportunity to describe the broad lines they followed in managing financial and technical cooperation.

In the ensuing discussion, the Council noted with satisfaction the financial commitments entered into with a view to implementing the various projects and action programmes to be financed in the ACP states and emphasized that the rate of the relevant payments should be speeded up.

Following a statement by the ACP states—notably the Pacific states—that

there had been considerable delays in the implementation of financial and technical cooperation, the Commission pointed to some of the particular difficulties encountered, including geographical and administrative problems, as well as certain peculiar difficulties related to the complexity of the projects or programmes, many of which had special problems of implementation.

In this connection, the Community recalled the importance it attached to the programming of Community aid provided for in the Convention and based on the development plans and priorities of each individual ACP state.

Trade

7. In the field of trade, the Council of Ministers held an exchange of views, on the basis of statistics available in the Community, on recent trends in trade flows between the ACP states and the Community. The Community stressed in particular that the increase in value in trade since the entry into force of the Lomé Convention in 1975 had been significantly greater than with other groups of third countries, whether developed or developing.

While they did not dispute this increase, the ACP states pointed out that their exports to the Community were less than in 1974 in real terms and that their balance of trade had changed from surplus to deficit. They also spoke out against the erosion of their preferential position particularly as a result of the application by the Community of generalized preferences and the GATT multilateral negotiations. In this connection they stressed the ACP states' total support for the liberalization of international trade on behalf of the developing world. They insisted, however, that, as regards their benefits under the Lomé Convention, should these be eroded in the pursuance of such a policy by the Community, adequate compensatory measures should be considered. This pointed to the importance of prior consultation...

The Commission representative placed emphasis on the measures to be taken in connection with the trade promotion of products from the ACP states.

Particular products

8. The ACP-EEC Council of Ministers next examined the main problems

relating to certain products of particular importance to the ACP states.

As regards **sugar**, the ACP states requested that negotiations on the guaranteed prices for ACP sugar for the 1978/1979 marketing year be concluded before the date laid down in protocol n° 3 on sugar, i.e. 1 May, and that those negotiations take account of the considerable increase in production costs since the previous year and all relevant economic factors, as stipulated in the protocol. They requested that the Commission revise its proposals accordingly.

After the Commission had emphasized that world sugar prices were at an extremely low level, which had led it to propose only a small increase in prices within the Community for the next sugar year, the Community stated that the Council of the European Communities would take into consideration the point of view of the ACP states during its discussions on the fixing of the price guaranteed to the ACP states. Furthermore, the Community confirmed its intention of opening negotiations with the ACP states before 1 May, as soon as its internal market prices were established.

In this same field, the ACP states expressed their unanimous support for the request from **Zambia** for accession to the protocol on sugar, with a quantity of 15000 tonnes per year. The Commission drew attention to the consequences of the acceptance of such requests which would necessitate an amendment of the protocol. The ACP, however, did not accept the legal implications advanced by the Commission and called on the Community to consider the application in accordance with the spirit and intent of annex XIII of the Lomé Convention.

The ACP states requested that all obstacles to the issue of licences for importing **rum** into the Community be removed. They also recalled the Community's understanding to consult them in good time on its work concerning the common organization of the market in ethyl alcohol and expressed their concern at the proposed definition of rum.

Whilst expressing their appreciation for the steps taken by the Community to permit imports of **ACP beef and veal** with, in addition to duty-free entry, a reduction of import charges until 31 December 1978, the ACP states asked for this arrangement to continue until the expiry of the Lomé Convention.

The Community noted this request and indicated that the arrangements for beef and veal imports would be examined in the course of the year and



ACP bananas: excellent quality, and the ACP-EEC ministers discussed them at length in March—but if they are to sell in Europe, strong commercial action is necessary to loosen the grip of the multinationals

that this examination would have to take account of world market trends.

With reference to the new Council regulation (EEC) enabling **ACP tomatoes** to benefit, under certain conditions and within certain limits, from a 60% reduction in customs duties, the representative of Senegal expressed the hope that the Community would apply this quota with flexibility.

The ACP states noted certain recent steps by the Community which could result in the improvement in the marketing opportunities for **ACP bananas** within the Community. The ACP states were, however, quite concerned by the Community's position conveyed to them during the meeting and which in their view was not in accordance with the requirements of protocol n° 6...

They also informed the Council of

Ministers of the steps being taken to establish organizations of ACP banana-producing states to protect their marketing interests and to undertake relevant research.

In this area, the Community emphasized the specific steps to be taken and the need for better reciprocal information on the specific problems arising with regard to production, marketing and price formation, and emphasized the usefulness of contacts between the trading circles concerned, and the important part which could be played by the recently created ACP-EEC Working Party of Government Experts.

Stabex

9. The Council of Ministers noted that the system for the stabilization of export earnings had, on the whole,



Sugar: a key piece in ACP trade strategy with the Community

operated to the satisfaction of all concerned.

However, the ACP states requested the inclusion of certain new products in the Stabex system, namely: sesame seed, tobacco, sisal products, cashew nuts and shea nuts...

The ACP states requested that the Council should adopt a decision calling upon the Commission to appraise transfer requests lodged by some ACP states in respect of 1975, the Commission, within its responsibility for managing the Stabex system, having considered that these requests could not be accepted. The Council of Ministers was unable to accept this request. As a result, the ACP requested and the Council agreed to initiate the good offices procedure provided for in article 81 of the Convention.

Industrial cooperation

10. The Council of Ministers held a detailed exchange of views on the implementation of the industrial cooperation provisions of the Lomé Convention, stressing their importance.

It noted with great interest the report by the ACP-EEC Committee on Industrial Cooperation, dealing in particular with the setting up of the ACP-EEC

Centre for Industrial Development and the recent development of its activities.

The ACP states stressed the need for the Centre to have sufficient financial resources in the form of a separate fund in the future Convention. They also emphasized their development requirements in the field of the transfer of technology and scientific cooperation. They hoped that industrial cooperation efforts would also be directed towards the development of trade between ACP states...

The Community Presidency expressed the view that the detailed examination of these issues should go hand in hand with a policy discussion in the forthcoming negotiations.

Other issues

11. The Council noted that limited progress had been made in preparing the fiscal and customs arrangements applicable in the ACP states to contracts financed by the Community, which the Council should have adopted, pursuant to article 60 of the Convention, at its first meeting following the entry into force of the Convention.

As it had proved impossible, however, to overcome certain obstacles at the present meeting, the Council

instructed the ACP-EEC Committee of Ambassadors to make every endeavour to resolve the issues outstanding at the earliest opportunity.

12. The Council noted with sympathy and understanding the statements by some ACP states drawing attention to the dramatic situation confronting the least developed, land-locked and island countries. The Council was also informed by the ACP states of the aggression of Rhodesia against Zambia and Botswana. The Council recognized the need to continue to assist the countries affected by these situations.

13. The Council observed that the procedures for the ratification of the agreements, signed in March 1977, for the accession of some states (Cape Verde, Sao Tome and Principe and Papua New Guinea) to the Lomé Convention had not yet been completed. The Council invited the parties concerned to complete these procedures as soon as possible.

14. Finally the parties to the Convention agreed to the formal opening, by a ministerial meeting on 24 July next in Brussels, of the negotiations aimed at determining the nature of their mutual relationships after the expiry, on 1 March 1980, of the Lomé Convention. □



The Committee of Ambassadors

A little-known Lomé Convention institution

Of the various institutions of the Lomé Convention, from the Council of Ministers and the Consultative Assembly down, the Committee of Ambassadors is one of the least well known. Composed of one representative of each EEC country plus one from the Commission, and one representative from each of the ACP countries, its job is to assist the ministers.

Duties of the Committee

These are defined in Articles 75 to 78 of the Lomé Convention. It assists the Council of Ministers in the performance of its duties carrying out any mandate and performing any other duties as are entrusted to it by that Council. It keeps under review the running of the Convention and the development of objectives as defined by the Council of Ministers. It accounts for its actions to the Council of Ministers, particularly in matters which have been the subject of delegation of powers. It also submits to the Council any parti-

ment proposal and such resolutions, recommendations or opinions as it thinks necessary or appropriate. The Committee of Ambassadors also supervises the work of all the committees and all other bodies or working groups, whether standing or *ad hoc*, established or provided for by the Convention. It also periodically submits reports to the Council of Ministers.

Chairmanship of the Committee of Ambassadors alternates between EEC and ACP representatives.

Secretariat duties and other work necessary for the functioning of the Council of Ministers and the Committee of Ambassadors and other joint bodies are carried out on a basis of parity.

The Committee of Ambassadors met on 28 February last to prepare for the Council of Ministers of 13-14 March (the third and last before the opening of negotiations for Lomé II). We took the opportunity to show a few pictures of this little-known institution at work. □



Joseph Van der Meulen of Belgium (right) with Nicolas Hommel (Luxembourg), Secretary-General of the EEC Council of Ministers

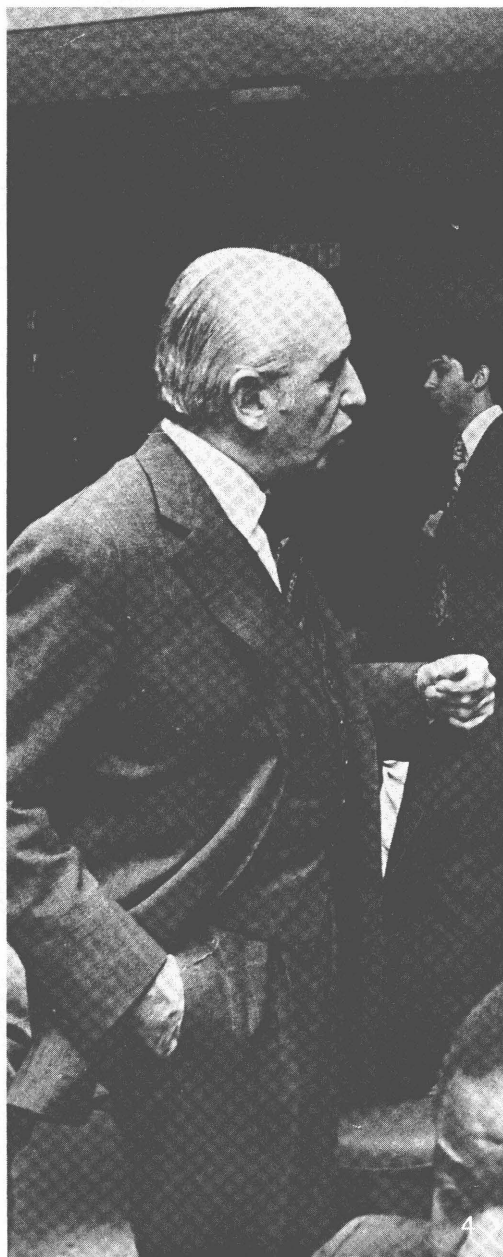
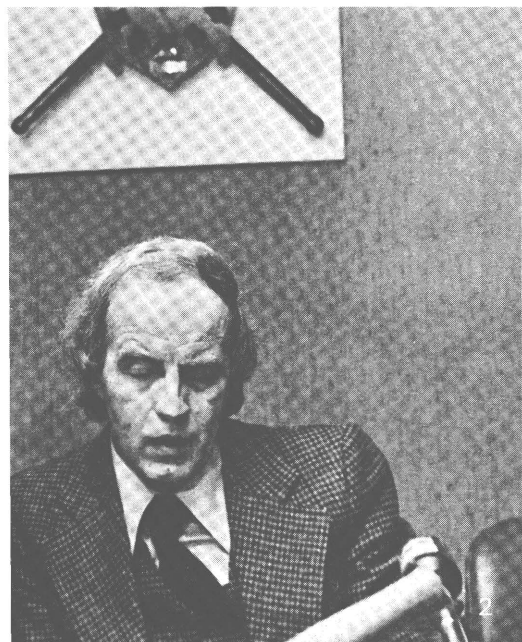


Photo 1: (l. to r.), R.F. Ferrier (Surinam), Donald B. Rainford (Jamaica), J. O'Neil Lewis (Trinidad & Tobago) and Donald A. Abrams (chargé d'affaires, Guyana); photo 2: Gonzague Lesort (co-secretary of the ACP-EEC Committee of Ambassadors), G. Riberholdt (Denmark), co-chairman of the ACP-EEC Committee of Ambassadors; photo 3: (l. to r.), Luc de la Barre de Nanteuil of France and Helmut Sigrist (Federal Rep. of Germany); photo 4: Eugenio Plaja (Italy); photo 5: (l. to r.), J. Van der Meulen (Belgium), Sir Donald Maitland (United Kingdom) and J.H. Lubbers (Netherlands); photo 6: Ralph Adam (Seychelles) and (right) S.O. Sy (Senegal); photo 7: (l. to r.), Sékou Top (Guinea-Conakry), K.B. Asante (Ghana) and A.K. N'jie (chargé d'affaires, Gambia); photo 8: the EEC team at the meeting on 28 February; photo 9: on the ACP side; (centre), D. Mloka (Tanzania) and (right) Ali Ahmed Sahlool (Sudan)





EEC

EEC

EEC

NAMIBIA

SWAPO leader Sam Nujoma visits EEC Commission



Sam Nujoma

"If a solution acceptable to Namibia was refused, then the Namibian people would be forced to continue the armed fighting"

Sam Nujoma, head of Namibia's liberation movement, visited the EEC Commission in February on his way back from New York where he had been to the UN for talks between SWAPO and the countries of the West on his country's independence. At his meeting with the members of the Commission, including development commissioner Claude Cheysson, the SWAPO leader discussed the recent New York talks between five big Western powers (the US, Germany, France, the UK and Canada), South Africa and the Namibian liberation movement.

Mr Nujoma described the difficult political and economic situation of his embattled country and gave details of the New York talks at a press conference at the International Press Centre in Brussels. He listed SWAPO's condi-

tions for an acceptable agreement on Namibian independence. The movement wanted South African troops withdrawn from Namibian territory and Pretoria to renounce its claims on Walvis Bay, a Namibian port which had been a British enclave when Namibia was a German colony. It also wanted UN troops to supervise the free elections which would be organized on the basis of an agreement guaranteeing peace for both black and white Namibians, the latter being able to retain their citizenship if they chose, Mr Nujoma said.

As to the maintenance of South African troops in Namibia, SWAPO had accepted the "Western compromise" whereby 1500 soldiers would remain, although it felt they should withdraw after independence. South Africa had

apparently rejected the compromise and this was why the New York talks had been suspended, Mr Nujoma said.

The SWAPO leader said the movement was anxious to negotiate a solution whereby Namibia could become independent, but, he added, South Africa should not see this as a sign of weakness. If a solution acceptable to Namibia was refused, then the Namibian people would be forced to continue the armed fighting until they obtained a final victory, Mr Nujoma said. He again appealed to the West to withdraw all support for South Africa which, he said, "only wanted to stay in Namibia to exploit the country's wealth to the detriment of its people and to make Namibia a buffer state to perpetuate and extend racialism".

Mr Nujoma thanked the Western countries which were helping with the fight for independence and particularly for all they had done in connection with training future Namibian cadres at the institute which the UN had set up for this purpose in Lusaka (Zambia).

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The campaign of The International Confederation of Free Trades Unions in Brussels

A contribution was made to the fight against racialism in southern Africa when the International Confederation of Free Trades Unions ran a week of trade union demonstration in Brussels in early March. European unions asked for the Community to step up measures against investments, trade and scientific and military exchanges with South Africa. They asked the European press "to give wide coverage to this campaign so that firms and anyone else who might be tempted by South Africa would realize that the black population is systematically barred from any remunerative employment by the Job Reservation Act of 1913". □ L.P.

CEAO

The challenge of animal production

by Roger NIKIEMA

With the considerable loss of cattle through consecutive years of drought which have affected the Sahel states in general and the CEAO(1) states in particular (with the exception of the Ivory Coast), the rebuilding of the herds has become an absolute priority. Cattle is, in fact, a valuable resource for all of these countries and their husbandry organizations, supported by the respective governments, are actively providing the means for protecting the health of the herds, and of building up numbers.

In order to help in these efforts the CEAO has signed financing agreements with the member governments from its community development fund which aim, as laid down in the CEAO treaty, to promote animal production, and improve the health and general condition of the herds. Health is the major priority, for without it all attempts to increase production will be in vain.

With this in mind the CEAO has financed in Upper Volta a project to improve the health of the herds, to the extent of 80 million CFA francs. This money was used to provide 30 vehicles, 40 motorbikes, five ice machines, 10 oil-powered freezers and 20 isothermic containers.

These vehicles and materials were provided for veterinary centres throughout the country to equip mobile groups engaged in immunization and treatment and whose role was to intervene rapidly, the length and breadth of the country, to check the sources of epizootic diseases and prevent the spread of contagious diseases by systematic vaccination campaigns.

Having taken upon itself this major task, the CEAO has brought about clo-

ser cooperation between the neighbouring countries which through common action will provide a constant monitoring of the overall health position and thereby ensure more efficient control. And in the very near future the CEAO expects to help at the community level, through greater funds, the efforts to improve animal welfare.

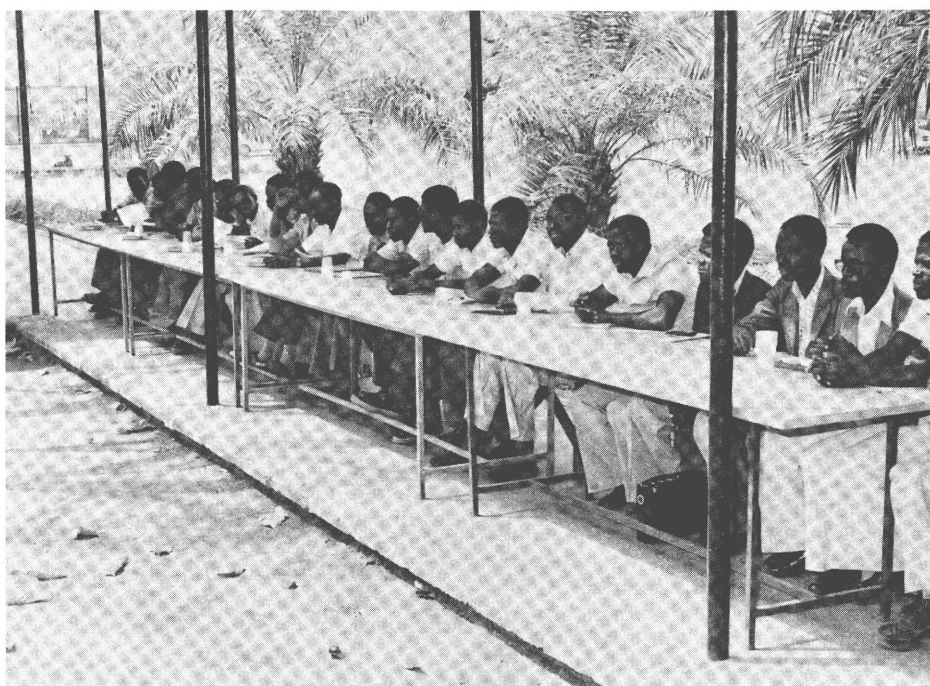
A logical extension of animal welfare is the creation of intensive feeding centres, and the first to be set up will shortly be the object of a financing agreement between the CEAO and Mali. No less important, the CEAO is in the process of financing studies of test zones for developing cattle raising, and of the methods of distributing medicines and feedstuffs. "The next perspective", in the words of Oumar Alpha Sy, director of the Secretary-General's office of the CEAO, since the arrival of the important new material in Upper Volta, "is the hope of overcoming the

problems faced by herdsmen through the lack of water and pasture. This will no doubt become possible with the setting in motion of the "water and pasture project" for which the feasibility studies are almost completed."

A happy result of the efforts to improve meat production is the fact that the commercial promotion of the cattle herds and the various side products, has remained a concern of both the national and community authorities. The community has, in fact, financed the equipping of 66 cattle markets throughout the six member states and contributed to the training of market inspectors. This twin action should allow, in time, the creation of a community-wide cattle market.

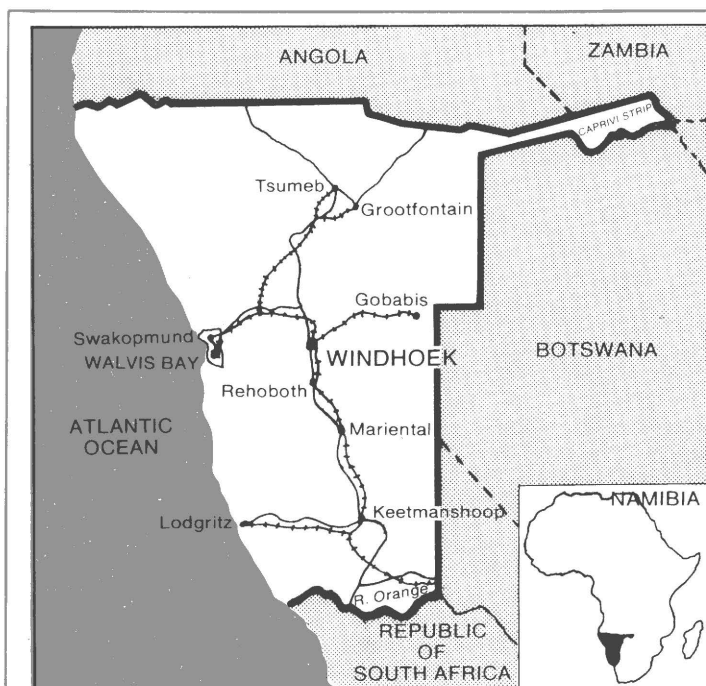
Oumar Alpha Sy sees the commercial reorganization of the cattle and meat market as a third perspective to work for by the provision of the necessary infrastructure in the major marketplaces of the community.

The realization of these various projects, in addition to those which are already operative in the trade field and in agriculture generally, for example, shows how the CEAO has passed the stage of being a simple customs union and is reaching the point where there is wider harmonization and economic integration, and an active policy of economic cooperation. □ R.N.



Future cattle market controllers study at the rural polytechnic institute in Kabidougou (Mali)

(1) The West African Economic Community of Ivory Coast, Mali, Mauritania, Niger, Senegal and Upper Volta.



Namibia

Namibia is the Achilles heel of South Africa's regime of apartheid. It was never one of the Boers' colonial conquests, but has long been claimed by Pretoria, largely, no doubt, because of its vast mineral wealth (gold, diamonds, uranium, etc.) and fish resources and because it could be used as a shield around South African policy. Namibia covers 800 000 km² and has one million inhabitants, including 90 000 whites. It has so far been a wall impervious to all attempts against a system which, since the end of World War II, has been unknown except in South Africa—racialism as a political doctrine and a system of government (see below). But the wind is changing. L.P.

"The decolonization of Namibia"

A thesis by Cameroonian diplomat Jacques-Roger Booh

Jacques-Roger Booh, minister-counsellor at the Cameroon embassy in Brussels, recently presented an important doctoral thesis at the University of Paris I on the decolonization of Namibia, the former German colony which the League of Nations (forerunner of the UN) placed under South African mandate. It is important in that very few works of this type deal with the legal, economic and political problems of Namibia and South Africa, although these issues are relevant to the future of the whole continent.

Mr Booh first describes the political awakening of the black population in this region "so long forgotten by the influential mass media and denigrated by foreign politicians and financiers, who profit from colonial-type exploitation instituted by the white minority's system of apartheid and racial discrimination. The wind of freedom", he says, "seemed to have stopped at the banks of the Zambezi, to the great satisfaction of the government of South Africa and its economic partners, who had no intention of improving the lot of mil-

lions of Africans who, as Aimé Césaire said, had been deliberately filled with fear, made to feel inferior and reduced to trembling, grovelling, barbarity and despair".

Mr Booh considers that "the dismemberment of the Portuguese empire and the development of the armed struggle in Namibia and southern Africa have destroyed the aggressive serenity of the racialists and created objective conditions that are favourable to qualitative changes". Similarly, South Africa's defeat in Angola has destroyed the myth of Pretoria's military invincibility and restored the confidence of the liberation movements of southern Africa and Namibia in particular. This is why, J.R. Booh says, "everyone in Africa (and the world) understands that freeing Namibia and the rest of southern Africa from colonialism and apartheid will be a major political event with a profound and positive effect on the history and the future of the whole of the African continent".

Mr Booh feels that Namibia cannot

but evolve in this way, despite the "legal battle that South Africa has kept going, artificially, for 30 years in an attempt to divert international opinion away from the annexation of the territory". It was a British journalist who summed up the problem best by saying that "a mandate has been stolen and the thief is vehemently manifesting his innocence". As Mr Booh sees it, "behind the legal pretexts that South Africa has so cleverly developed and behind the supporters of apartheid, there lies the real racial, economic and strategic dimension of the Namibian issue". For, he says, "this racialism is not a simple expression of immoral or emotive prejudice. It is an aggressive system of exploitation, sustained and supported by an international network of economic, political and military structures."

"This is why", Booh concludes, "the dismantling of the structures of apartheid in Africa is the priority aim of the African states of the OAU and it is an aim they will achieve with the gradual success of the liberation movements of Namibia, Zimbabwe and, of course, South Africa." □

OCAM

The schools in francophone Africa

by Sidney MOUTIA(*)

The Organisation Commune Africaine et Mauricienne (OCAM), whose member countries are Benin, Central African Empire, Ivory Coast, Mauritius, Niger, Rwanda, Senegal, Seychelles, Togo and Upper Volta, has established over the years a number of specialized agencies with the objective of pooling their resources and activities towards development. The present paper reviews those specialized agencies which have particular reference to the field of training. The word training is used in preference to education because the latter in its classical meaning, would be misleading in reference to what the objectives of these agencies are and to their actual performance.

What are those specialized agencies ?

They are known by different names, but they all have one thing in common: they have been established by decision of the Conference of Heads of States and Government of OCAM, which is their highest authority.

They all have autonomy in the fields of administration and finance, and that is exercised by a board of governors and a director. The board of directors consists of ministers responsible for the particular department involved in all member states participating in the agency; it meets at least once a year and takes decisions concerning general administrative and financial matters which are then executed by the director, himself appointed by the board. This general pattern has been successful and the chairman of the board is one of the ministers, and remains in office for a year although his mandate can be renewed.

The agencies are multinational establishments and the host country, although it affords protection and assistance to the agency on its territory, does not control its activities; equally the agency has close ties with universities and institutions in the host country, but it has a personality of its own. Such an arrangement has ensured the international character of the agencies while at the same time maintaining a high level of training.

We will now give some information on the specialised agencies individually.

The Ecole Inter-Etats de science et médecine vétérinaire is in Dakar: this school of animal husbandry and veterinary science is the only one of its kind in the OCAM countries. It is housed in temporary buildings which the University of Dakar has graciously placed at its disposal and also draws on French technical assistance at the university for teaching facilities. Land has been given to the agency by the Senegalese government for the permanent buildings and a request made to the European Development Fund for financing the building has been favorably received. An agreement is also being signed with France regarding technical cooperation. The first group of students are already back in their respective countries and their services are highly appreciated, the evidence being the increasing number of request for admission to the school.

A part financing of the complex has been obtained from the EEC which has given 4.5 million units of account, and OCAM is now looking for US \$ 2.25 million.

The Ecole Inter-Etats d'Ingénieurs de l'équipement rural (EIER) has its permanent building in Ouagadougou across the road from the university. It produces engineers in all fields connected with rural development and being sited in a Sahelian country, it is particularly concerned with problems

of hydrology and solar energy. It is essentially a training establishment and the students are already at work in their respective countries.

The project is almost complete and only US \$ 150000 are needed.

The **Institut Africain d'Informatique (IAI)** trains students in the field of computer utilisation: programmers and system analysts. That school is in temporary accommodation in Libreville kindly provided by Gabon since 1972 and it has stayed there too long for the convenience of everybody. A request has been made to the EEC for help towards financing the buildings required, but up to now no positive reply has been obtained. Informatics is, with statistics, a tool without which planning and development mean hardly anything these days. The school is the only one of its kind in francophone Africa and is used, like other OCAM schools, by non-OCAM member states. The investment required for the permanent buildings is estimated at just over US \$ 23 million which, if related to countries interested in the school, amounts to less than US \$ 2 million per country — and it is that amount which it has not been possible to find. Yet the OCAM countries have made a considerable effort in terms of their GNP per head. The running costs of the establishment are financed by the individual member states, with additional support from France mainly through teaching assistance.

EDF has contributed 500000 units of account for the improvement of existing facilities, including the building to house a computer which France has donated to the institute.

The Centre Africain et Mauricien de perfectionnement de cadres (CAMPC) is in Abidjan next to the university, the accommodation having been provided by France. This school of business management aims to train first class executives to take over the management of businesses in francophone Africa. No such centre exists in any other country. It should perhaps be said here that the large number of non-Africans employed as executives is not necessarily conducive to the best relations between, employers, employees, the state and the company. That aspect was fully realised by the group of French companies operating in Africa and it gave full support to the school.

One particular aspect of that school is that it conducts no entrance examina-

(*) Secretary-General of OCAM.

ation and has no unsponsored students. The latter must come from business or industry, private, state or parastatal, and while at the school they remain on the staff of their companies. They can carry out particular project studies at the school with reference to their particular companies and that information is not necessarily made public. The school has had a slow start because of the nature of its recruitment; however, the formula is being increasingly appreciated and a certain number of state-owned and parastatal companies or institutions are sending their executives to be trained as top class businessmen. Teaching at the school is provided by French assistance and from OCAM countries which share the budget, but business management is a field where English-speaking instructors would have a lot to offer.

Some US \$ 650 000 are needed to complete the facilities.

The **Ecole Africaine et Mauricienne d'Architecture et d'Urbanisme (EAMAU)** is a school of architecture and town planning located in Lomé. It is one of three schools established in 1976 and has been able to admit its first students thanks to the Togolese government, which has provided

accommodation and facilities at the University of Benin and the Cacavelli Centre for Public Works Studies, and also to the speed with which member states have responded to the secretary-general's invitation to participate in its setting up. UNESCO gave quick support to the scheme and one of its experts spent a month in Lomé to work out the syllabus and other details with the temporary director of the school.

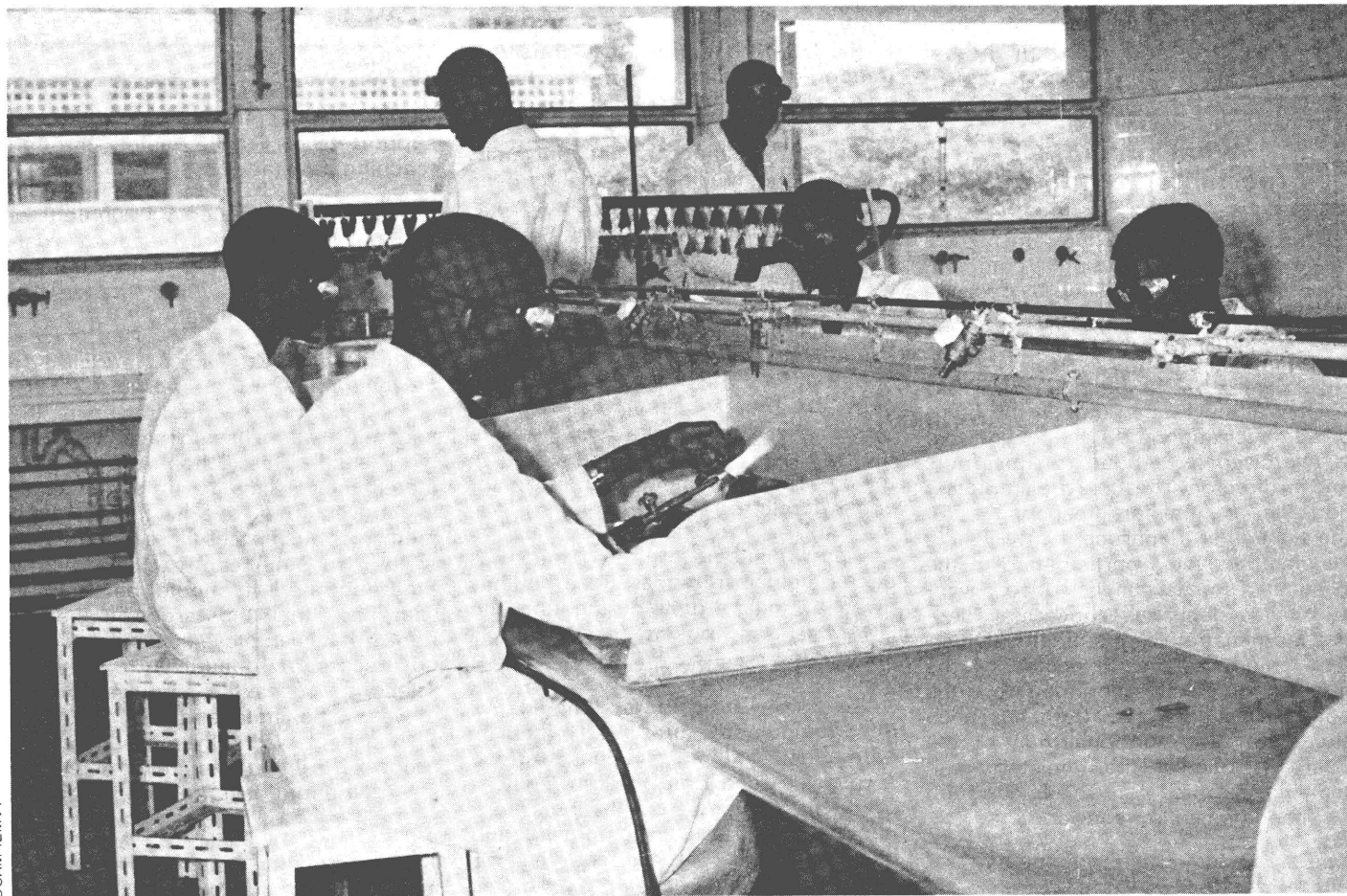
This school will have to find finance for its buildings and equipment: as in all other cases, land is donated freely by the host government, and soon we shall be on the hunt again to tap sources of finances. It is expected that aid-giving countries will see in this project a reflection of their own opinion that architecture and town planning in Africa should not be a replica of what happens in developed countries, and that the mistakes that have led to increased deterioration of the environment and the quality of life should be avoided.

In the initial stage, the project will need US \$ 1.75 million.

The **Institut Africain et Mauricien de Statistique et d'Economie Appliquée (IAMSEA)** is a school of statistics and applied economics in Kigali, also

established in 1976. It is the result of the wish of the OCAM board to move the training of statisticians from Paris to Africa. The pattern of training in those fields in former French colonies was not quite the same as that obtaining in former British colonies; in the latter case, the universities of the independent states gave degrees in economics and statistics as the universities in the United Kingdom did, which has not so far been done in the OCAM states. So with EEC assistance a centre was established in Paris (the CESD) to train statisticians and economic statisticians for developing countries. For years that centre had provided training at two levels for French-speaking students from the developing countries: the *ingénieur de travaux statistiques (ITS)* and the *ingénieur statisticien économiste (ISE)*. It is the ITS training which will now take place in Kigali, in accommodation and surroundings provided by the Rwanda government: part of a high school — the *Collège Officiel de Kigali*, built with Swiss assistance — is at the disposal of the school. Scholarships have been arranged by France and the EEC, which have both given teaching assistance. The CESD has offered to train one new teacher for the IAMSEA for one session. The EDF has provided a grant of 900 000 units of account for facilities at IAMSEA.

Preparing vaccine at the IEMVT laboratory in Dakar-Hann (Senegal)



OCAM-IEMVT

In the case of that school too, we have to find the finance for its permanent buildings and equipment.

In landlocked Rwanda, the investment required is US \$ 4.7 million.

The **Institut Africain et Mauricien de Bilinguisme (IAMB)** is the third school established in 1976. It is in Mauritius and is at the stage where the Mauritian government has just designated an officer to get it started. Its importance is evident: although primarily its objective is to produce translators and interpreters in French, English and Arabic, it will also indirectly give access in their mother tongues to the millions of Africans who have so little knowledge of either European languages or Arabic that they are unable to derive the benefit of the teaching in science, technology and culture available in those languages. Assistance has been requested from the United Nations to provide a consultant to assist the director for a year. The Agence de Cooperation Culturelle et Technique has sent a mission to evaluate the needs of the school. Eventually we shall have to go round for assistance for the permanent set-up of the agency.

It is estimated that US \$ 1 million will be required.

Finally, mention should be made of another new agency located in Upper

"No development is valid if it is imposed; it must dovetail into the culture of the people. The introduction of scientific methods and modern technology is essential for progress towards the goal of improving the quality of life. (...) But we must at the same time promote culture."

Volta: the **Centre Inter-Africain de Production de Films (CIPROFILM)**. Its purpose is to produce films to train people in some aspect of development or another: agriculture, education, health welfare, technology, the list is long. However, the people capable of staffing such a centre are few and the equipment at their disposal is inadequate. The Upper Volta government has designated an officer at the request of the ministers responsible for the project in the members states, and he is to report on the progress made within a year. The Secretary-General of OCAM has to offer him all assistance in getting this centre started. At the moment, all we have is a keen man and a desk; he will plan his requirements and establish contacts, the need however is for consultants and experts and

later for technicians and equipment in order to be able to produce the films and teach us how to produce the films. The urgency is highlighted by the experiences that the classical methods of training and information have little chance of success in our countries where the literacy rate is low, and it is under those conditions that audiovisual systems come into their own. Given proper equipment, staff and training such a centre will go a long way towards an improvement of living conditions in rural areas.

Some US \$ 2.5 million will be required for its establishment.

It would be incomplete to end this paper without mention of the **Institut Culturel Africain et Mauricien (ICAM)** which is established in Dakar, and as with other agencies, is largely supported by the host country. Its value is unique and cannot be replaced by anything anywhere in that it has a role of promoting African culture, not just for culture's sake, for the intellectual satisfaction of students and scholars, but because culture is the foundation of development. No development is valid if it is imposed; it should dovetail into the culture of the people. The introduction of scientific methods and modern technology is essential for progress towards the goal of improving the quality of life; no leader rejects it. It is not even a question of choice between staying as we are and the introduction of such methods. But we have simultaneously to promote culture because culture is the dynamics of civilisation, it is its spirit. How can one expect development if it alienates civilisation and culture? Culture and development go hand in hand and the final objective of our efforts is man.

The investment required is US \$ 2.2 million.

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The Secretariat General of OCAM has the task, therefore, of coordinating these efforts. It does not run the specialized agencies, nor give them instructions, but it is the link between them and the heads of state and government and also between themselves. It has to foster close cooperation, and to seek assistance when required, not least to stimulate the funding of both the recurrent and the investment budgets. It is not easy, but the support it gets from member states is considerable and the challenge presented by the research of means to obtain the objectives is stimulating. □ S.M.

Learning the modern way in a language laboratory



BURUNDI

Interview with Lieutenant-Colonel Edouard Nzambimana, Prime Minister

Burundi, which has a large population and beautiful scenery, is landlocked in the heart of Africa some 1200 km from the nearest port, Dar es Salaam. Current planning aims at increasing food crops and diversifying agriculture, although coffee, the main crop, has not been pushed into second place. Since the second republic was proclaimed, Colonel Jean-Baptiste Bagaza, the head of state, has been trying to improve the economic situation through the Uprona (unity and national progress) party. Lt Col Nzambimana, who is both Prime Minister and Minister for Planning, describes what has been attempted and what has been achieved so far.



Lieutenant-Colonel
Edouard Nzambimana

► *Prime Minister, since the change of regime some 18 months back, what has changed in Burundi generally, and what are the most noticeable improvements?*

— The biggest change, I think, is our overall view of the future. We have many political and economic problems. In the past there was a tendency to neglect things; the policy was to bury one's head in the sand, if you like. But I think that, at the moment, there is a genuine desire to tackle the country's political and economic problems and this, as I see it, is the greatest change at the level of the country's leaders. The most striking thing since the new regime was set up is, first and foremost, that the political and social climate is much healthier. I think there is a kind of freedom among the people of Burundi at the moment which makes them want to play a greater part in preparing the country's future. They discuss things within the party framework and they ask the leaders ques-

tions at meetings and the leaders answer or explain the problems involved so that solutions can be found.

Our political problems are ethnic ones and they are now dealt with very frankly in the Uprona party committees.

Then, the social situation has improved. As in all developing countries, there used to be a certain amount of injustice. We had reached the point where there was not abuse, but inequality which we had to try to eradicate. The tax system was unfair, so we dropped the tax levied on peasant farmers. There used to be contracts which bound the peasant farmers to certain tenancy arrangements, so we did away with them. We also tried to improve the salaries paid to cadres and civil servants who had not had a rise since independence in 1962.

Improvements have also been made

to the system of management of state property. State property is sometimes looked upon as a personal heritage and managed within the framework of the family or the tribe. We have set up a system of control for the better management of public funds and we have begun a series of measures to improve things here. We do not want just to be negative and we have put ideas into practice in all fields so that people will be more responsible in future. Another important thing as far as the national economy is concerned is that we are trying to invest much more. There are banks and savings organizations with funds available which we can use for investments to get certain development schemes off the ground, particularly in the agricultural sector.

We have also tried to develop cooperation with our neighbours. At one stage Burundi was preparing projects with Tanzania and Rwanda and once the second republic was proclaimed, we reopened the meetings to discuss them. Institutions for the project were set up.

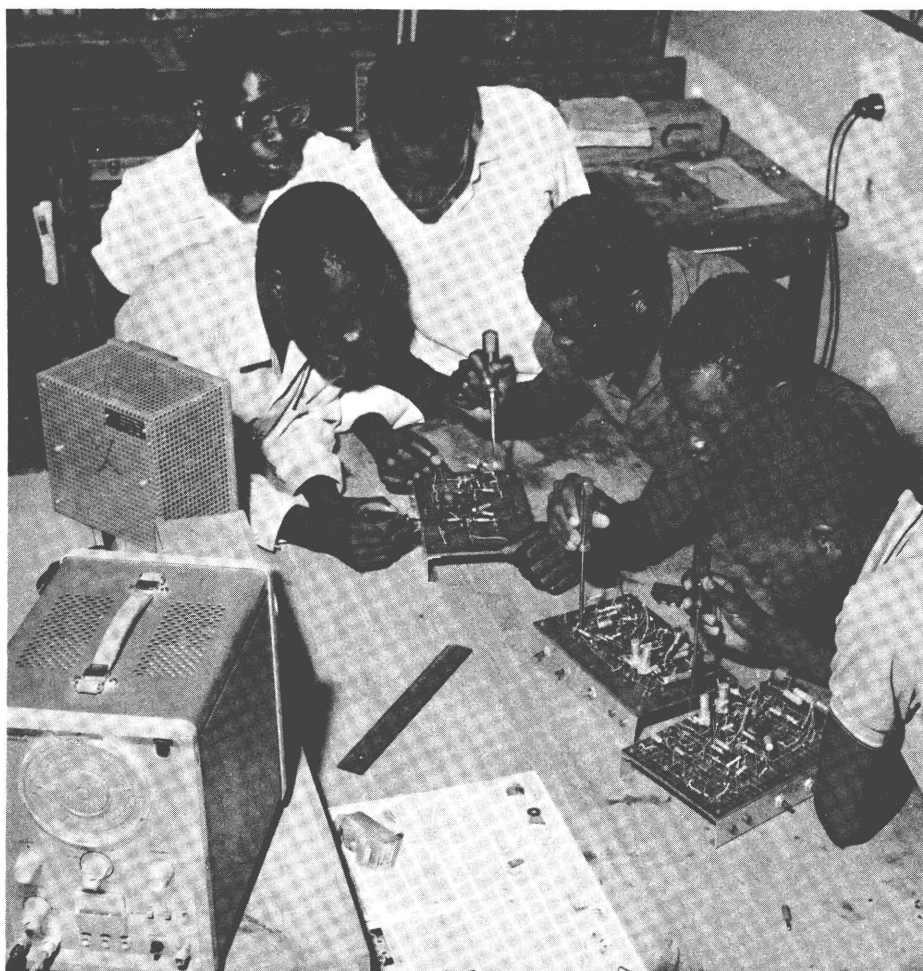
The striking thing at the moment is that people are encouraged to work more. In the past a lot of people spent more time hanging around cafés than working, but steps have been taken both to force them to stay at work and to promote work. This is why we have brought in what we call development works, on Saturdays, when people combine to try to do something for the community.

► *What you call "party day".*

— Yes. And generally speaking, I think it works. So that outlines what we think we have achieved in a short time.

► *Has Burundi's foreign policy changed at all?*

— I don't really think so. However, we do want to be much firmer in our external relations. When we support a cause, we really do so in word and in deed. But we are non-aligned because we are convinced that it is not in the interests of the countries of the Third World, which still have a long way to go with their economies, to get involved in military alliances. We feel that by creating a climate of detente we can lessen the danger of situations



Young electricians in a school financed by the EDF at Bujumbura

which are a threat to world peace. And we think relations with our neighbours are extremely important, as I said before. Our country, I feel, thinks that being on good terms with its neighbours is more important for development than pouring vast sums of money into an army.

The problem of being landlocked

► *There is one major handicap to development in Burundi. The country is landlocked and that makes transport, whether by road, waterway or air, very important. How much emphasis will the five-year (1978/82) development plan, now being drawn up, place on transport?*

— Of course, being landlocked is a major problem as far as development is concerned. I think our shortest route to the sea is to Dar es Salaam and that is 1200 km away. We can do nothing without an outlet to the sea, so during the five-year plan we are going to make a special effort with our roads and spend almost 13% of the financing on modernization. We are going to improve access for aircraft by laying

new runways, which will bring us up to an outlay of 17 or 18% on transport, a really vital sector.

► *A decision was taken in Brussels recently to provide EDF financing for the strengthening and surfacing of the Kigali-Butare-Kayanza road. What do you expect this regional project to do for your country?*

— This is a very important project. I think it is one of the first projects for which EDF financing was requested, but as it happened, it is being financed now. This is the second most important route as far as opening up Burundi is concerned. We have the Dar es Salaam route from Bujumbura and, with the surfacing and strengthening of this new road, we will be able to go via Rwanda and Uganda to Nairobi. Another important route is the link with the neighbouring country, since this enables us to get to Kisangani in northern Zaire via the Transafrican.

► *Is the port of Bujumbura, which handles most of your import and export traffic, adequate for the moment?*

— As you know, this port was designed and built to serve Rwanda and eastern Zaire. At the moment it is being used to just over 80% of capacity, so it is quite adequate and there are no problems here.

Population density and food crops

► *Burundi has a high population density, which is still increasing slightly. Most of your arable land is already in use and food crops are very important. Are the prospects in this sector good?*

— This, after the problem of being landlocked is one of the most difficult things to cope with. Our population density is very high but the people are interested in farming in spite of the fact that there is not a lot of land available. The present situation is not very good, as we have reached the limit of our possibilities. And then this year and last year we had a drought. The problem was not a major one, since, very fortunately, it did not last long. But it did not help as it meant that some harvests were not up to standard.

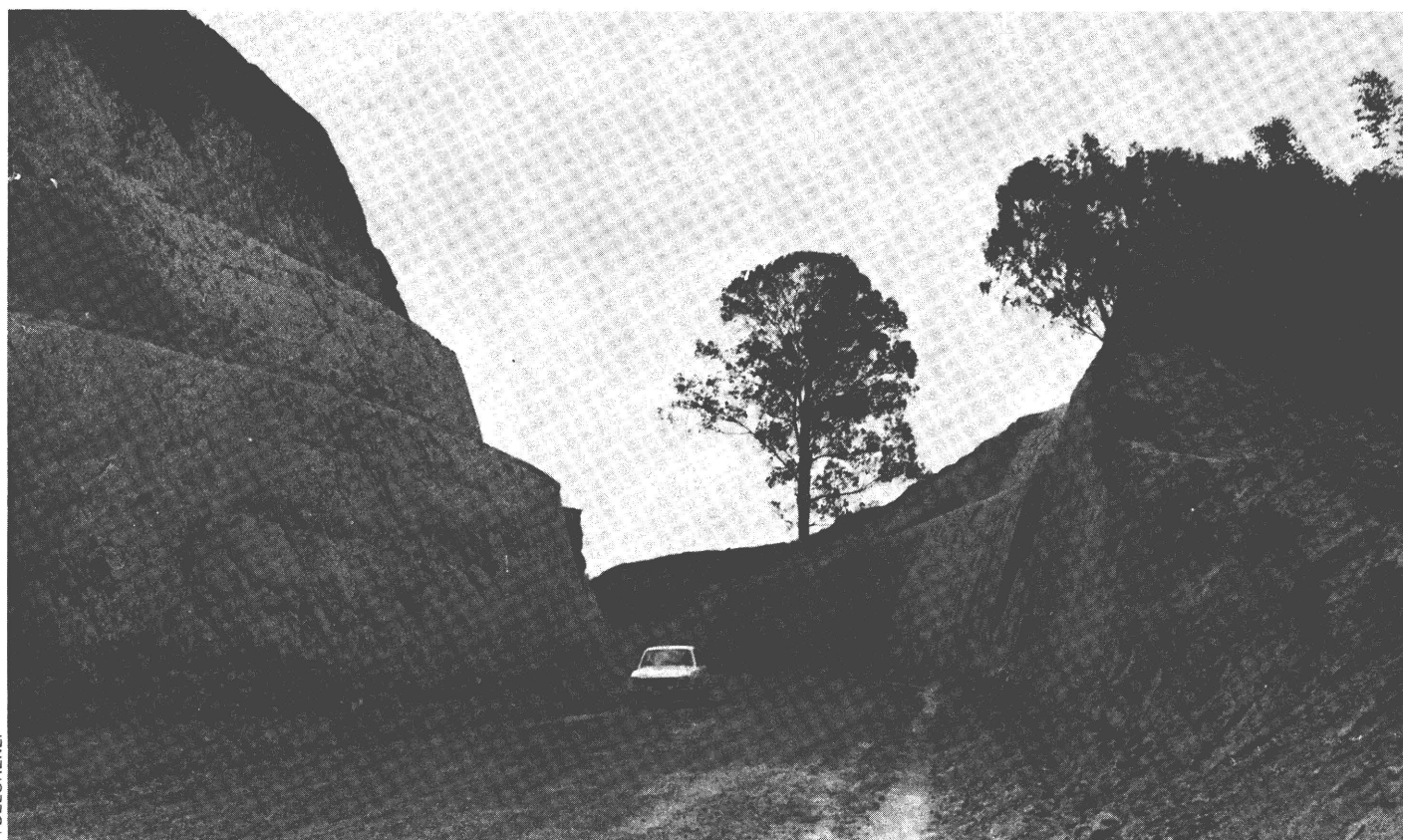
We are concentrating on food crops at the moment and one of the most important EDF projects in Burundi is the Imbo rice-growing scheme.

► *A food product storage and marketing company was to be set up last summer. Has it been effective?*

— Things are still at the planning stage. The aim of the company is primarily to promote food crops, since, so far, our people have only worked to produce food for themselves. We could encourage the peasant farmers to produce for storage by paying them a reasonable price because they are used to dealing with speculators who bought low and sold very high. So our idea is to create a reserve for storage. So far, we have produced the official text bringing the company into being and we have negotiated a 2250000 EUA loan from the African Bank. Now we are negotiating for German technical assistance to help set up the company. We are behind schedule, but this is an extremely important venture and we shall do our utmost to see that everything is ready for next season.

Coffee: 80% of total export receipts

► *Burundi's main export crop is coffee. How do coffee production and coffee prices stand at the moment?*



Improvement and modernization of Burundi's road network

— Production was not good last year; it dropped for climatic reasons. There was a drought and then there was too much rain, although we recouped our losses thanks to fairly high prices. This season's production should be good, although prices, so the World Bank says, are going to drop. We think we should keep on producing coffee. We want to increase the productivity of existing crops and we have projects with the IBRD and Kuwait to help the local farmers improve their coffee growing techniques.

Diversification of crops

► *Tea growing was developed, with EDF help, to diversify your agricultural production. Are the results encouraging?*

— I think they are extremely favourable, although, obviously, we had difficulties getting a number of projects started. We now have three factories, at Tesa and Goura, and we should be building two more in the coming years. The results are very encouraging and we are currently able to export just short of 1500 t. If we continue at this rate, I think we shall have extremely good results with our tea industry. And one very important thing about tea is

that, with the help of the EDF which has financed most of the projects, we have managed to get the local farmers interested. Areas which were set against tea growing to begin with are gradually taking an interest and beginning to see cash returns, whereas they were extremely poor before. These projects are therefore very useful as far as the economy is concerned.

► *Cotton growing seems to have fallen off a little in recent years. Are efforts being made to expand it again?*

— Cotton has certainly been neglected since independence. We left marketing and so on to the private sector, which did not show a great deal of initiative, and now we want to develop cotton again by getting the peasant farmers interested. We have already raised the price paid to the producer: it practically doubled last year and the farmers are much keener now. We are going to provide better extension services for the farmers, bring many more workers into cotton growing and get everyone to use the best seed currently available. We shall be introducing a new, highly productive strain throughout the country this year. The target for 1980 is to supply our own textile factory and try to export as well. And we shall be starting to mechanize cotton growing next year.

Nickel, oil and energy

► *A large nickel deposit was discovered in 1973. Is it going to live up to expectations?*

— We have continued with our studies since 1973 and gradually proved that the deposit is a large one. However, a great deal of capital will be needed to exploit it. We are now checking out all the possibilities and the situation seems favourable. Once this investigation is over and we have figures to back it up, we shall be able to tell whether or not we can expect financing from abroad.

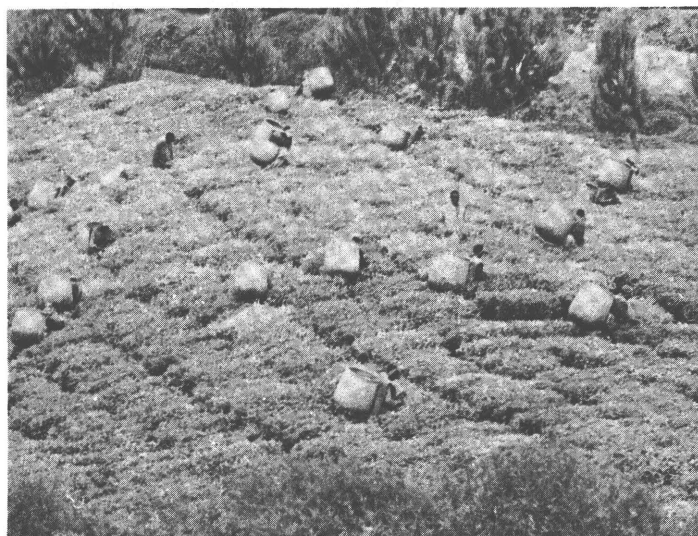
► *Oil has been traced in the Ruzizi plain and in Lake Tanganyika. How is the investigatory drilling going?*

— This project has been on the drawing-board for some time. The EEC financed geological studies in 1964/5, but the results could not have been encouraging as the matter went no further. The continuation of this project would involve a lot of money. It would also involve certain risks and it is because of these risks that we feel we cannot afford to finance it. However, if anyone wants to run the risk at their own expense, they are welcome to do so.

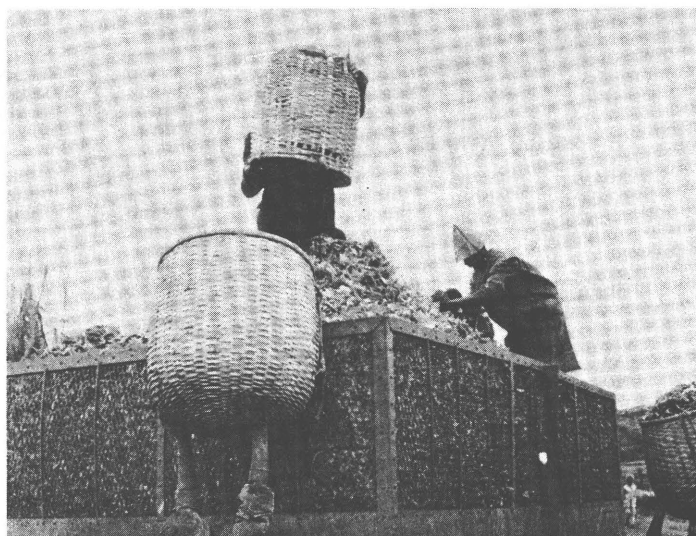
Tea, a major product in Burundi's economy



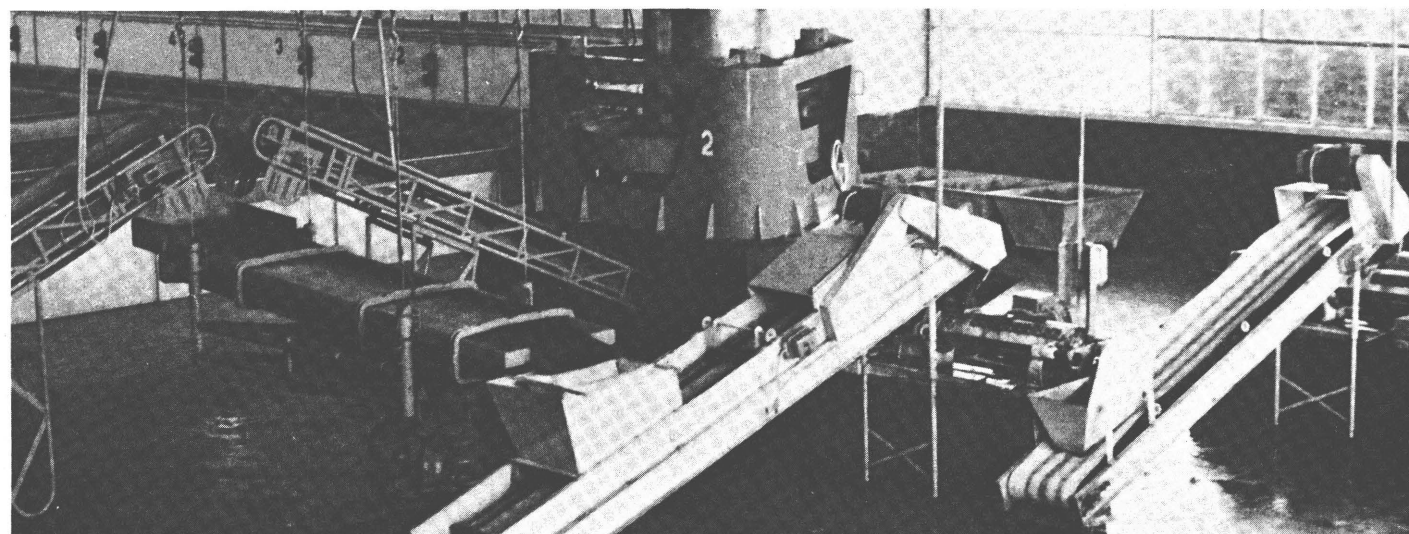
Tea, an important contribution to the diversification of agriculture



Tea picking



Collecting tea



Teza tea factory

BURUNDI

Some facts and figures on the geography and the economy

Area:

27834 km².

Population:

3655000, a population density of 131 inhabitants per km² (1974) and a growth rate of 2% (1960-74).

Capital:

Bujumbura (pop. 120000).

GNP:

US \$330 million at market prices (1974), giving US \$90 per capita.

Main products:

Food crops: sweet potatoes, manioc, peas and beans, maize, bananas, rice, etc.; cash crops: coffee, cotton, tea; cattle; fish (Lake Tanganyika).

Main exports:

(1976): coffee (86.1%); cotton (4.7%); tea (2.3%); hides and skins (2.2%).

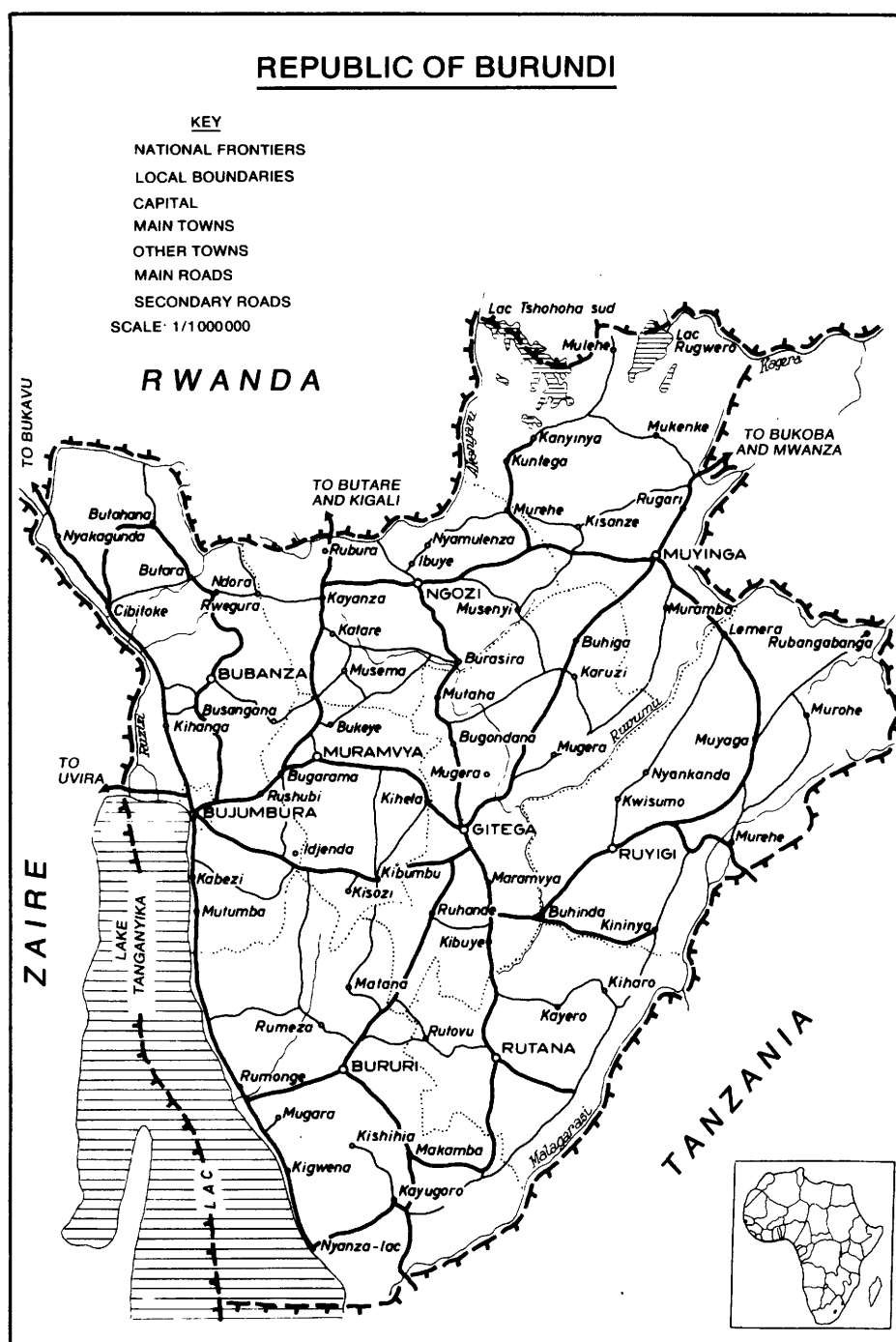
Currency:

Burundi franc (1 EUA = BuF 112.7 on 20 March 1978).

Economic situation

Burundi's economy is almost entirely agricultural and is dominated by one crop, coffee, which provides a large percentage of the country's export earnings (86% of the total in 1969-1974). More than 96% of the working population are in agriculture and more than 95% of the country's exports are agricultural products.

Coffee (mainly arabica) production has varied in recent years but has been somewhere between 20000 and 30000 t.



The Burundi Coffee Company, a mixed company which sells the country's main product, was set up in 1976. The spectacular rise in coffee prices in 1976-77 gave Burundi a considerable boost to its foreign exchange earnings which rose from BuF 3140 million for some 17000 t exported in 1975 to BuF 4900 million for 21330 t exported in 1976. Dependence on coffee exports to American and Canadian markets has been reduced.

Modest attempts are being made to diversify by developing cotton and tea production. Tea is the only industrial crop which is constantly expanding and this is thanks to the gradual entry into production of EDF-financed tea plantations. The other traditional exports, cotton and hides, are on the decline and Stabex payments have in fact been made for them.

Food production is generally stagnant. Rice is the only exception and here production has increased constantly (from 3000 t in 1970 to more than 7000 t in 1975).

With more than two million head of cattle, stockraising occupies an important place in Burundi's socio-economic organization.

Fish, from the relatively large resources in Lake Tanganyika, is as important as meat in the local diet. Production varies a good deal from year to year but, generally speaking, Burundi has the best fishing facilities of all the countries round Lake Tanganyika, despite having only 20% of its territorial waters.

There has so far been very little mining, but a nickel deposit of international importance in both quality and volume could mean that this sector will be crucial to Burundi's economy in the future. The existence of other, more easily exploitable resources elsewhere in Africa and the fact that on-the-spot processing into ferronickel (vital in view of the country's geographical position) depends directly on very high investments and indirectly on the relevant infrastructure, temporarily limit prospects in this sector. Burundi's extensive peat reserves (500 million t), which could provide energy to complement the HEP potential, may also prove an important resource. □

► *Still on the subject of energy, China and Germany are helping you to build two large dams. Will they mean that Burundi can meet its own energy needs?*

— In principle, if Burundi begins to industrialize, the Chinese and the German dams now under construction should just cover our needs. If we want to meet demand in the long term, and particularly if we start other projects, then there will have to be regional projects to supply us with the energy we need.

► *The Economic Community of the Great Lakes, which combines Burundi, Zaire and Rwanda, has launched a study for an electricity network for you and the two other countries. How far has this got and, in particular, what stage has the Ruzizi HEP station project reached?*

— Before the study, we set up the Association for the Electrification of the Region of the Great Lakes with Rwanda and Zaire and it has since been working with EEC-financed experts. The study is now well advanced and we are waiting for it to come out.

The importance of regional cooperation

► *So, for energy and transport in particular, regional cooperation is very important for Burundi.*

— Yes, very important, indeed. We are doing everything in our power to develop regional cooperation. Burundi and Rwanda have even embarked on industrial cooperation together and there are other sectors, tourism and trade particularly, where we want to cooperate with all the countries round us.

The right education for the country

► *A programme of educational reform is under way. Can you outline it?*

— We have had the same education system since independence and it has gradually become more and more unsuitable for our needs. So we had to reform. The main principle at primary level is to train young children for rural life so that, if they are unable to continue with their education, they still find it easy to fit back into a rural environment. In addition, we now prefer to teach all primary classes in our native language and French is taught

as a foreign language. The results are excellent; the children make much more progress. At secondary level, where general education used to be provided, the aim is now to run vocational training courses. We want many more medical schools and many more vocational centres to provide training in agriculture and stockraising. And we want to adapt higher education to Burundi's needs. Students must be channelled into specific branches of study according to the country's future needs.

► *So the idea is to gear education more to the needs of the country by making it less theoretical, by adapting primary schools to the rural way of life and secondary and higher education to general needs?*

— Exactly.

Improving stockraising

► *What is the outlook in the stock-raising sector?*

— There are many problems, since, as things stand, this sector is competing with agriculture. If our methods were modern and we used forage crops, there would be no problem, but unfortunately our system is to leave the cattle grazing on the hillsides where they compete with agriculture. First of all we want to provide extension services for the herdsmen and encourage them to grow forage crops. This must be started right away to force them to settle their cattle in one spot. Then we want to run cattle health campaigns. There is a lot of disease and we have already started increasing our cattle health stations. Then a lot of our cattle are old and must be slaughtered, so we are seeking markets for the meat in the neighbouring countries, which isn't easy because of the competition from better organized countries, particularly Kenya.

Foreign aid: 60% of all projects

► *How important is external aid to Burundi's development?*

— It is pretty important. In the past it covered about 60% of all projects implemented. We are counting on obtaining 50% of investment under the third five-year plan from abroad. Obviously there is the cost of technical assistance as well and this will be increasing.

► *Mr Outers, the Belgian minister for cooperation visited Burundi recently. Belgium is, I think, your biggest*



Developing the Imbo plain

source of bilateral aid. What fields does this aid cover?

— When Mr Outers came to our country, we agreed that Belgian aid should remain concentrated on the same sectors as before, that is to say on agriculture, education—the Belgians being the foreigners who know most about our system of education—and health. I think Belgian aid over the coming years will be channelled into these three sectors.

► *You mentioned the EDF in connection with agriculture. Burundi has been receiving EEC aid for some years now, as a party to Yaoundé I and II before joining the Lomé Convention. I should like to ask you for an overall assessment of EDF aid in your country and whether there have been any particular problems with it.*

— The EDF is one of the main sources of financing for our development and we have had something like 110 million EUA since the first Fund. We had about 5 million EUA from the 1st EDF and we have had about 58 million EUA from the 4th, so that aid has increased tenfold in a very short time. The EDF was and still is particularly involved in economic infrastructure, especially roads. Practically all the tarred roads we have at the moment were financed by the EDF. In the social sector, it has enabled us to build hospitals and it has also given us a good deal of aid with professional training. Schools have been built to train agric-

cultural technicians and secondary teachers and many study grants have been provided. In the agricultural sector, obviously, it was the EDF which made the Imbo tea project possible.

At the moment I think practically the same are being covered by the EDF, with a lot more financial aid, and we have asked for more financing for food crops. I had the opportunity to talk to Mr Cheysson when he came here and I think the food crop projects should be submitted in good time. The 4th EDF has brought in the idea of regional projects, which are extremely useful, particularly the Kayanza-Butare-Rwanda road and perhaps the East African transport system as well.

We very much appreciate EDF aid. However, one big problem is the time we have to wait after the financing agreement before we receive the funds, although this has also been partly due to the fact that our authorities have not always been in a position to submit projects as the EDF wanted them. I think things have improved in recent years and the project presentation procedure is better coordinated. There is another big problem with EDF projects and that, as the Commission Delegate well knows, is our shortage of cadres. These, I think, are our two main handicaps, although I should like to add that the lack of cadres means we also have a problem with starting firms, of which there are far too few. We are now trying to combine with Rwanda to issue calls to tender that will attract firms from

western or eastern Africa or further afield.

► *A last question. Negotiations for a further EEC-ACP convention will be starting this year. Burundi has considerable experience of European aid and I should like to ask you, whether, in the light of this, you have any hopes, or any changes or improvements to propose before or during these negotiations.*

— We have many hopes. As you know, Lomé was almost revolutionary compared to Yaoundé. This was particularly true of commercial cooperation, Stabex, the increased financial cooperation and regional cooperation, which are the four most important aspects of Lomé I as we see it. We hope, obviously, that because of the large number of people taking part in the negotiations, because our needs are greater and because of inflation, more money will be allocated under this new convention. We should also like to see emphasis laid on the problem of landlocked countries. These countries have huge handicaps; transport costs are very high and there are delays in obtaining equipment. I think there should be a special section on landlocked countries and our delegation will do its best to get one included.

Finally, we hope that the spirits of the negotiations for the future convention will be echoed in other international bodies, like UNCTAD. □

Interview by
ALAIN LACROIX

Lomé Convention

Summary of indicative programme and progress to date

The indicative programme drawn up by mutual agreement between Burundi and the Commission was signed in November 1975. It involves some 58 million EUA, divided as follows:

- agriculture: 56%;
- social development: 17%;
- economic infrastructure: 16%;
- trade promotion, technical assistance & studies: 7%;
- industrial/craft development: 4%.

As of mid-December last, 39% of the amount of the indicative programme had been committed.

Agricultural projects

The projects approved by the EDF Committee which complete previous EDF projects. A new scheme to plant trees over 3200 ha should also be mentioned. Most of the agricultural projects in the indicative programme should be approved by the Community by mid-1978.

Social development projects

These cover education, health and training grants.

Education:

— The construction of the faculty of science and a students' hostel was approved by the Commission on 10 December 1976.

— There are still problems with the project to extend the university institute of educational science, since this will probably be integrated into the University of Bujumbura.

Health

— Construction of a new hospital at Kirundo.

— Improvements to four existing hospitals, approved on 11 December 1977.

Training grants

The multiannual study/training course grant programme was fully approved by the Commission on 29 March 1977.



Providing better pre-natal hospital care

Social infrastructure projects

The only project being assessed here is the Kayanza-Ngozi road project, part of the regional Kayanza-frontier-Butare road (approved on 11 November 1977), which meets up with the Butare-Kigali highway (Rwanda). This is due to be submitted to the EDF Committee in early 1978.

Industrial development projects

2.2 million EUA has been earmarked as a contribution to the financing of projects involving small and medium-sized businesses via the National Bank for Economic Development.

Regional cooperation

When the EEC programming mission went out to Burundi, two regional projects were adopted (Article 47 of the

Lomé Convention) as being of priority importance to the country:

— The Kayanza-frontier-Butare road. This project was approved on 11 November 1977 and the invitation to tender for the work has already been issued.

— The Ruzizi HEP station. Rwanda and Zaïre are also involved in this project. Financing (1.2 million EUA) for the study was approved by the Commission on 29 March 1977.

In addition, 10 million EUA has been provided, under regional cooperation for improvements to the East African transport network, a scheme with which Burundi is concerned in that it will help open up the country.

Stabex

In 1975, Burundi received Stabex payments totalling 1484000 EUA for cotton and hides and skins.

Food aid (provided outside the Lomé Convention)

	Cereals	Price	Milk powder	Butteroil
1975	1 000 t	230 000 EUA	—	—
1976	—	—	—	—
1977	1 000 t	140 000 EUA	250 t(1)	350 t(1)

(1) Quantities approved but not yet delivered.

The importance of the Kayanza-Butare road

The Kayanza-Butare road is an important national and regional highway. When the financing agreement for the strengthening and surfacing of the road was signed late last year, it seemed that, by 1981, the capital of Burundi would be joined to the capital of neighbouring Rwanda and that communications in both countries would be very much improved. The EEC Commission Delegate described some aspects of the scheme on *Voix de la Libération*, Burundi's national radio, in an interview from which extracts follow.

"This highway will certainly help to open up both countries. Rwanda will have a road link with Bujumbura which can be used all the year round and from here there is the well-known route to Dar es Salaam. And if one day the

Kigoma-Dar es Salaam railway, which is very old, broke down, Burundi would be able to move its exports out along the Kigali - Kampala - Mombasa route.

What about the future? Another short stretch of road is planned, but this time the project is a national one. This road is from Kayanza to Ngozi, in a region which is of great importance to the economy and must therefore also be opened up. The EDF has perhaps made its last contributions to road infrastructure, since it has already financed the Bugarama-Gitega and the Bugarama- Kayanza roads. And financial commitments to road infrastructure have also been received from other quarters. The Bujumbura-Mutambara road is being built with financing from the ADB and an Arab source. Work on the Gitega- Gicofi road in Mosso is due to be started next year, probably with financing from Germany and, again, an Arab source. I think there are also plans to extend the Kayanza-Ngozi

road to Musinga and, once Musinga has been reached, there is very little further to go to meet up with another road network from Rwanda going towards Nzega in Tanzania, via Rusumo Falls, thereby joining up with the railway.

Once all these roads have been laid, the network will be fairly extensive and the costs of maintenance high. Building a road is one thing, but keeping it in reasonable repair is another and we cannot help here. Maintenance has to be covered by the relevant state budget and the longer the road the bigger the appropriations must be.

Look at the map of Burundi and you will see that, once all these roads have been built, more or less all the regions will be served. Perhaps one region, Mosso-Nord, seems neglected, but I was there recently and I saw a dirt road called Common Market Highway. It was built 15 years ago to open up the region and it is still in very good condition.

So, if you look at this road network, I am sure you will agree that Burundi is fairly well off compared to other countries of Africa." □

EDF help with road-building: vital to a developing economy



Rwanda and Burundi

Strengthening and surfacing of the Kigali-Butare-Kayanza road

(EDF contribution: 34 000 000 EUA)

This project involves strengthening and surfacing the Kigali-Butare-Kayanza road (172 km), part of the main 320 km trunk road between the capital cities of Rwanda and Burundi. The improvements include replacing a dirt road, which is often unuseable in the rainy season, to allow for regular traffic throughout the year.

The aims are to:

- improve access to regions in the south of Rwanda, thereby meeting one of the main conditions for the full exploitation of the country's agricultural potential;
- facilitate trade between Rwanda and Burundi by cutting transport costs and ensuring that traffic flows smoothly during the rainy season;
- link the Kigali-Mombasa road/rail route with the Bujumbura-Dar es Salaam rail/waterway link, thereby

reducing each country's dependence on one link with the Indian Ocean.

The Kigali-Butare section will cost 23 000 000 EUA and will be financed by the EEC as a national project for Rwanda. The Butare-Kayanza section, to cost 11 000 000 EUA, will also be covered by the EEC, this time as a regional (Rwanda/Burundi) project. A total of 34 000 000 EUA is thus being asked of the EEC and will be paid as a grant from the resources of the 4th EDF.

The technical studies for the Kigali-Butare and the Butare-Akanyaru (frontier) sections were financed from the 3rd EDF and the Burundi authorities used existing studies for the Akanyaru-Kayanza stretch.

The work will be carried out by firms chosen after preselection and the international calls to tender, of which three (one per section) will be issued simultaneously. □

Discussion on foreign aid to Burundi

The Burundi government invited a number of foreign delegations to a discussion on foreign aid on February 21-24, on the occasion of the drafting of the five-year (1978-82) development plan.

The basic policy of the development plan reflects the principles adopted when the 2nd Republic was established on 1 November 1976. The aims are to:

- bring about greater social justice;
- organize production so as to ensure that everyone has the means of subsistence;
- interrelate the various sectors

particularly rural development and education;

— resettle rural populations to create centres of development;

— gradually open up the country by a combined effort to develop routes, means of transport and port facilities throughout the whole region;

— use unconventional sources of energy (solar energy, wind power, etc).

Special emphasis has been laid on managerial training and, an appeal has been made to both public and private firms abroad to help finance a number

of investments provided for in the development plan.

Although they have made no definite decisions on their contributions to the series of projects put forward, various countries and organizations expressed an interest in backing them.

The EEC Commission has drawn attention to the existing framework for cooperation with Burundi and the other ACP countries and pointed out the advantage to the country of defining a five-year indicative programme of projects by joint agreement.

This form of cooperation, which the Lomé Convention provides, has also been discussed by the Commission Delegate in interviews on Burundi national radio and in the press. □

New orphanage in Bujumbura

An orphanage has just been built in Bujumbura to house 20-50 of the capital's homeless. Many of Bujumbura's public figures helped, as did various non-profit organizations such as the *Union des Femmes burundaises* and *Femmes d'Europe* (Brussels) and money was also collected at fêtes organized in Bujumbura. A total of 80 000 EUA was collected and there were many donations in kind, particularly children's clothing, and help from a local builder.

The orphanage was the idea of Franziska Stahn, wife of the EEC Delegate in Burundi. When she arrived in Bujumbura in 1973, she was struck by the terrible problem of parentless children. The problem is particularly acute in the towns, since orphans in country areas of Africa are not completely left on their own.

Mrs Stahn's venture has been a success for which the authorities are grateful. At the inauguration ceremony, Mr Nzeyimana, Burundi's Minister for Labour and Social Affairs, launched an appeal "to all men of good faith to help us not just help orphans but all those in need". Wide national press coverage was given to Mrs Stahn's venture. □

The Economic Community of the Countries of the Great Lakes

by Bonaventure KIDWINGIRA (*)

On 29 August 1965, the ministers for foreign affairs and cooperation of Burundi, Rwanda and Zaire (then the Democratic Republic of the Congo) met in Kinshasa (then Léopoldville) to lay the foundations of future regional cooperation between their three countries.

Not long after, on 20 March 1967, the respective heads of state met in Goma, also for the first time. They signed the Goma declaration, which said:

"We undertake to consult each other regularly on problems of common interest and to exchange any information on the maintenance of security in our countries." Thus the Burundi-Rwanda-Zaire tripartite organization was born.

Various meetings of heads of state, of ministers and of experts have been held since then. On 20

September 1976, the constitutive agreement of the Economic Community of the Countries of the Great Lakes was signed at Gisenyi (Rwanda), where the headquarters were also set up.

The reasons for the great lakes group

— **Historical reasons.** During the colonial era, Burundi, Rwanda and Zaire formed what was known as Belgian Africa. Like Siamese triplets, these three entities were and still are united by their similarity, their common traditions and their culture. And the peoples around the great lakes are so intermingled that the state authorities have little choice other than to accept the situation.

— **Geopolitical reasons.** The policy of good neighbourliness successfully pursued by the leaders of the countries of the great lakes has been a decisive factor in the setting up of the economic

community. It has undeniably made its mark on subsequent events and it was behind the security agreement signed in Kinshasa on 29 August 1966, which is perhaps the foundation stone of the group. And these three countries could not have ignored the general trend in Africa towards economic integration as the path to development.

— **Economic reasons.** The three countries, with their total population of 32 million, form one of Africa's large economic units, with considerable natural resources. Their economies are complementary. Zaire, which alone covers 2345000 km² and has a population density of some 10 per km², needs to cooperate with its partners which are smaller but which have an average population density of 160 per km², a record for Africa. The three states are partly or totally landlocked and they need to combine forces to break out of the isolation caused by lack of communications with the outside world.

Aims and institutions

The aims of the group are to:

- ensure the security of the member countries and their peoples by maintaining law and order on their respective frontiers;
- design, define and encourage the creation and development of activities of joint interest;
- promote and intensify the free movement of persons and goods;
- establish close cooperation in economic, political and social affairs.

The convention provides five functional institutions to meet these aims:

- the Conference of Heads of State, the supreme body of the community;
- the Council of Ministers and State Commissioners;
- five specialized technical commissions on:
 - political and legal affairs;
 - trade, finance, immigration and tourism;
 - planning, industry, agriculture and natural resources;
 - public works, transport, communications and energy;
 - social and cultural affairs.

These bodies are in charge of promoting any action that will help achieve the Community's aims as laid down in the general policy of the supreme body.



The Presidents' of Rwanda, Tanzania, and Burundi sign the agreement setting up the Organization for Management and Development of the Kagera River Basin at the Rwanda/Tanzania frontier on 24 August 1977—a major step towards regional integration

(*) Permanent Executive Secretary of the organization.



B. Kidwingira (Burundi)

Executive Secretary of the great lakes group

— the Permanent Executive Secretariat, the executive/study body. It is headed by an executive secretary and two assistants and, like other bodies of this kind, comprises various departments;

— the Arbitration Committee.

An encouraging first year

The three countries' determination to make a success of their undertaking is apparent from the speed with which the various institutions have been set up. In December 1976, only three months after the organization came into being, the heads of state of Burundi, Rwanda and Zaire met in Bukavu, to appoint the permanent executive secretary and provide the secretariat with an initial grant of three million SDR.

Two weeks later, the first council of ministers met in Kigali to draw up the regulations for the running of the secretariat and officially appoint two assistant executive secretaries.

The secretariat then set to work on recruiting and organizing its staff making the new community known in the outside world. Studies were carried out in preparation for institutional meetings, in Bujumbura, of the Council of Ministers and State Commissioners (5-7 September 1977) and of the Conference of Heads of State (8-9 September 1977), when important decisions were taken to:

— establish the free movement of persons, goods and capital as soon as possible;

— create a development bank for the countries of the great lakes;

— adopt a programme of activities involving:

- developing the Ruzizi valley;
- exploiting the methane from Lake Kivu;
- exploiting the fish resources of Lake Tanganyika.

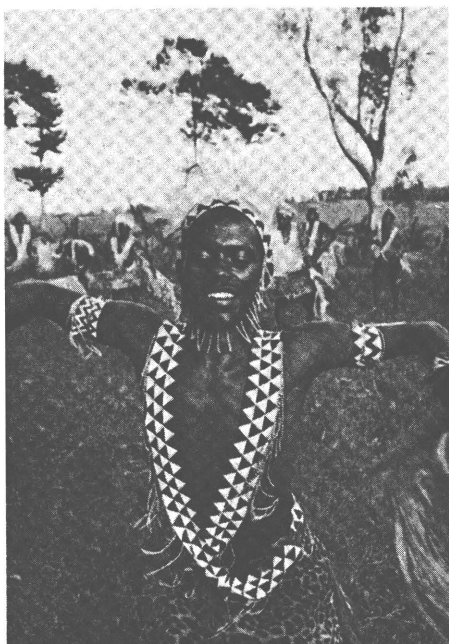
In the transport/communications sector, particular emphasis was laid on opening up the region. Alongside the Bujumbura summit, technical meetings were held to help strengthen community action. The heads of the three countries' social security institutions met in Bujumbura in December 1977 and those in charge of tourism met in Goma on 28 November - 1 December 1977.

Finally, it is worth noting the creation of a specialized community body, the non-profit-making Association for the Study of the Electrification of the Great Lakes Regions (EGL), based in Bujumbura. Its first task will be to construct an HEP dam, serving all three countries, on the Ruzizi. EDF-financed studies for this venture have already been started.

To help this new regional organization study and carry out its projects, the ECA (the Economic Commission for Africa), with the help of the UNDP (the UN development programme), has set up MULPOC, a multinational project programming/execution centre.

The community's future prospects are vast and it has many, important projects which must contribute to the development of the member countries and to the gradual improvement of the living standards of their populations. □

B.K.



Intore dancer from Burundi



Artist's impression of life on the great lakes

The management and development of the Kagera River Basin

by D.K. LWEHABURA(*)

On 24 August 1977 at Rusumo Falls on the border of Tanzania and Rwanda, President Nyerere of Tanzania, President Habyarimana of Rwanda and President Bagaza of Burundi signed an agreement to set up the Organization for the Management and Development of the Kagera River Basin. The agreement has been ratified by the three governments and marks the culmination of efforts made since the three countries became independent in 1960 towards regional cooperation. It should rapidly raise the standard of living in the Kagera River Basin and its environs.

Background

The need for regional cooperation in the exploitation of the natural resources of the Kagera River Basin, became evident in 1969, when representatives of the three countries agreed to establish a technical committee for planning the development of the Basin. With cooperation and technical assis-

tance from the United Nations Development Programme and United Nations Office of Technical Cooperation, the three countries carried out sectorial and pre-feasibility studies within the Basin which led to the preparation of an indicative plan. The plan succeeded in indicating a tentative ranking of priorities for development, inter-relationships of existing and proposed projects, and outlined for the governments the advantages of developing the Basin on a regional approach.

Despite the good work carried out by the Technical Committee during the preparation of the Indicative Basin Plan, the three governments became convinced of the necessity to have a multinational institutionalized organization with strengthened structures to effectively attain the desired objectives enumerated in the plan. Hence the establishment of the Organization for the Management and Development of the Kagera River Basin.

Objectives

The objective of the organization is to deal with all questions relative to the

activities to be carried out in the Kagera River Basin, notably:

- water and hydropower resources development;
- supplying water and water-related services for mining and industrial operations, and drinking water supplies;
- agriculture and livestock development, forestry and land reclamation;
- mineral exploration and exploitation;
- disease and pest control;
- transport and communications;
- trade;
- tourism;
- wildlife conservation and development;
- fisheries and aquacultural development;
- industrial development, including fertilizer production, exploration and exploitation of peat;
- environment protection.

Organs

The organization is composed of:

The Commission for the Management and Development of the Kagera River Basin, and the Secretariat.

The commission has three representatives, one from each country, with the necessary powers to ensure the fulfilment of its functions.

The commission is empowered among other things to decide on the priorities of projects; works or programmes of inter-state scope affecting the development of the Kagera Basin; to sign agreements and assume obligations with international institutions and other governments for technical assistance or financing; and approve the budgets and work programmes of the secretariat and also to supervise its work.

The secretariat is composed of three departments:

- Department of Research and Statistics: responsible for archives and retrieval, laboratories, library and documentation services, research and publications;
- Department of Projects, Planning and Execution; responsible for comprehensive planning, environment protection, engineering and field operations, execution of projects and programmes;

The Presidents of Burundi, Rwanda and Tanzania lay the foundation stone of the Organization for the Management and Development of the Kagera Basin



(*) Director of Planning, Kagera River Basin.

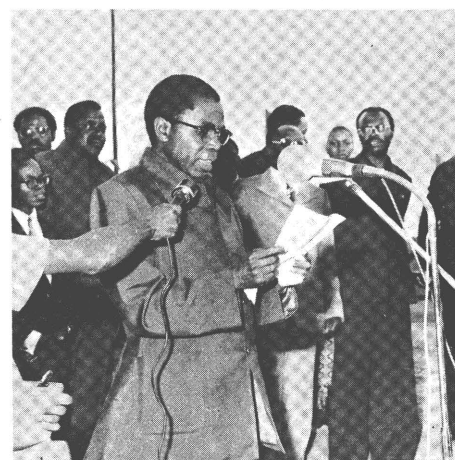
— Department of Management and Administration: responsible for personnel management and training, procurement, plant, vehicles and facilities management, administrative services, budget and fiscal management and public relations.

Development priorities

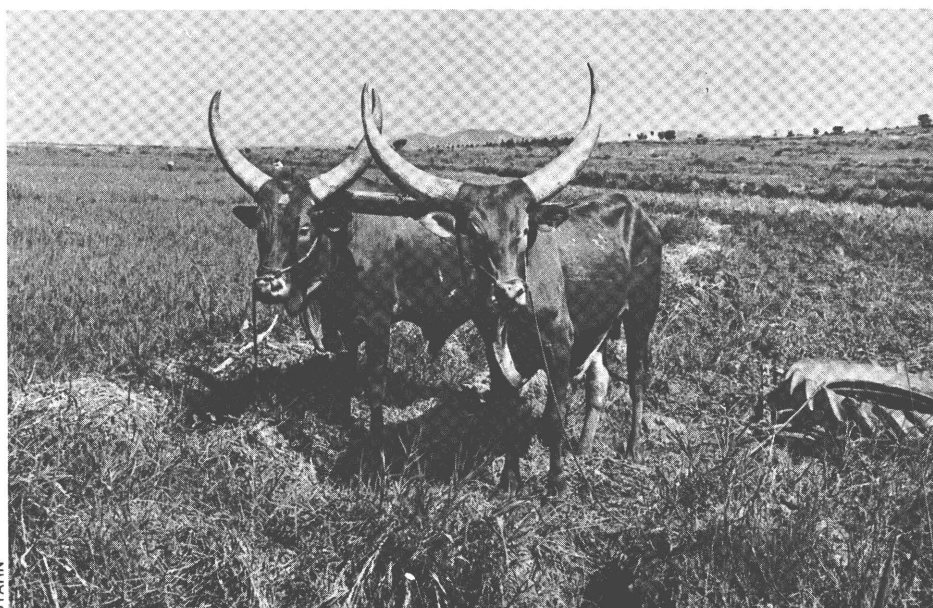
The Indicative Basin Plan, which was formulated on the basis of available data, has been based upon a number of key assumptions, any of which may have to be modified or abandoned as the development programme proceeds. The essence of the plan is that it must remain flexible to accommodate new conditions that will certainly arise.

The priorities for development may be summarized as follows.

Agriculture. The development of agriculture is given the highest priority. There is a great need for increased food production to meet the needs of the population, which is rising at an annual rate of 2.5% throughout the Basin. In the development of agriculture, emphasis is to be placed on increased productivity per unit of cultivated land as against project type development. The potential for large-scale irrigated agriculture is very small and efforts will be geared to the supply and application of modern agricultural inputs. This entails emphasis on food crop research, application of fertilizer, soil erosion control, insect and disease control, improved seeds, greater extension efforts and better-organized marketing and processing. The livestock sector needs to be modernized in order to play its rightful role, through concerted efforts in livestock disease control, expansion and improvement of ranching activities, better marketing organization, and the control and era-



D.K. Lwehabura (Tanzania) has the job of getting the Kagera Basin organization off the ground



Improvements of the Kagera Basin will mean that stockraising can be developed

dication of the obnoxious tse-tse fly, a major limiting factor in ranching undertakings, especially in Burundi and Tanzania. To sustain the present standards of living in the region it will be necessary to increase food supplies at an average rate of 3% per annum, which works out to an equivalent of 1.7 million tons of wheat per annum up to the year 2000.

Energy resources development for mining and industrialization. — Priority to energy resources will entail the exploration, mapping and the development of techniques for the exploitation of both peat and methane gas occurring in the region, for industrial use. Four main hydropower development sites have been identified: Rusumo Falls, Kishanda Valley, Gitega and Kakono. All four have been studied at pre-feasibility level and the need to exploit their hydropower potential as a single system has been established. Given the prevailing economic conditions and the future demand for electrical energy to satisfy large contingent loads likely to arise at scattered load centres as a result of mining and industrial activities, a regional electric grid is envisaged and may entail inter-Basin connections between the Kagera and Ruzizi.

Communications and transport. — Both Burundi and Rwanda are landlocked and the movement of goods to and from the East African coast is difficult and expensive. There are indications that road traffic in the Basin will grow four-fold between now and the year 2000 and that the total volume of both imports and exports will rise to over one million tons in the same period. It is for such reasons that priority is placed on the improvement of the existing road links with the coast and

the construction of a railway link between Rusumo and the Kemondo Bay wagon-ferry terminal near Bukoba on Lake Victoria, with spurs to Rwanda and Burundi. Efforts will be made to streamline export and import traffic to and from the Basin through international agreements in such matters as customs, immigration and exchange control, to avoid time-wasting procedures at border crossings.

Tourism. — There are considerable tourist attractions within the Basin. The existence of the unspoiled Parc National de l'Akagera, with its teeming wild game and birds, the Biharamulo game reserve, Lake Tanganyika with its famous sport fishing and the beautiful mountainous Rwanda and Burundi countryside, with their famous folklore, are major attractions to enterprising tourists. The strategy for tourism development will depend on close cooperation between the national tourist organizations, which will have to work out new tourist circuits for their mutual benefit and provide tourist facilities.

Training. — There is a big shortage of well-trained technical staff in the three countries. Priority will be placed on the training of technical cadres, both at the university and middle cadre levels, in fields related to future management and development programmes for the Basin. While deserving candidates will get fellowships to acquire higher skills in appropriate fields at university level, major emphasis will be placed on the establishment of a polytechnic institute to train middle-level technicians in such fields as mechanics, civil engineering, hydrology, communications, electrical installations, geology, surveying and other related fields. □ D.K.L.

ZAMBIA

Reducing the economy's dependence on copper

At the end of 1977, President Kaunda told his people that the country's economy was in a critical state. The price of copper, bringing in more than 90% of the export earnings of Zambia, one of the world's biggest producers, had been dropping consistently and the economy had slumped as a result. The two big mining companies are currently running at a loss and government finances are showing an increasing deficit, while the lack of foreign exchange makes it difficult to import the products needed to supply the manufacturing industries.

In short, a huge effort has to be made to prevent the collapse of the economy. The government is concentrating on rural development in order to reduce the country's "unhealthy" dependence on copper.

Windsor K. Nkowni, ex-secretary for planning, newly-appointed ambassador to Brussels and chairman of the ACP Committee of Ambassadors, describes how the situation came about and outlines some of the measures which have been taken to right it and which should make 1978 a year of economic expansion.

The colonial heritage

Zambia is an enclave in southern Africa, surrounded by eight different countries. It is 752 500 km² in area, slightly smaller than France and Germany combined, and has a population of some 5 million. When it became independent in 1964 it had a colonial economy based on copper mining, concentrated in the Ndola (Copperbelt)-Livingstone area, i.e. along the railway which was used to carry out the ore.

"We had to reduce our dependence on copper and spread development more evenly over the country. We felt that the answer was diversification, with emphasis on the agricultural sector, and we also wanted to call a halt to the very rapid expansion of our urban centres. They were growing because a number of social factors combined to make the rural population think life was better there. As well as improving communications in rural areas and running directly productive agricultural products, we also had to invest in health, education and other social sectors. Our aim was twofold. By investing in agriculture, we wanted to become self-sufficient in food and to produce raw materials as the basis for a manufacturing industry which would further reduce our dependence on copper," Mr Nkowni explained.

Geo-political situation and economic sanctions

After independence, events in southern Africa soon became a very serious handicap to the harmonious development of Zambia's economy.

"The problem of our region is a geo-political one. It is the problem of

our position in southern Africa. We do not consider we are free until the rest of Africa is free and we are in the front line of the states trying to achieve this freedom. So it was not just a question of investing in the sectors already mentioned. We also had to meet the challenge of UDI in Rhodesia in 1965 which forced us to completely change our trade routes from south to north", Mr Nkowni said.

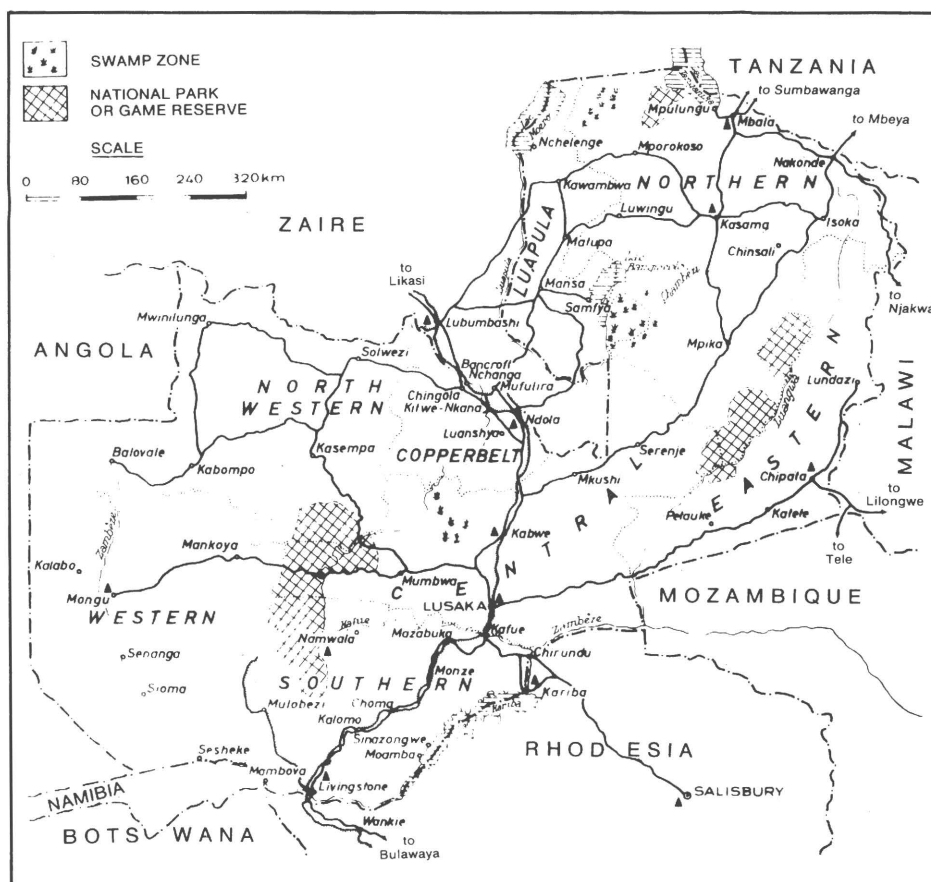
Zambia had to start expensive communication projects in order to ensure the transport of imported and exported goods. "The improvement and surfacing of the Lusaka—Dar es Salaam road cost us some £6 million, as did the Lusaka-Chipata-Malawi frontier road. Something like £143 million went into the Tazara railway between Lusaka and the port of Dar es Salaam. And then to make these routes operational, we had to buy the necessary equipment and rolling stock, as well as invest in projects along the railway to make the region economically viable. We also had to construct our own HEP projects, since the power stations we shared with Rhodesia before UDI were on their side of the frontier", the ambassador pointed out.

Zambia puts its total (cumulative) losses due to UDI in 1965 and to the economic sanctions imposed soon after at more than 1 500 million Kwacha⁽¹⁾. Mr Nkowni stressed that these

⁽¹⁾ 1 EUA = 1.04 Kwacha.

Windsor Nkowni, current chairman of the ACP Committee of Ambassadors





investments, which drained off so much of the money needed to develop the economy, had not been catered for and led to a rise in the rate of inflation which the Zambian people were forced to pay. "The international community," Mr Nkowane went on, "should know and understand just what Zambia suffered after UDI. For example, we were the first to apply the oil embargo against minority regimes, although we were the worst affected. But in spite of these conditions and the events that preceded them, some people still expect us to have a viable, healthy economy."

Copper and Stabex

The rural sector tends to respond slowly to investments and, although the diversification of agriculture is one of the government's key policies, copper still dominates the economy and, as Mr. Nkowane sees it, the depressed state of the international market shows no sign of improving. "The countries which export copper do not control the market. If they controlled even 75%, they could suggest a price like the OPEC countries do for their product. As I see it, the exporting countries have no real chance of altering the copper marketing system in their favour in the near future," he said.

Copper is not covered by Stabex, although the ambassador would like to

see the general extension of this system of compensation. "We in Zambia have always believed that copper should be covered by Stabex, because the system is based on the principle of stability of export earnings in the ACP countries. There should be no selection of products. As far as we are concerned, the copper on which we are so dependent for our export earnings should be covered. In principle,



Maize store

"We are now self-sufficient in maize, which solves 60% of our food problems"

ple, all the products which the ACP countries export to the EEC should be eligible for Stabex payments."

The reconstruction of agriculture

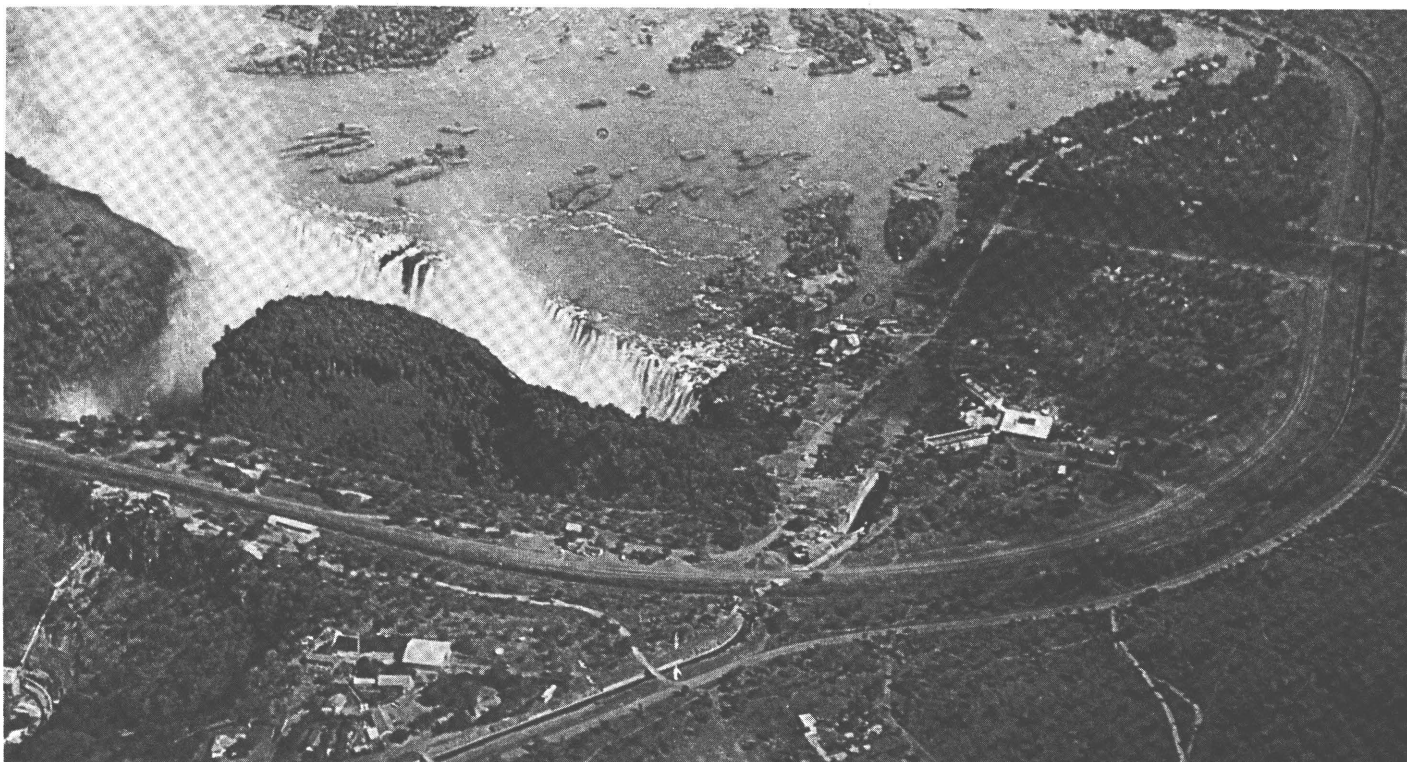
By concentrating on rural development, the Zambian government is attempting to meet a number of aims. It wants to reduce the dependence on copper, make the country self-sufficient in food, supply the manufacturing industry and even out the differences between town and country areas (halting urban spread and reducing unemployment). Agriculture is not fulfilling its potential, which is, according to some experts, at least as great as that of the Sudan.

A number of incentive measures have been introduced in the agricultural sector. There are, for example, the Zambia Youth Service, which provides young people with exhaustive training in agriculture, and Rural Development Centres where directly productive pilot projects form the nucleus of rural development in a whole region. State-run farms and ranches have been set up alongside cooperatives and those traditional farmers who sell their products get financial incentives and support from the Agricultural Finance Company, which provides seasonal loans for the purchase of seeds and long-term ones for agricultural equipment.

There are certain problems of supply in the stockraising sector, since traditional herdsman are not interested in selling their cattle and the country is short of foreign exchange. But Mr Nkowane puts the national livestock at 2.2 million head with slaughtered per year 123000 head, so there is no shortage. Traditional farmers will therefore be encouraged to take more interest in trading.

About the food problem, Mr. Nkowane said: "we have become self-sufficient in maize, which solves 60% of our problems. However, we only produce about 1000 t of wheat a year altogether, although we consume more than 100000 t. As we are short of foreign exchange, it is difficult to ensure the imports we need and we are pleased to have been able to count on food aid from the EEC".

Agricultural projects are being set up to create employment and thus reduce the disparity between urban and rural incomes and stem the drift to the towns. "We have cut down on projects to provide roads and services in the



The world-famous Victoria Falls on the Zambezi

urban areas as people could easily obtain a house in a town without the move being directly linked to any possibility of employment there. We are now insisting on the link between employment and housing by, for example, giving support to housing projects whereby companies provide housing for their workers or the government provides housing for civil servants and so on. We also want to reduce the job shortage in the towns in this way."

This job shortage, again, is partly due to the copper situation which is making it impossible for existing industries to function properly and difficult to invest in the creation of new jobs.

Sugar — a first success

Zambia's attempts to diversify agriculture have resulted in increased sugar production and there is now a surplus of some 20000 t ready for export. In addition to the 5000 t already committed under the International Sugar Agreement in Geneva, in early 1977, Zambia applied to send a quota of 15000 t to the EEC in accordance with the Lomé Convention sugar protocol.

At the time of going to press, no decision had been taken on this. Mr. Nkowni said: "at the ACP-EEC Council in Fiji, we had the impression that our project had been accepted, but it emerged from subsequent meetings

that it had simply been noted. We thought this was odd, since we have considered ourselves covered by the sugar protocol for some time, particularly bearing in mind the number of times we have been invited to attend meetings to discuss sugar. We do not feel that the EEC should find it difficult to give us a quota of 15000 t. Obviously there is a large and powerful European sugar lobby. But I think the spirit of Lomé should be respected, which means greater cooperation between the ACP countries and the EEC. Sugar is the first success of our diversification campaign to reduce our dependence on copper. We should be grateful if the EEC accepted our project and made us feel that our own efforts are appreciated."

Mutual understanding

As well as laying particular emphasis on Zambia's top priority, rural development (56% of the EEC indicative programme), the EEC is also helping the country out of its political strait-jacket. Zambia is one of the most enthusiastic countries about regional cooperation which will enable it to improve its communications with the rest of Africa.

The EEC put 10 million EUA towards the building of the Botzam, for example, the road linking Botswana to Zambia, which is of strategic importance to the economies of both countries. And, in view of the under-utilization of the

Tazara railroad and the limitations of the port of Dar es Salaam, Zambia is again seeking EEC aid to use Lake Tanganyika to strengthen links with Zaire, Tanzania and Burundi. More regional projects (with Mozambique and with Namibia and liberated Zimbabwe later on) are also being studied.

As well as emergency food aid, the EEC has also granted exceptional aid to Zambia on two occasions. The first was in 1976 and the second just after President Kaunda visited the Commission in 1977. The total of 15.5 million EUA came, according to Mr. Nkowni, at the right moment, when copper prices were very low, and enabled the country to obtain the agricultural input it needed to ensure self-sufficiency in food.

As far as the countries of southern Africa are concerned, Zambia and the EEC have similar viewpoints. "A great deal of progress has been made here. I should like to remind you of the code of conduct for companies with interests in southern Africa which the EEC adopted after President Kaunda's visit and the more recent resolutions of the ACP-EEC consultative assembly in Lesotho on providing greater assistance for countries whose economy is hit by the present political system in the region. As I see it, therefore, there is good mutual understanding between the EEC and Zambia on the policy to be followed in southern Africa," Mr. Nkowni said. □ R.D.B.

GUYANA

The success of the fishing and shrimping industries

Until early 1972, Guyana had still failed to take advantage of her ideal access to the rich fishing waters on the broad continental shelf of the Guianas, between the estuaries of the Amazon and the Orinoco.

In 1964, Guyana, then British Guiana, was producing a mere 15713000 pounds of fish and shrimp, and as late as 1971 imported more than G\$3 million worth of fish and fish products.

When the Guyana government imposed a ban on the importation of fish and fish products in 1972, the move provided a badly needed boost for the country's relatively untapped fishing and shrimping industry. What in fact was initially a manoeuvre in the interest of the country's balance of payments resulted in the throwing open of a rich and promising foreign exchange earner.

Leading Caribbean exporter

By 1973, fish and shrimp production had almost doubled and today, with production more than trebled, Guyana has earned the distinction of being the Caribbean's largest exporter of fish and shrimp, the United States and Japan being amongst its more lucrative markets.

While the land continues to be the foremost producer of food as well as the foremost employer, the sea, through the local fishing industry, provides employment for more than 5000 Guyanese and saves the country well over G\$20 million annually in importation costs.

Apart from this, the doubling of the country's fish and shrimp exports has

facilitated the provision of better prices to local fishermen and fish vendors.

Self-sufficiency in food

The continued exploitation of Guyana's fishing industry fits admirably into the government's commitment to self-sufficiency in food. To this end, the government is devising ways of using this industry to the best advantage of the country.

Guyana Industrial Holdings, established in 1964, owns and operates more than 100 vessels. Guyana Marine Foods Ltd., established in 1971, brings in more than 3 million pounds of shrimp annually and over the last five years has invested more than \$75 million in building up its fishing fleet.

Guyana Food Processors Ltd., in which the government has a majority holding, is also responsible for a large fishing fleet, as well as for freezing and storage facilities.

While the government is itself primarily responsible for the country's fishing and shrimping industry, it has been working steadily towards the improvement of the lot of the rapidly expanding community of small fishermen.



Shrimp-packing shed in Guyana

The cooperative has been identified as the vehicle for economic progress in Guyana, and most of Guyana's small fishermen have banded themselves in cooperatives, to collectively reap the rich harvest of the sea.

More than 20 fishing cooperatives now operate in Guyana with a membership of over 800. The Guyana Agricultural Cooperative Bank and the Guyana National Cooperative Bank have been providing substantial loans annually to small fishermen.

Protein-rich fish and shrimps are heavily consumed in Guyana, and through the government's special system of fish distribution, fish reaches the consumer at as little as 35 cents per pound.

It is little wonder then that the country's child mortality rate due to protein deficiency is the lowest in the Caribbean (77 out of 100 000 births in 1976).

Controlling foreign fishing operations

Guyana's rich fishing waters have attracted a number of large maritime powers including Korea, Japan and the United States, and the country's extension of her sea limit to 200 miles has provided new waters for her fishing and shrimping industry. The recently legislated Maritime Boundaries Act of 1977 assures the government of thousands of dollars in fishery zone fees.

Under the new maritime act, overseas-based fishing boats operating in Guyana's fishing zone pay a fee of G\$100 000 while foreign-owned boats operating from a local base pay a fee of \$50 000. Local fishing boats operating from local bases pay \$5 000.

In the Caribbean region as a whole, rich fishing grounds are sorely neglected. While 266 000 tons of fish are imported into the region annually, over 200 000 tons are dumped from vessels trawling for shrimp. The continued discarding of fish, in addition to robbing the peoples of the region of a valuable source of protein, will eventually lead to pollution of the region's fishing grounds and change the species distribution, giving rise to a large number of carnivorous species which in time could reduce the quantity of shrimp in the region.

The importance placed upon fishing and shrimping by Guyana therefore, may very well serve as an important object lesson for the rest of the region. Particularly while 2 000 children still die annually from malnutrition. □

BOTSWANA

Desertification problems

Botswana lies between latitudes 18°-27° south and longitude 20°-30° east.

The country is 561 800 square kilometres in area.

Climatically, Botswana is semi arid/sub-humid with an annual rainfall 250-650 mm falling between November and March and is unreliable. Summers are hot and winters are very cold.

The soils are mainly sub-desert zonal with ferruginous tropical soils to the east.

The vegetation is composed of tree and shrub savanna type.

The human population is 800 000; Cattle number 3 000 000; Sheep 400 000 and goats 1 000 000.

The problem

Desertification, the spread or intensification of areas of sparse or absent vegetation, is caused in Botswana, as no doubt is the case in other areas, by upsetting the ecosystem. The combination of light sandy soils and a dry climate results in a most delicate vegetation cover. The grasses are generally of a tussocky nature and the basal cover is less than 5%.

The prime cause of upset ecosystems is the influence of man: the eas-



Sand dunes in the Kalahari desert, south-west Botswana



A typical example of overcropping: pockets of desertification are caused by man and beast

tern part of the country has somewhat heavier soils, a better rainfall, a 'sweet veld' type of pasture, a railway line for communication and the majority of people live in this eastern area. The expanding human population with a resultant expansion in the cattle population (numbers) mean wealth and social standing has caused watering points to become overburdened. Water is difficult to obtain underground and wells or boreholes are the prime sources of water.

The concentration of cattle at the available water points has resulted in overgrazing at many of them and in turn desertification occurs. With increased pressure in the east farmers have moved westward to drill new boreholes in sandy areas which are climatically drier and more vulnerable. Thus the desertification spreads westwards as the human and cattle population expand.

In addition the far south west of the country, classified as desert soils, with sand dunes clearly recognizable and a rainfall of 250 mm or less, shows severe signs of desertification; particularly on the tops of the dunes where wind erosion is playing an important role.

There exists another problem which cannot be ignored and that is annually humans cause veld fires. These destroy the natural vegetation cover. Seed in particular is destroyed. Common perennial grasses are replaced by "sour" annual grasses which are neither grazed by livestock nor capable of preventing soil erosion.

The country is gradually being robbed of its natural vegetation as man fells trees for building purposes and as a source of energy. Trees under dry climate conditions are difficult to replace and growth is slow. These two factors—the felling of trees without replacement of tree by tree and the fires are directly responsible for the intensification of desertification.

Thus the problem in Botswana can be defined as threefold:

- (a) the localized desertification associated with overgrazing around water sources and an imbalance of grazing stock to fodder available; and
- (b) the specific desertification of sand dunes in the south west where again overgrazing is the main cause.
- (c) the destruction of vegetarian cover by veld fires countrywide as well as

the inexplicit exploitation of wood as a source of energy.

Programme of action

The problem of desertification is well understood in Botswana. Action is being taken to halt or rather to minimize desertification. The following steps are being taken:

(a) Tribal grazing land policy

Historically about 71% of Botswana is tribally owned. The tribal chiefs had sole jurisdiction over the land and could allocate this at will. There was no definite identifiable ownership. Tribesmen could graze unrestricted numbers of livestock anywhere they chose. This has resulted in the destruction of grazing around water sources.

The authority of the chief in land matters has now been passed to Land Boards which have the power to grant 50 year leases to individuals or groups. This will create an incentive and security of tenure. This new land tenure is embodied under the National Policy of Tribal Grazing Land. The acceptability

of the new policy by people was tested by Government by means of a massive radio listening campaign. The people have indicated that the policy is indeed acceptable.

(b) Tribal arable land policy

The tribal land policy will be incomplete without a policy directed to arable land. The policy on tribal land is to introduce appropriate measures pertaining to soil erosion. The aim is to change attitudes of people. Traditional cultivation of the soil does not take into account the fact that soil is an asset and should be preserved for future generations. Continuous loss of the vital top soil can result in desertification. Contour ploughing will become a feature in those areas prone to erosion.

(c) Veld fires

A low herbage prevention act has been enacted to protect vegetation from destruction. To this should be mentioned the Agricultural Resources Board which through its conservation

committees is endeavouring to arouse awareness amongst the farmers and the public at large that veld fires are destructive. The actual teaching is carried out by young men—fire rangers dedicated to their work.

(d) Training on range management

In order that the farming public is catered for, young men are sent for training overseas. The training they obtain there is not relevant to Botswana's situation but knowledge gained can be adjusted accordingly. We would welcome training on a regional basis. A Ranch Managers Centre is being currently established in Botswana and this will not be adequate since it is intended to train ranch managers. We attach a great importance to range management because the western area of Botswana is arid and highly vulnerable.

(e) Energy source

In Botswana the rural population and indeed many urban dwellers are

dependent on firewood as their only source of energy for domestic purposes. Due to low population densities this has not in the past posed a serious environmental threat. But growing population and rapid urbanization are changing this, so that the need for better management of woodland resources and the development of alternative energy sources is recognized. Some managed wood lots have been established and experiments are being carried out by the Rural Industries Innovation Centre into the effectiveness of improved store design, methane generation and other alternative energy sources. A technology centre is to be established which will provide an information clearing house and a catalyst for further research into all types of alternative technologies applicable to rural areas in Botswana. Water supply in most rural areas is dependent on underground water pumped by diesel engines. Since diesel fuel is imported and diesel pumps impose heavy maintenance requirements the Government of Botswana is planning to investigate the feasibility of windmills for pumping purposes. □

Plant cover is also wiped out by savannah fires



CID

Regional production-sharing

by Michael O'HAGAN(*)

This article represents an initiative by the Centre for Industrial Development to break the barrier created by the large-scale approach inherent in modern industrial production. A later article will cover ideas put forward at a seminar to be held on production sharing.

One of the major themes of the Lomé Convention is the need for industrial cooperation, and one of the instruments for helping to meet that need is the Centre for Industrial Development. The Centre seeks to accelerate the pace of industrial development in the ACP countries and to this end works both with the ACP principal and the Community industrialist.

The aim of the Centre, in partnership with the ACP principal, is to bring about the establishment of industry which is viable, durable and which meets the wishes of the host country.

In tackling the problems of viability and durability we take as a useful, though not inflexible, premise the view that it is not useful for an ACP state to manufacture an article to sell for a price which is higher than the price that the local shopkeeper charges for the imported article. We say that this is not an inflexible premise because it is for governments to choose whether to provide tariff protection.

In seeking to establish a particular industry, it is essential to consider the cost of production and from this to assess the market captured. The cost of production is in most cases a function of the quantity being produced, i.e. the scale of production. The industrialized world has for some generations experienced an upward pressure in wages and the industrialist has reacted by developing manufacturing techniques which demand fewer personnel for each unit of output. In most cases, the effect of this development is to increase the fixed capital employed,

yet, because of the increased output, to decrease the cost of production.

Most of the ACP countries have a fairly small domestic market. So what are the choices facing the ACP? For a whole range of products, there still exist in the Community production processes at an appropriate scale and with production costs which provide a competitive product. Where this is the case, the Centre prepares a "business profile" setting out the scales of production and the key economic criteria. So far business profiles have been prepared, or are being prepared on:

Completed

1. Ceramic floor and wall tiles
2. Ceramic tableware
3. Sanitary ware
4. Hypodermic syringes
5. Electrical plugs and fittings
6. Vitrified clay pipes
7. Glass containers
8. Concrete roofing tiles

In preparation

1. Aluminium holloware
2. Dry batteries
3. Fruit juices
4. Fibreglass
5. Industrial footwear
6. Cement sacks
7. Cement
8. Biscuits
9. Matches
10. Jerricans
11. Semi-automatic bakeries
12. Bandages
13. Caustic soda
14. Light bulbs
15. Overhead irrigation pipes
16. Fibreglass tanks
17. Bricks
18. Building boards made of cement and wood waste

But in some sectors of industry, the existing scales of production are too high. The first approach which the Centre takes is to discuss with the

industry the possibility of modifying the industrial process. Largely because of the lower wage rate in the ACP countries, it is sometimes possible to modify the industrial process or to eliminate some mechanical handling equipment. In the case of a modified process, the Centre still looks for a production cost which is more or less competitive with international standards.

But this is not always practicable, and in some cases there still remains the possibility of a technology which is perhaps below the level of true industrial production. The Centre is examining whether it has a role to play in this field.

Despite the various ways in which the Centre attempts to match a scale of production to a market, there remains a range of products for which we can find no way to get industrial production scales down to the low levels of domestic demand in a single ACP state and yet keep production costs reasonable. If we make no effort to break this deadlock, then the ACP country would continue to import this whole range of production. Yet the Centre believes there is a way to tackle the problem—and in a way which could offer very attractive advantages to the ACP states.

Production sharing

To illustrate the nature of the problem we refer to the well-known "experience curve" (see following page).

The x axis of this curve shows the scale of production and the y axis shows the unit cost of production. The graph shows three scales of production, (a), (b) and (c). It can be seen that scale (b) which in this case is a production of 12 million units a year, provides a production cost in the Community which is only some 14% higher than the production cost at the scale of 30 million. By way of contrast, at scale (a) which is 6 million units, the production cost in the Community is more than 70% above the cost of scale (a). With the lower labour cost in the ACP, perhaps some savings in transportation and handling costs, and possibly some tax advantages, production at scale (b) in an ACP state could compete with the imported product manufactured at scale (c). But unless the slope of the curve can itself be altered, production at scale (a) would seem to be quite impracticable under any reasonable circumstances. It is now for ACP prin-

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cipals to examine their markets and see if these approximate to scale (b).

Now many states will find that even scale (b) is too large. So are all, except the largest of the ACP states, to accept that this product will forever be imported? A key to this problem lies in the fact that if we add together the markets of two or three states, we could produce at scale (b)—and if the markets of more states are included—we could perhaps move towards manufacture at scale (c).

So the ACP answer to the problem is to reach agreement between themselves that, within a given region, one factory could be established for the manufacture of this product. It would be for the countries concerned to reach agreement on where the factory should be established. Inherent in this thinking is the need to reach agreement that the other countries will buy the product.

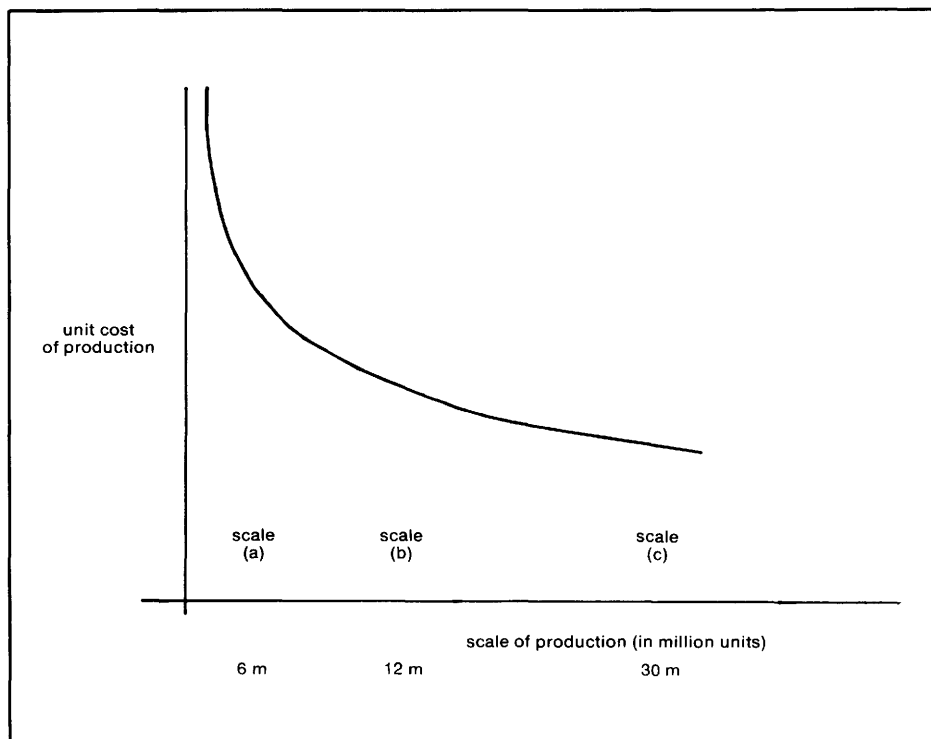
Are these problems of reaching agreement insuperable? If the product were inferior to the product at present being used or if the price were higher, there could be problems in expecting to reach these agreements between states. It is for this reason that in putting forward this concept, the Centre would recommend a number of basic criteria:

- the factory should be established in partnership with a partner from the industrialized world with experience in the manufacture of this product;
- the industrial partner should impose strict quality control to agreed standards;
- the ex-works price should preferably be such that the cooperating ACP states do not need to face a price penalty by cooperating.

Is this too ambitious a task? Only further investigation will tell us this, but there are several possible approaches to the problem which might be more palatable than accepting a higher production price.

For example, it is reasonable to suppose that each cooperating country would want sooner or later to establish its own production-sharing industry. We would therefore be looking for a number of such industries. Now, these production-sharing factories would be exporting over 80% of their output. And it is just such a criterion which at least one EEC country sets as a prerequisite for granting a kind of export zone status to the factory.

Is it unreasonable, then, to suggest that these production-sharing industries could be given a special status? From this status would flow the usual collection of incentives which together



could enable the production price to be maintained at such a level that none of the cooperating states pays any financial penalty by cooperating.

The Centre for Industrial Development is getting to grips with this problem. We want to aim at a range of factories, each providing employment, and each contributing to a form of regional cooperation. Given that this approach is worth pursuing, what industries should we examine?

First and foremost our attention is drawn to the industries which can use locally available raw materials. There are many examples in the ACP. The manufacture of ceramic sanitary ware should be viable at a scale of 70000 pieces a year or more if most of the raw materials are locally available. To create this industry would mean the simultaneous creation of an industry concerned with clay extraction and clay transportation. The scale of this industry is sufficiently small that several regional production-sharing factories may be justified.

A more glamorous example is the production of flat glass for windows and other purposes. Modern production techniques demand a vast market to justify the production of first quality flat glass, and we see that glass is imported in all the ACP states. The raw materials of glass are available in many of the ACP states and one of the objectives of this approach would be to examine whether it would be feasible to establish a flat glass plant in a region to serve the needs of the whole region. The scale of production in this

case is so large that not more than one production plant is likely to be justified.

Seminar on production-sharing

This concept cannot be pursued simply in the abstract. There are many stages along the road leading to the decision to establish a particular factory:

Two of these stages are:

Stage a: identification of the economic factors which justify the establishment of a particular industry in certain states. This would result not in decisions but simply in a "general agreement" that a particular industry working to a particular scale of manufacture should be viable in several of the ACP states providing agreements and cooperation can be established. It is essential that the "general agreement" be reached by the Community industrialists as well as by the ACP authorities concerned.

Stage b: political decisions as to where a particular industry should be established.

The Centre for Industrial Development plans to start work on reaching stage (a) this year.

Clearly the first move necessary is to seek the cooperation of the ACP states within a region. For this purpose it would be necessary to consider what constitutes a region upon which to base production-sharing. Our attention must first be drawn to the formal

Race against time for arid zone farmers

by Michael O'HAGAN

Vast areas of the ACP countries are arid and semi-arid. These zones are characterized by light sandy soils having a low humus content and a poor ability to retain moisture. In these zones, no amount of tilling or of inorganic fertiliser can directly rehabilitate the land. United Nations agricultural studies show that inorganic fertiliser alone is not the answer for soil improvement, fertility or better yields.

Fertilisers are plant foods. What the soil needs is humus and inorganic materials to improve its performance and produce better crops. The problem that bedevils arid-zone agriculture is the lack of suitable organic material to return to the soil to generate and perpetuate fertility by the retention, turnover, and release of nutrients, and by creating soil conditions needed for healthy growth. Traditional farming methods replenish soils by regular return of animal manure and vegetable residues. In the hotter climatic zones, not only are these unavailable in the enormous amounts needed but, once in the soil, they break down so rapidly that replenishment needs to be far too frequent to be practical.

Processed seaweed, garbage, compost and additives of various kinds have been tried but none has proved to be practical and economical on a large scale. Even where entirely new kinds of agriculture are being developed — such as the highly stable, productive and promising tree-based systems now being investigated in the Sudan, Japan, and the Limpopo Valley — there remains a desperate need for an agent capable of reducing the demand for water, inorganic fertiliser and labour while also improving soil structure and fertility. Processed lignite has been suggested as one palliative to this problem.

Lignite

Lignites are found freely in nature in parts of the world once covered in forest. Lignites are found in various stages of development: from near peat

to near coal. Many of the lignites contain about twice the humus content of peat (on a volume basis) and these are particularly useful as one agent in the restoration or improvement in fertility. The use of lignite appears to be economically justified on most soils.

However, the best use of lignite is in arid and semi-arid zones. Small amounts of lignite applied in a finely crusted form to the soil can have a dramatic effect. Moreover, this effect is not merely transitory. Lignites are capable of with-standing voracious biological attack characteristic of tropical and sub-tropical soils far better than other forms of humus, and remain active in the soil for several seasons. The lignite can be spread easily by a standard fertiliser distributor.



Trials with lignite have been successfully carried out with wheat in Nourbaria (Egypt)

Lignite as a catalyst

Trials into the use of lignite have revealed some additional characteristics attributed to a catalytic action. When fertiliser and well-managed soils were treated with lignite and the standard application of fertilisers, the resulting growth showed that there was a surplus of fertiliser. Controlled trials then showed that if lignite is added to the soil, it enhances the process of nutrient release from the N.P.Ph(k) trio. In all situations, some free nutrients are essential for plant growth to proceed beyond the seedling stage, and the enhancing effects of lignite take place later when the plant's light-driven metabolic processes start to pump the natural root, soil microbe, nutrient release and uptake system. The build-up of soil microbes is accelerated, and there are changes and improvements in soil and root structure all of which appear to be beneficial.

Trials

Trials conducted in sandy soils in North Africa showed that the heavy use of fertilisers alone was quite inadequate, yet the use of lignite and a reduced quantity of fertiliser could achieve dramatic results. Trials can be conducted in any area, arid, semi-arid, or fertile. It is essential that as part of such a trial, the soil and the water for irrigation be analysed to determine deficiencies. From the result of this analysis, and with a knowledge of the crops to be grown, it will be practicable to conduct a trial of the use of lignite together with selected fertilisers and trace elements. The Centre for Industrial Development is prepared to assist in the organisation of these trials.

Industrial development and economics

Hitherto, lignites have not found great application other than as low-grade fuels. The development of an industry to use lignite for agricultural purposes involves both the extraction phase (the mining of the lignite), a processing phase and a distribution phase. Using very general figures, a small processing plant working a 40-hour week could produce 15000 tonnes per annum. Application rates will vary according to the soil condition and the type of crop. Trials suggest that 1 tonne per hectare may be suitable for the initial dressing with sub-

(Continued on page 94)

regional organizations which exist and it will be to these organizations that the Centre will first address itself.

The next task is to bring together in a single forum the representatives of the ACP states and the Community industrialists who are, at least in principle, interested in investing in these new industries.

The method which the Centre recommends is to conduct an initial seminar on this. We would hope to attract the authorized representatives of states interested in following up the CID proposals and industrialists, with experience in every industry which is to be discussed, willing in principle to invest in the ACP.

It would be necessary for the ACP delegates to undertake some pre-seminar study work. This would be concerned largely with the availability of raw materials and the size of the local market together with its projected growth rate. Full analysis, or samples of the raw materials, would be required in advance for study by industry.

The seminar itself would thus not consist of lectures but would essentially be comprised of small teams of about six delegates, who would elect their own team leader. The team would be given all the information provided by the ACP states and, in addition, would be provided by an industrialist with the key economic data concerning the industry. Working as a team, the delegates would study the situation and themselves reach agreement. The

nature of the agreement is expected to be:

- that named groups of states could cooperate,
- that industry could be established to serve the markets of those states,
- that the scale of industrial manufacture should be assessed,
- that (named) states have the raw materials and one of these would be the natural place to establish the industry.

The work of the team would be monitored by one or more industrialists to make sure it has all the necessary information. The great bonus to be obtained from this participation by industrialists is that the industrialist is himself exposed to the problems and the opportunities. If the team, working under industrial guidance, concludes that the project is viable, then we can reasonably assume that the industrialist will himself be convinced. Thus a second type of decision is also reached:

- that one or more industrialists are themselves convinced that the team's proposals are logical and viable and the industrialist would himself be interested in investing in the new industry subject to other factors being favourable.

The seminar would cover a whole range of industrial production which appears to demand this type of approach.

The output of the entire seminar will form an input to political negotiations.

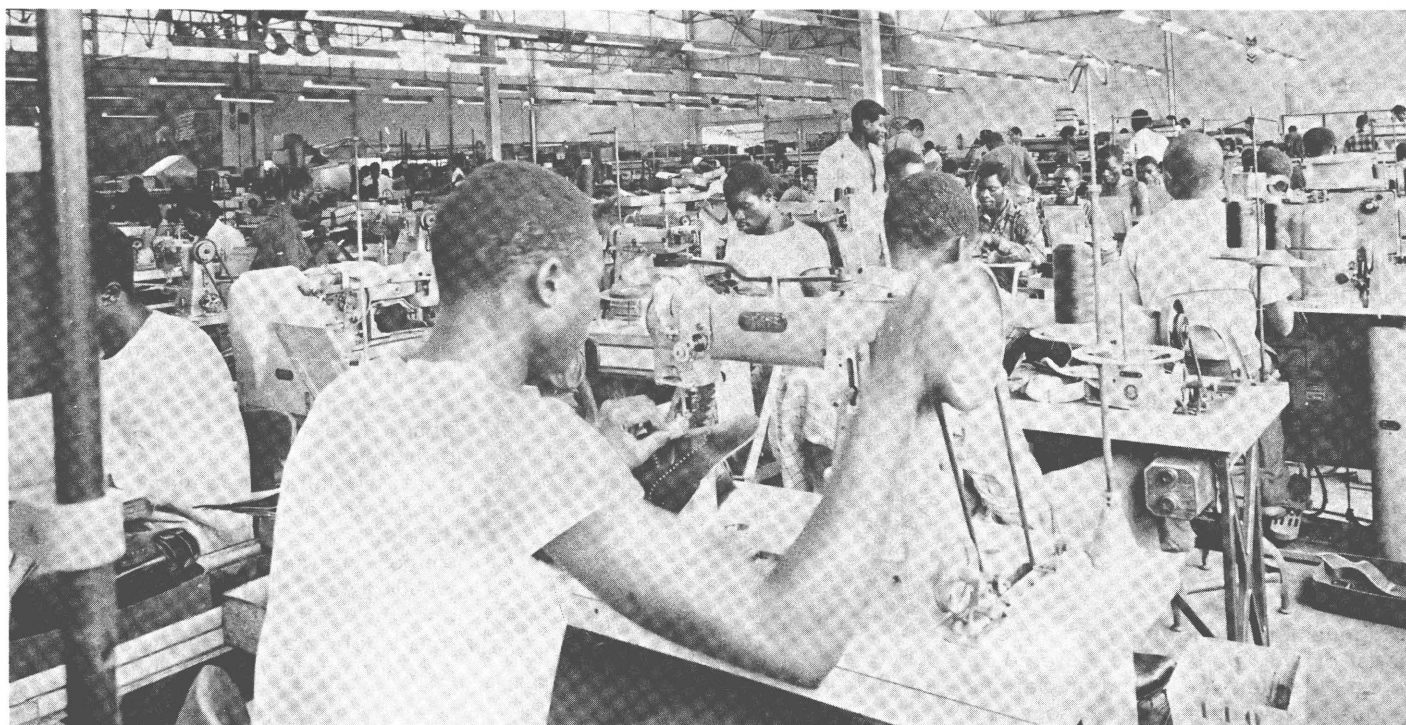
The advantages of having conducted the seminar will be that the negotiators will be able to work with information and recommendations made by qualified ACP delegates and by industrialists interested in participation.

It will readily be seen that the approach envisaged here does not demand that every member state in a region has to agree before a particular industry can be established. For example, in order to justify the manufacture of disposable hypodermic syringes, it is necessary to manufacture at least 12 million units per year. Apart from the very largest ACP states, there may be no single state which currently has this requirement. There will, however, be a number of pairs of states which have that requirement, and thus the establishment of such a factory could be justified providing only two states agree. So it might be possible to justify two or three factories each producing 12 million disposable hypodermic syringes per year.

An invitation

The Centre has made approaches to the formal regional organizations. But in launching this initiative, the Centre would like also to invite Community industrialists to express their views on this approach to regional production sharing and to discuss with the Centre the manner in which industry would participate in seminars on product identification. □ M.O'H.

Shoe manufacturing in Cameroon



Economic projections... social projections?

by LUCIEN PAGNI



Development. The magic word, one which is becoming—has already become—the most current in economic language and which is fast taking the place of politics and social affairs. Yet they all go hand in hand. So why this sometimes exaggerated obsession with the word “development” but no thought as to either what it really means or to the social implications which are its most important aspect?

There are, of course, many answers to this, the fundamental, twofold question which is facing the countries on the path to development, or (euphemism) “developing”, and which is beginning to cause serious concern to those who wonder about the aims of development. But there is one reply—of attempted reply—which seems more plausible and more in keeping with the feelings of those who live under or are directly or indirectly affected by development choices. It involves looking at how non-industrialized countries import economic and social models which are not just totally unsuitable technically but which also, and above all, destroy the types of society that exist in these countries. It is this social aspect which is the striking feature of development in developing countries which seek an industrial solution to the basic problems of their economy. In these countries, social disruption and disintegration come both sooner and faster than the genuine economic progress which generates all social change in the industrialized world. In industrialized countries, profound modifications to social structures and life-styles are the results of gradual, long-drawn-out development, whereas, in the non-industrialized countries, most of the major drawbacks of industrial development are felt before the industrial society proper is established. To take some random examples: towns and urban development, attitude to money and culture and information.

astounded to see how faithfully the Third World is reproducing them, with such little regard to its environment as a whole. So there are more and more skyscrapers surrounded by bigger and bigger slums where promiscuity makes a large contribution to upsetting mental and social balance, as it does in all big cities of countries with long industrial traditions. And in the hot Third World towns, where most people live out of doors, little attention is paid to ecology or communications either.

The general attitude to money also shows that the Third World has simply adopted foreign economic and social models as they stand. In less than a generation, an entirely monetary economy has taken over not so much from the barter system, but from a form of equilibrium where the amount of money in circulation and price levels were not determining features, all of which has brought about substantial and not very desirable changes in social structures. In the US and, to a lesser extent, the rest of the industrialized world as well, social class and standing depend on income. “How much are you worth?” Americans ask. And the same thing is happening today in the countries of the Third World, although their economies and standards of living cannot compare with those of the industrialized world. This is another form of projection of a social model due to projection of an economic model. Apart from the

chronic drop in food production and the exaggerated costs of living which are often as high as in some developed countries, one of the consequences of the badly managed monetary economy is very widespread corruption.

The fields of culture and information are equally stereotyped. Ideas which hark back to the colonial era have become entrenched by the apparent benefits (cars, cinemas, television, etc) of the scientific and technical progress which the non-industrialized countries enjoy, often superficially, before acquiring the economic bases which are vital to the maintenance, extension and improvements of those benefits. The difference between economic and social life as it really is and the culture/information values of the reference model emerge in the written press, on radio, at the cinema and, increasingly, on television. The mass media give wide coverage to both important and unimportant events in the formerly colonial capitals of Europe. Africans, for example, know more about the jet set and the political, economic and artistic life of London, Paris or Bonn than they do about vital events in even the neighbouring countries of their own continent. The *Le Monde* correspondent in Nairobi recently remarked how little information there is about southern and South Africa, particularly bearing in mind how important the events there are for the continent as a whole.

However, concerning culture and information, Nigeria and the ACP countries of the Caribbean are exceptions, as an African diplomat showed when he said he was “very agreeably surprised at the great confidence the people of the Caribbean had in themselves and in the cultural and social values they have rediscovered.” And he added, “we in Africa are a long way from this kind of faith healing, from that great and important change in outlook which is so vital if Africans are to make genuine economic and social progress”. □ L.P.

Anyone who is familiar with the towns and urban development of the industrialized world and understands the criticisms levelled at them will be

Mining in the ACF

PHOTO RTZ — LONDON



Copper mine near Bougainville (Papua-New Guinea)

countries

The contribution of the mineral sector to the economy of many individual countries seems, in terms of GNP, relatively insignificant. But this is primarily because once the resource has been mined and processed it ceases to be counted in the mineral statistics. This can lead to a misunderstanding of the importance of minerals in economic development. It is no exaggeration to say that most major economic advances of the last three hundred years have depended on the new use or discovery of mineral resources. Would the Industrial Revolution, which changed a country like Britain from a rural farming society into an urban industrialized one in just a few generations, have been conceivable and possible without the new mineral technology that developed in the late 18th and early 19th centuries? Clearly not. Minerals played a central role in that dramatic revolution. It is not surprising therefore that developing countries, seeking the social and economic transformation of their societies, see the development of the mineral sector as an important part of the process.

Those developing countries which have mineral resources hope to use them to provide an industrial base: to move from production to more sophisticated forms of processing, and eventually manufacturing. For those countries without significant reserves, the hope is to find some, or to become involved in regional cooperation. Certainly the absence of mineral resources is not a total barrier to industrialization. Japan has few minerals, but is an aggressive manufacturing power and is now the world's biggest importer of mineral raw materials, taking 15% of the world's total. Most developing countries which lack minerals, cannot follow Japan's example in today's competitive world, and even those which have mineral resources, do not have an easy road to industrialization before them. The technology is hard to get, the market in metals often unpredictable. The distribution of resources and markets is geographically erratic. There are pollution problems, investment, management and ownership problems. On the other hand the development of the mineral sector brings in export earnings, creates employment, although often limited, and can bring life to remoter and neglected regions. Processing on the spot adds to these advantages. The use of metals in manufacturing is still rare in developing countries which at present consume only 10% of the world's production against 25% for the communist countries and 65% for the developed market economies. Processing is, however, on the increase in the Third World, although for the present it is no more than keeping pace with the increase in production.

The development of mineral resources is often a lengthy business—the period from the original survey to full production can be 20 years. Capital costs are high, especially if new infrastructure is needed for extraction. But the benefits can be great for an individual country and there are mutual benefits for both producers and consumers in ensuring that an adequate supply of mineral raw materials continues to be available. The non-fuel minerals dealt with in this dossier are vital to modern industrialized society, and although many resources are found in developed countries, the importance of reserves in developing countries is growing. There is a mutual interest in their development, to ensure supplies for existing industrialized users and to provide the developing country with an expanding mineral sector which, if properly structured, can be a major stimulus to economic development.

The contribution of mining to economic growth

by **Bension VARON** and **Wolfgang GLUSCHKE**(*)

No student of history can be unaware of the enormous contribution that minerals have made to civilization everywhere. All advances in material well-being in the past have been predicated upon the use of additional minerals, more effective utilization of minerals, or utilization of better minerals—indeed, very often a combination of all three. Minerals provided the foundation on which the Industrial Revolution was built, completely reorganizing modes of living and revolutionizing goods, tools, transportation and construction.

Yet, when we look at national income statistics, we find that, with few exceptions, these do not properly reflect the contribution of minerals to economic as well as social advancement. Although some countries such as Zaire and Zambia, Chile and Bolivia, are visibly and heavily dependent on mining, globally the mineral sector contributes about one percent of GDP, less than five percent of industrial production, and no more than three percent of employment in manufacturing. If these figures convey a relatively insignificant role for mining, compared to what we perceive in everyday life, it is because we normally stop measuring the contribution of minerals once the resources move from the mining sector to the manufacturing sector. To a large extent, the distinction is artificial. The life cycle of mineral raw materials is a continuum which, in most cases, comprises the following stages: exploration, mining, beneficiation, smelting, refining, semi-fabrication, manufacturing, use and recycling or obsolescence. Traditionally, only the stages from exploration through refining are considered to make up the "mining sector" and, for this reason, the refined metal stage constitutes the traditional point of pricing of mineral commodities.

Disregarding the subsequent stages leads to under-estimating grossly the potential contribution of mining to both the more balanced and the more stable growth of the developing countries. The manufacturing sector is characterized not only by higher added value, but also by a higher intensity of employment and more stable prices, generally rising with the level of inflation.

Minerals, of course, have also been a source of conflict—a conflict which is at least as old as the Bible, when kings fought for possession of salt, precious metals and copper mines. Ironically, minerals have also contributed to the sophistication of the weapons with which conflicts were fought. They provided the means for making better arms in order to acquire superior minerals with which to produce still better arms. The survival of the term "strategic minerals" in today's raw materials vocabulary suggests that this pattern is not completely broken.

Security of supplies and prices

Happily, conflict over raw materials expresses itself in different forms of controversy today, but the issues have become more complex and the debate has set the developed and developing countries against each other. Concern for continued supplies of raw materials, combined with renewed aspirations for self-sufficiency, on the one hand, and disappointment over insufficient and fluctuating revenues from mineral exports, on the other, are at the core of most issues. The concern over security of supply encompasses questions such as the adequacy of reserves and resources, the regional allocation of exploration and development expenditures, the exploitation of ocean resources, and the course of future mining, processing and transportation technology. The establishment of a new international economic order is considered as vital for increasing revenues from mineral exports; for control of natural resources based on the principle of permanent sovereignty over such resources; for the promotion of further processing beyond the ore or concentrate stage within the producer countries; for new contractual relations between host countries and foreign investors; for better terms of trade through commodity associations and/or agreements, stabilization schemes and the like; and for non-discriminating transfer of technology.

Clearly, there are two challenges: to ensure that controversy does not escalate or, at least, does not endure to the point of dangerously interfering with those activities and decisions, e.g., on exploration and investment, so important to assuring a steady supply of minerals to meet global needs, and to create the conditions under which mining can, at the same time, contribute to the strongly desired and much needed economic growth of the developing countries. Meeting these challenges requires an appreciation of the complexity of the mining sector and of the truly international character of the mining industry; removing the prevailing lack of confidence between investors and host countries; and a universal commitment to improving the well-being of and the opportunities for the disadvantaged nations.

A high risk sector

The extraordinary complexity of the mining sector arises, first, from the physical characteristics of the resources and their development. Mineral resources are hidden in the ground and have to be discovered; their distribution is uncertain and uneven; and the true value of a deposit cannot be known until all the ore is mined. Many of the deposits are in remote areas, and their exploitation requires heavy investment in infrastructure and long lead times

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A Papua-New Guinean operator in Bougainville Copper Ltd (Papua-New Guinea)

—more than 10 years from the identification of a deposit to the start up of production is not unusual. Many minerals occur and are exploited as co-products. Processing technology has to be tailored to the characteristics of the ore and the desired product. Ore grade tends to deteriorate. Project size is large and getting larger, and environmental damage can occur in some cases. In practice, these characteristics mean high risks which can be reduced but never completely eliminated; the miner always operates with imperfect knowledge.

The international character

By the "international character of the mining industry" we mean that, first, mineral resources supply and demand are in equilibrium only in very few countries, and even then only to a certain extent. Minerals are therefore traded widely internationally. The predominance, within the developing country group, of Chile, Zambia and Zaire in copper, Morocco in phosphate rock, Malaysia and Bolivia in tin, Guinea and Jamaica in bauxite, New Caledonia in nickel and Gabon in manganese ore—all of which, with the exception of Zaire, have populations of less than 20 million—illustrates that there is no correlation between country size (domestic market) and mineral resource endowment. The international character of the industry is also brought about by the fact that investment requirements have become so large and the combination of the correct technology, know-how and marketing so important that very few countries can nowadays develop a large mine on their own.

The implications of the complexity and international character of the mining industry are relevant to all mineral producing countries regardless of their economic and social structure or their level of development. A priori, this suggests a strong justification for international cooperation.

If there are obstacles along the way, it is first of all because the nature of the problem is such that subjective judgements always enter the picture. For example, differing assessments are made of risk, whether economic or political, of the rate of discount used in project evaluation, of the inherent value of the mineral in the ground, and of the long-term prospects for discovery, technology and markets. Yet, there is a core of unifying objectives. For example, improving the standard of living of the developing countries is now seen as a global goal. All nations share a desire to reduce production costs, to moderate excessive fluctuations in prices, and to ensure that prices are remunerative enough to attract the necessary investment. Even the call for security of supply associated with the developed countries and the call for security of demand associated with the developing countries need not be seen as polarizing forces. In principle, developing countries have an interest in providing security of supply to discourage substitution and to ensure the capacity to import the mineral-based capital goods needed for their development. And developed nations have an interest in providing security of demand in order to smooth or eliminate investment and supply cycles and assure the growth of markets in the developing countries for their products.

The problem of mutual trust

Yet, because of the prevailing lack of confidence between investors and host countries, each party has been tempted to seek greater security in order to safeguard what are perceived as vital interests, and this is unfortunate. On the one hand, the insistence on security of supply may interfere with the exercise of the principle of permanent sovereignty in the mineral-producing country and, on the other hand, efforts to prevent this may, as a by-product, discourage the flow of investment into the country. Seeking undue guarantees may involve the danger of moving away from some of the common objectives, such as efficiency and conservation. Attaching a high premium to self-sufficiency may interfere with the optimum location of production and processing facilities.

Such a situation, where there is not sufficient trust between potential partners, can be illustrated by reference to the different views that have been emerging in connection with the "problem of financing". The view that assuring the flow of investment into mining requires urgent attention and special institutional measures, if need be, generally has been associated with the developed countries. Some developing countries tend to see behind this drive for special measures a selfish desire to over-expand production in order to ensure lower prices and divide producers and to take the attention away from what the developing countries perceive as more urgent problems, namely, price stabilization, better terms of trade and increased local processing. Their attitude is strengthened by their view that the developed countries have shown inadequate concern about the over-capacity that exists at present and which, although not limited to developing country producers, affects them more. In some of the developed countries concern over the long-term finance problem has opened up the question of where to invest, with all its political connotations. Here again it is possible to work towards an accommodation or consensus if global objectives are not sacrificed. The need for investing in the developing countries, for example, draws its strength not only from the physical advantages of their resources (abundance, grade and the like) but from the proposition that development means consumption and that the mining industry, like all other industries, must play a role in making the developing countries larger consumers by making them larger producers.

The contribution of the mining industry to development

Developing countries already produce a large proportion of the world's mineral raw materials and have a large potential for further expansion (see annexed table). What can be done to expand their output and its contribution to their national economies? Much has been written about what the industrialized countries can do and have a responsibility to do in this respect: stabilize demand or prices, share knowledge, remove barriers to the movement of finance, technology and processed minerals, etc. In the space remaining, we shall consider, rather, what the developing countries themselves can do to this end, not because we ignore the power and responsibility of mineral-importing developed nations(1), but because to rely exclusively on what others are willing to do is to lose control over one's future.

Developing countries must first realize that substantial benefits can accrue to a country from a properly structured and administered mineral industry. Besides generating public revenue and export earnings, the mining industry, because of the often remote location of ore deposits, may stimulate the economic development of depressed regions. The training of local manpower at all levels and the successive replacement of expatriate staff is an integral part of many recent mine-development projects. The integration of the mineral project (often an enclave with stronger links to the foreign company's home country than to the local community) into the national economy, too, appears to be progressing slowly however.

Although the mining industry can have various adverse effects—for example its capital intensiveness, which results in creating comparatively few employment opportunities, and its import dependence in energy, equipment and materials, with its negative influence on the country's balance of payments—the benefits hold the balance and may offset the adverse effects over longer periods, as has been shown in a recent case study of the Bougainville copper mine in Papua New Guinea(2).

As all mineral projects have distinctive characteristics, and different countries adopt different approaches to the solution of development problems, detailed investigations into the impact of a mining enterprise on the national economy are necessary in each case. This should be done at the planning stage, before construction starts, since it is at that stage that the project's specifications can be so defined as to conform with national aspirations. Later adjustments are difficult and may be expensive, both in terms of money costs and lost confidence on the part of both the host country and the investor.

(1) That there are external barriers to the balanced development of the mining sector is demonstrated by the case of Canada whose proportion of mineral exports in unprocessed and semi-processed form approximates that of the major developing country exporters—a factor which cannot be explained away by the cliché of insufficient financial and technical resources, distance from markets, or inertia from colonial times.

(2) R.F. Mikesell, *Foreign Investment in Copper Mining: Case Studies of Mines in Peru and Papua New Guinea* (Baltimore, John Hopkins University Press, 1975).

Copper mine at Selebi-Pikwe (Botswana)

"A good many ore seams are in remote areas and mining them requires massive investments in infrastructure"



Downscaling or developing new technology

Although the present trend is towards increased processing in the developing countries as has been shown for copper(1), much more can be done to accelerate the pace. One solution would be "downscaling" of existing technology, i.e., adapting it to conditions in the developing countries. However, this would only be possible if one accepts considerably higher investment costs per unit of output. This is particularly relevant for the mining industry since it is capital intensive, and infrastructure and auxiliary installations such as ports, railways and energy facilities would have to be built irrespective of the size of the actual mining operations. As shown by McKern in a contribution to an OECD meeting on downscaling and adaptation of industrial technology, in the case of aluminium, refining and smelting are large-scale processes; the minimum economic size (600 to 800 thousand tons per year for refining and 100 to 120 thousand tons per year for smelting) is beyond the domestic needs of most developing countries(2).

More promising appears to be the development of new technology which is competitive at smaller scales. One example is the modern integrated steel plant consisting of units for the direct reduction of iron ore to sponge iron, an electric arc furnace, and continuous casting machinery. Operating at present at about one tenth of capacity of the traditional blast furnace technology, its investment costs per unit output are considerably lower than those for the traditional process. Although investment costs are not the only consideration, this type of technology might be the only alternative for many countries, since large-scale blast furnace systems cost upwards of \$ 2 billion.

Common ground between sovereignty and efficiency

The issue of permanent sovereignty over natural resources has arisen particularly in the context of the relations between commodity producing countries and the transnational corporations. The latter are difficult to control, can rapidly shift their activities from one country to the other, before major investments have been made, and their objectives quite clearly are not necessarily similar to those of the host country. But these companies, practically all of which are headquartered in the industrialized countries, command executive and professional expertise, technical know-how, and finance, all vital for resource development; they are often not prepared to provide the one without the other, although there have been significant exceptions in the recent past. Since these companies are highly efficient, a fact that is recognized in most developing countries, their services will be needed until sufficient indigenous capacity has been created. Many recent agreements between host country governments and foreign investors contain provisions which indicate that common ground can indeed be reached if both parties respect the apparent or real sensitivities, and a mutually acceptable distribution of benefits, can be negotiated and maintained over the life of the project.

Diversification, exploration, profits and jobs

As witnessed by the hardships experienced by copper-producing developing countries recently, a country could gain by diversifying its economy, avoiding heavy reliance on any one sector, including the mineral industry. The desirability of diversification also applies to production within the mineral sector. For example, copper producers co-produc-

ing molybdenum, and gold have not fared as poorly in the last three years. For many countries there appears to be no choice at present but to produce one mineral—iron ore in Liberia or bauxite in Jamaica, for example. However, exploration efforts could be directed so as to increase the probability of producing other minerals; very few countries are strictly limited in their mineral endowment.

This leads to the importance of exploration for the future of an existing or hoped for mining industry. Without exploration—from "grass-roots" prospecting, geological mapping and geochemical and geophysical surveying to the final phases of a feasibility study—a mineral sector cannot grow or survive over long periods. But exploration is a risky undertaking; only a few deposits out of hundreds of occurrences investigated ever become mines. A long-term programme is necessary, and the policy-maker should not be discouraged during the initial years of such activities. Since mining companies, be they transnational corporations or national enterprises, generally are only interested in prospects sufficiently known to at least promise a viable mine, the early stages of exploration have to be carried out by the government or by international or national (foreign) assistance agencies.

Large mining projects require considerable investment, have long lead times, and are more capital intensive. On the other hand, smaller projects can have a more immediate and direct impact on regional and national development, provide adequate quantities of minerals for the national market to facilitate the establishment of fabricating plants, and may form the nucleus for later expansions which could at least partially be financed from current cash flows. However, the government's or national companies' capability to manage these projects is an important consideration since many international corporations, though not all, prefer larger projects or insist on exporting the output. One drawback, of course, is that small mines require larger expenditures for exploration and planning in relation to potential production. Small and medium scale mining is indeed often overlooked in many countries. Yet, it employs far more people per unit output and of invested capital. For example, underground lead/zinc mines in Central America with daily capacities of 500-1000 tons of ore provide work for 1000 people or more.

Considerable benefits can also be derived from the exploitation of industrial minerals and construction materials. This sub-sector, which almost exclusively produces for the local or regional market, is generally independent of international commodity price fluctuations and the other constraints experienced by exports from developing countries. Raw materials for cement (limestone, clay, gypsum, etc.), glass (silica sand), pottery, tiles and other ceramics (clay, and others), dimension stone and various other materials are available in many countries. Production techniques are often flexible enough to allow the exploitation of lower quality raw materials, or processes can be developed for upgrading their quality. Local production of such products would substitute for imports and provide employment opportunities since most of the processes are labour intensive.

In short, while the occurrence of minerals is an accident of nature, its contribution to economic growth depends on the knowledge of choices and the wisdom of policies. □

(1) W. Gluschke, J. Shaw and B. Varon, *Copper: The Next Fifteen Years*, to be published by the D. Reidel Company, Dordrecht, the Netherlands, on behalf of the United Nations in spring 1978.

(2) R.B. McKern, *A Survey of Opportunities for Low-Scale Manufacture in Developing Countries*, working paper prepared for the Experts Meeting on Downscaling and Adaptation of Industrial Technology, Organisation for Economic Cooperation and Development (OECD), 27-29 June 1977.

Distribution of world

Share of world production (per cent)				Countries with substantial reserves and/or announced plans for expansion of production during the 1980's	
Mineral	Developing countries	Developed market economies	Centrally planned economies		
Copper	Chile 12.7 Zambia(*) 8.9 Zaire(*) 5.6 Philippines 3.0 Peru 2.8	United States 18.5 Canada 9.4 Australia 2.7	USSR 14.3 Poland 3.4	Canada, Chile, Iran, Mexico, Panama, Papua New Guinea(*), Philippines, Poland, United States, USSR, Zaire(*)	
Iron ore	Brazil 10.9 India 4.8 Liberia(*) 2.6	Australia 10.3 United States 8.8 Canada 6.3 France 4.3 Sweden 3.3	USSR 26.3 China 7.3	Australia, Brazil, Canada, Gabon(*), India, Liberia(*), USSR	
Phosphate Rock	Morocco 14.4 Tunisia 3.1 Togo(*) 1.9 Jordan 1.6 Senegal(*) 1.5	United States 41.4 South Africa 1.9	USSR 22.7 China 3.7	Australia, Morocco, South Africa, United States, USSR	
Tin	Malaysia 29.9 Bolivia 14.1 Indonesia 10.5 Thailand 9.7 Brazil 2.8 Zaire(*) 1.9	Australia 29.9	China 10.4 USSR 7.6	Bolivia, Burma, China, Indonesia, Malaysia, Thailand	
Bauxite	Guinea(*) 14.1 Jamaica(*) 12.8 Surinam(*) 5.7 Guyana(*) 3.9	Australia 29.9 Greece 3.4 France 2.9 Yugoslavia 2.5	USSR 8.3 Hungary 3.6	Australia, Brazil, Guinea(*), Jamaica(*), Venezuela, Surinam(*)	
Zinc	Peru 6.6 Mexico 4.3	Canada 17.3 Australia 7.7 United States 7.2 Japan 4.3	USSR 16.9 Poland 3.0 Korea, DPR 2.5 China 2.2	Australia, Canada, Ireland, Peru, United States, USSR	
Lead	Mexico 5.7 Peru 4.9	United States 15.7 Australia 11.3 Canada 7.4 Yugoslavia 3.5	USSR 17.0 China 4.0 Bulgaria 3.3 Korea DPR 3.1	Australia, Canada, Peru, United States, USSR	
Manganese Ore	Gabon(*) 9.2 Brazil 6.6 India 6.2	South Africa 23.2 Australia 6.6	USSR 37.6 China 4.1	Ocean resources (?) (b), Australia, Brazil, China, Gabon(*), South Africa, Upper Volta(*), USSR	

mine production, 1976 ^(a)

Mineral	Share of world production (per cent)			Countries with substantial reserves and/or announced plans for expansion of production during the 1980's
	Developing countries	Developed market economies	Centrally planned economies	
Nickel	New Caledonia 15.3 Cuba 4.7 Dominican R. 3.1 Philippines 2.0	Canada 33.7 Australia 9.7 South Africa 2.9 Greece 2.1	USSR 16.7	Ocean resources (b), Brazil Canada, Colombia, Cuba, Indonesia, New Caledonia
Cobalt (1975 data)	Zaire(*) 43 Zambia(*) 8 Cuba 6 New Caledonia 6 Morocco 5 Philippines 5	Australia 8 Canada 5 Finland 4	USSR 4	Ocean resources(b), New Caledonia, Philippines, USSR, Zaire(*)
Tungsten (1975 data)	Bolivia 6.6 Korea 6.4 Thailand 4.4	United States 6.8 Australia 4.1 Portugal 3.7 Canada 3.1	China 24.0 USSR 20.8 Korea, DPR 5.7	Australia, Bolivia, China, Korea DPR, United States, USSR
Chromium (1975 data)	Philippines 8.5 Rhodesia 8.1 India 5.0	South Africa 25.8 Turkey 6.9	USSR 26.8 Albania 9.1	Brazil, India, Madagascar(*), Rhodesia, South Africa, Sudan(*), Turkey, USSR
Molybdenum (1975 data)	Chile 11.2	United States 58.7 Canada 15.3	USSR 11.4	Canada, Chile, Peru, United States
Gold (1975 data)	Rhodesia 2.1 Papua New Guinea(*) 1.5	South Africa 59.5 Canada 4.3 United States 2.7 Australia 1.3	USSR 19.4	Philippines, South Africa, United States, USSR
Silver	Mexico 13.6 Peru 12.2 Chile 2.3 Bolivia 1.6	Canada 13.1 United States 10.9 Australia 8.0 Japan 3.0	USSR 15.4 Poland 2.6	Canada, Mexico, Peru, United States, USSR

Sources: Metallgesellschaft AG, *Metal Statistics 1966-1976*; United Nations, *Monthly Bulletin of Statistics*, December 1977, United States Department of the Interior, Bureau of Mines, *Minerals Yearbook 1975*, Vols. I and III; Mining Journal, Ltd., *Mining Annual Review 1977*; and others.

(*) Member countries of the Lomé Convention.

(a) Countries accounting for more than 90% of each commodity or the 10 largest producers, where production is less concentrated.

(b) Resources of cobalt, nickel, manganese and copper in manganese nodules are widely distributed over the floor of the oceans, especially in the northern Pacific. They can only be quantified very roughly at present but are generally considered to amount to more than 10 times those of land-based reserves (known and economically recoverable at present) for cobalt; they are about comparable for nickel and manganese, and considerably less than land-based reserves for copper. An assessment of future supply potential shows that ocean resources will contribute only a very small part of total copper supplies during the remainder of the century but may be of considerable importance in the cases of nickel and manganese, and especially cobalt. However, it is more than questionable whether manganese will be recovered by all potential producers, particularly during the first-generation projects. The exploitation of ocean resources is unlikely to start before the next decade.

Sharing the mineral wealth of the sea

by Elisabeth MANN BORGESE (*)

Ocean mining, especially the extraction of salt from sea water and of coal from the continental shelf, goes back to ancient times. It is only with the advance of modern technology, however, that the extraction of minerals and metals from the sea is assuming critical importance in the economy of nations and in the world economy as a whole. We may in fact be on the verge of a revolution in the mining industry, with a major shift from land-based to ocean-based resources. The consequences, in economic as well as in political terms, might be quite considerable.



Today by far the most important offshore mineral resource is still oil. Since the first offshore rig was built off the coast of California in 1894, the industry has expanded by leaps and bounds. Today almost 20% of the total world production comes from offshore. The value of offshore oil resources last year was estimated as \$1.610 billion. To this should be added another \$350 billion for offshore gas. There is more oil under the ocean than there is on land. As new areas are discovered — the North Sea, the China Seas, etc — and technological development permits ever deeper drilling, more than 50% of world production may come from offshore by the end of the century.

The sea bottom resources

Gold and platinum, mercury and chromium have been mined from the oceans. The Australians recently found gold deposits estimated to be worth about \$100 million near their coast. Chromite and rutile, barite and ilmenite are extracted from the continental shelf. About 95% of the world's reserves of rutile, located on the continental platform of eastern Australia, is mined at the rate of about 450 000 tons a year.

Tin ores have been mined for many years in Malaysia, from a depth of fifty metres. But in 1971 an American firm

experimented successfully with a hydraulic dredge which worked at a depth of 1000 metres. And the Japanese have developed a tin-ore dredge that scrapes the ocean bottom at depths up to 4000 metres. Aboard ship the ore is automatically separated from the sand and mud, which are then returned to the oceans.

The Russians have reported large tin reserves in the Yakut Autonomous Soviet Socialist Republic and in the Japan Sea. They have also initiated a programme for the large-scale extraction of diamonds, platinum and gold from the Lena River, the Sea of Okhotsk, and along the coasts of the Kamchatka Peninsula.

The economic potential of the muds which are deposited on the ocean floor as a result of erosion and from alluvial accumulation is considerable. There are two kinds of mud, the calcareous and the red. Calcareous muds originate from shell deposits and occupy about 35% of the ocean floor at depths anywhere from 700 to 6000 metres. These sediments are, on average, 400 metres thick. They contain calcium, potassium and barite, and can be used for the production of whitewash and fertilizers. Red muds contain aluminum, iron, copper, nickel, cobalt and vanadium. They are believed to cover half the floor of the Pacific Ocean and about a quarter of the Atlantic seabed, at an average depth of 3000 metres.

In 1970, the total value of worldwide production of mineral resources from the sea was estimated as \$ 1 billion. Of this amount, coal production yielded about \$335 million, salt \$ 173 million, sand and gravel \$150 million, magnesium \$335 million, tin \$24 million, heavy minerals (ilmenite, rutile, etc) \$13 million, diamonds \$9 million and iron sands \$3 million.

In 1965 a sensational discovery was made in the middle of the Red Sea. There are pools filled with very hot, very salty brines and at the bottom of those pools rich deposits of metal have accumulated, especially of iron, manganese, zinc and copper. Some of these deposits are 300 feet thick. According to recent calculations, the minerals deposited in one of these pools, the so-called Atlantis II Deep, have a value of \$2.3 billion, including \$780 million in zinc, \$1.1 billion in copper, \$280 million in silver and \$50 million in gold. These minerals are being explored and exploited by the German AMR consortium, in joint venture with Saudi Arabia under leases granted by the Sudanese government.

The famous nodules

A second, much discussed and dramatic development in ocean mining is that of the extraction of manganese nodules from the deep ocean floor of the Pacific. The richest deposits occur in a narrow band, perhaps 125 miles across and 1000 miles long, running roughly east-west along the southern edge of the equatorial belt at a depth of about 5000 to 12000 feet in the Pacific, Atlantic and Indian Oceans. They contain, in various concentrations, iron, nickel, copper, cobalt, and traces of two dozen other metals in addition to manganese. Rich beds contain about 10 kilos of nodules per square mile of ocean floor. They vary in composition, shape and size. Many look like potatoes, and there are trillions of tons of them scattered on the seabed — 1.5 trillion tons in the Pacific alone.

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There are two basic methods by which the nodules can be dredged up. One is the so-called continuous line bucket (CLB) developed by the Japanese. It consists of a long loop of cable to which buckets are attached at intervals. A traction drive moves the cable so that the buckets dive into the deep, drag across the seabed to scoop up nodules, and come up again to empty their load. The second method, developed by Americans and Germans, is hydraulic. The nodules are sucked up, through a long, flexible steel pipe: a sort of huge vacuum cleaner.

Although manganese nodule mining is still at an experimental stage, there are many problems yet to be solved, and the current steel and copper crisis is not encouraging large investments in seabed mining. Some experts (e.g. *Science* magazine in the US) anticipate that seabed mining will be considerably cheaper than the extraction of minerals on land. Compared with mining on land, where \$9 of capital

may produce \$1 a year, \$1 of capital will return at least \$3 from ocean mining. John Mero, a pioneer in the nodule mining industry, predicts that massive production of minerals at one-fifth or one-tenth of land prices will signal the end of mining on land.

Not only the continental shelves, the ocean floor and its subsoil, however, contain vast mineral resources. The water of the oceans itself can be considered a liquid mine, containing at least 60 useful elements in stunning quantities, such as 10 million tons of gold, over 15 billion tons of manganese, and at least 20 billion tons of uranium. But they are diluted in billions of tons of water. Their extraction might become economically possible only if technology were able to produce inexhaustible, renewable energy, either solar or thermonuclear. But even when this becomes possible, the application of energy on such a vast scale would create problems of heat waste or thermal pollution.

Measuring the oxygen consumption of coral in the Caribbean off the Bahamas

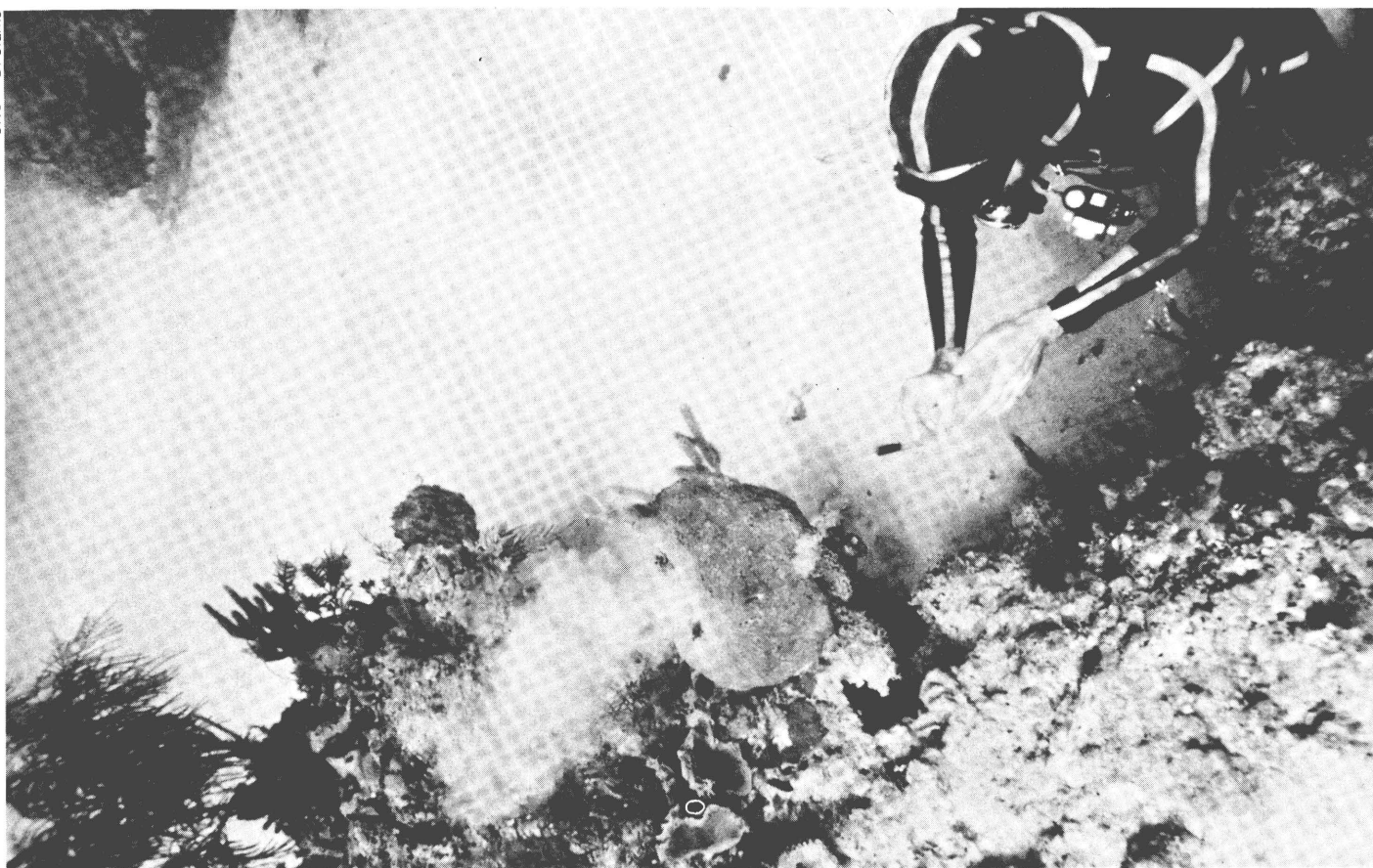


Minerals from the liquid ocean mine might also be extracted by biological systems; that is, we might use animals or plants to do the job for us. For instance, the ascidian, a sea worm, concentrates vanadium into itself; the lobster extracts copper from sea water; and T.F. Gaskell pointed out that "many sea animals have perfected ways of concentrating minerals ... Research into this problem may soon lead to the devising of man-made equipment for performing the extraction under controlled conditions..." Certain algae concentrate uranium, and can be genetically improved so that this concentration is even higher than in nature. Algologists are presently working on experimental "uranium farms" where uranium is concentrated by algae and extracted from them, with a side production of methane and fertilizer. Ocean mining thus takes us to the frontier of scientific and cultural development.

Very few countries at present have the scientific and technological capability to realize the potential of ocean mining. Some of them are major importers of these minerals and metals. They invest in the new technologies to increase their independence from other countries who are exporters of these minerals and metals.

Many of the developing countries are exporters. The export of minerals and metals provides a large share of their income. Their earnings may be reduced or lost if ocean mining becomes a major competitive factor.

But this need not be the case. In spite of the present trend towards the nationalization of ocean space, the oceans remain a medium recalcitrant to fixed boundaries and national management. Considering that the oceans are one ecological whole and that all parts of it and all uses of it are interdependent, the XXV General Assembly of the United Nations made a beginning by declaring the seabed, the ocean floor and the subsoil thereof, and its resources, to be the common heritage of mankind,



Science can be scenic; but most mineral wealth is in deeper and darker waters

which cannot be appropriated by any nation or person; which must be managed by cooperation of all countries, for the benefit of all, with special regard for the needs of developing countries; which can be used for peaceful purposes only and must be conserved for future generations.

This is a revolutionary new concept, transcending and transforming those of sovereignty and ownership and fundamentally changing the relations between rich and poor countries: the latter, under this concept, are to share in a common heritage, not to depend on foreign aid.

A new type of international Institution for the sea bottoms

To embody this new concept, the Third UN Conference on the Law of the Sea is to create a new type of international institution, the International Seabed Authority, to begin with, for the management of the production of nodules from the seabed beyond the limits of national jurisdiction. This may be the prototype for a number of other international resource management authorities.

The difficulties of creating such a radically new type of institution are obviously enormous, and they are far from having been solved. There are, however, technological and ecological imperatives pushing in the direction of a solution.

If there are international resource management authorities, they will not compete with developing exporting countries. These, instead, will participate in ocean mining and directly benefit from such participation. Such benefits will include short-cuts in technological development,

through immediate access to the most sophisticated and advanced ocean mining technologies. They will also include financial benefits, enabling these countries to diversify and industrialize at a much more rapid pace than has been possible under the present system which divides countries into producer and consumer nations and, for all practical purposes, continues a post-colonial extraction economy which, as the history of these last 30 years all too clearly indicates, is not conducive to development.

The internationalization of resource management, while becoming an ecological and economic necessity, will inter-link important sectors of the world economy in such a way that major wars between countries so linked will become increasingly impossible. The merger of the coal and steel industries of western Europe under the Schuman Plan has set a precedent for such developments. The establishment of the International Seabed Authority thus would be a major break-through advancing both development and peace.

Effective participation by developing countries in the activities of the Authority is of utmost and immediate importance. The Authority, as it is emerging from the ongoing negotiations at the Law of the Sea Conference, will have a number of organs — an Assembly, a Council, an Economic Planning Commission, a Technical Commission, an Enterprise system, a Dispute Settlement system, among others — which call for experts and civil servants of an entirely new type. Their experience must comprise the oceanographic sciences as well as mining technology and economy, resource management, environmental sciences, and international law. Some of these experiences are not easy to acquire in developing countries. An international programme for comprehensive training in these new, interdisciplinary skills should be initiated at once. Only thus can developing countries realize the potential of the ongoing marine revolution. □

E.M.B.

The importance of mineral exploration and geological surveys in the developing countries

by J.V. HEPWORTH(*)

The reasons for undertaking mineral exploration are as compelling as they always have been since man became a tool-maker: the raw mineral materials for manufacture, for fuel, for armaments, for decoration, for wealth, are demanded by developing and developed countries alike, and it is inconceivable, with rising world levels of population and consumption, that the demand will become less. Various factors tend to push exploration activity towards the developing countries, such as population growth and the gross imbalance between consumption of raw materials in the developed and developing countries. Also, the desire of the latter to take control of the exploitation of their own natural resources. It is in the developing countries also, and at least on land, that very large areas of geologically unexplored terrain still exist.

Many factors influence the ways in which the search for minerals is conducted, and some are contradictory. For example, advances in exploration methods present as many problems in "technology transfer" as any other sector; the fairly abundant bilateral and multilateral funds now available for technical collaboration projects, as well as private sector funds, may not be matched by administrative structures, political stability or favourable investment climate; and the demands of mineral exploration must compete with other priorities in national and international planning, such as rural development and food production. There are numerous options open in undertaking and implementing earth resource evaluation programmes and it is only possible here to indicate some of the main lines of approach.

The value of the geological map

A mineral deposit is no more or less than an unusually rich or concentrated, usually mono-minerallic, kind of rock: thus, the distribution of mineral deposits is not to be understood except in the context of the rocks which surround them. Coal for example, occurs as layers of carbon-rich rock among sandstones and shales, and the conformation of a coal basin is determined by the whole series of layered rocks which fill it. The shape, depth and behaviour of the coal bed can be deduced and calculated from the total picture of the beds which contain it, as established by the geological survey. The distribution of tin-bearing veins within, or protruding from a granite is related to the granite's emplacement. Mineral provinces are characterized by particular associations such as tin/tungsten, copper/lead/zinc, or nickel/chromium/platinoids, and these have recognizable distribution patterns, regional and sometimes global, which have predictive value in planning prospecting programmes.

Indeed, one of the main values of the geological map is in its use as a source of information for planning decisions. These may be directly related to the resources occurring in the lithosphere such as metalliferous minerals, hydrocarbons, bulk minerals for industrial use, construction materials, and the most crucial and life-sustaining mineral, water, stored in porous rocks ("ground-water"). Or planning decisions may be less closely dependent upon the original body of geological information but nevertheless derived from it; for example, route-planning especially in mountainous or swampy terrain may be strongly influenced by both superficial and bed-rock geology. Foundation studies for very high (e.g. multistorey), or deep (e.g. dry docks), or heavy (e.g. airport runways) constructions lie in the sphere of engineering geology. Less closely related, except by a chain of interactions, to the basic geology are the effects of trace element abundances on animal nutrition (e.g. cobalt deficiency in pastures) or human health (e.g. iodine deficiency produces thyroid malfunction).

These are a few of the uses of the geological map, in developed and developing countries alike. However, the uses to which any map is put—be it topographic, demographic, meteorological, or geological, are numerous and dependent upon the demands of the user. In all cases the usefulness depends upon the range of information incorporated, and the selectiveness of the compilation. For this reason the "mineral occurrence" map may reflect an interest in a particular element whose value may have fallen owing to over-discovery and world recession (e.g. copper), and not be of particular value in a reassessment of resources where a mineral in current demand is sought.

These remarks point to the importance of the basic "encyclopedic" geological map, usually supported by a descriptive memoir. The systematic production of such maps is usually the function of the national geological surveys such as the BRGM in France, the BGR in Germany, or IGS in UK, but some basic mapping is undertaken by specialist survey contractors.

For most purposes a scale of 1:50000 is regarded as minimal for geological maps for general use. For detailed work, such as in coalfields, a scale of 1:10000 or even 1:5000 is essential. For first time reconnaissance mapping, e.g. the Canadian Shield or much of Asia, a scale of 1:250000 may, through the dictates of time, expense and user demand, suffice.

A range of techniques

The "encyclopedic" basic geological map requires a range of techniques to build up the complete picture it presents, and is accordingly costly, but the unit cost depends very much upon the scale. The first reconnaissance map may cost perhaps one tenth to one twentieth per square kilometer that of the detailed map, for the reason that it is completed much more quickly. The actual cost of

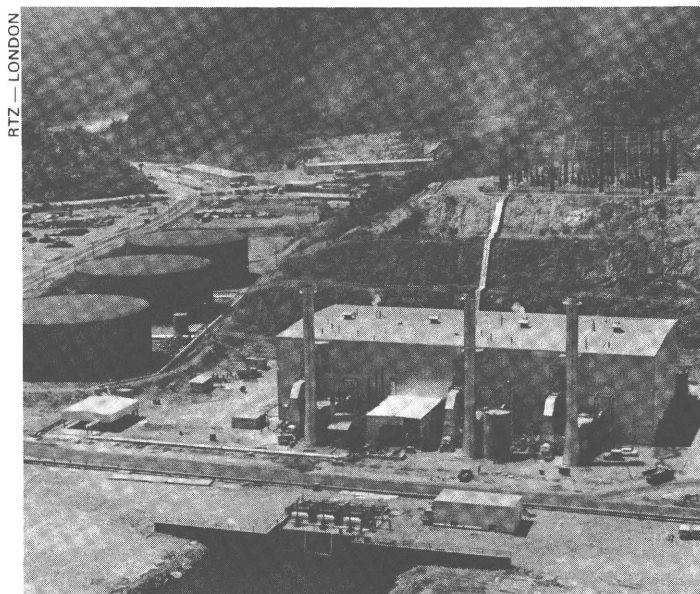
(*) Institute of Geological Sciences, London.

basic mapping will also vary widely according to the terrain and the methods adopted, for example, if access is difficult and time is the essence, helicopters may be used with an almost certain increase in cost, in spite of decrease in ground travel time. The costs will also reflect the infrastructure available, and the difference between contractors and state surveys with different costing methods, assumptions and overheads, and the method of publication, if any.

Nevertheless, the full geological survey remains expensive and slow however effected. Hence the attempts varying from one branch of geology to another, to cut survey time by the use of different techniques aimed at the recognition of economic mineral deposits. These are, broadly speaking, geophysical or geochemical, and may be carried out either on the ground or by airborne methods. Optical methods such as air photography and satellite imagery are not usually referred to as "geophysical" but have a methodology in their own right and are essential background to other methods. The most effective way of producing a mineral map (whose value is to an extent related to the existence or otherwise of a basic geological map) is by a combination of the above techniques such as airborne electromagnetic and magnetic survey, plus ground geochemistry, plus photo-geological interpretation. This combination would probably be less costly than basic geological mapping.

However, such estimates have to be related carefully to a range of variables including the amount of previous work, and the time scale envisaged. Thus, it seems that no hard and fast conclusion is possible regarding the use of sophisticated technology and "boot and hammer" surveys.

Very elaborate "remote sensing" and airborne surveys, both geophysical and geochemical, are in regular use.



A positive strike is only the beginning; this electricity generating station had to be built at Bougainville (Papua-New Guinea) before copper mining could start

These demand a high level of expertise both on the part of the operators and the client's geologists and geophysicists whether they are employed by a prospecting and mining company or by a state corporation, and upon whom depends the clearly defined objectives and specification of the survey, and perhaps the interpretation of the results. The large costs involved and the competitive nature of the airborne survey business means that both sides must operate within well defined logistic, financial, and scientific limits.

Whichever approach is adopted to "earth resource" evaluation whether "encyclopedic" geological mapping or specialized mineral and ground-water exploration, the ultimate objective is to arrive at a corpus of information, of an accuracy commensurate with the methods employed and the state of the art of exploration and scientific thinking, which can be interpreted and made use of by the client and community, through its scientists. It is not easy always to choose the methodology which is most appropriate, is cost-effective and which will stand the test of time.

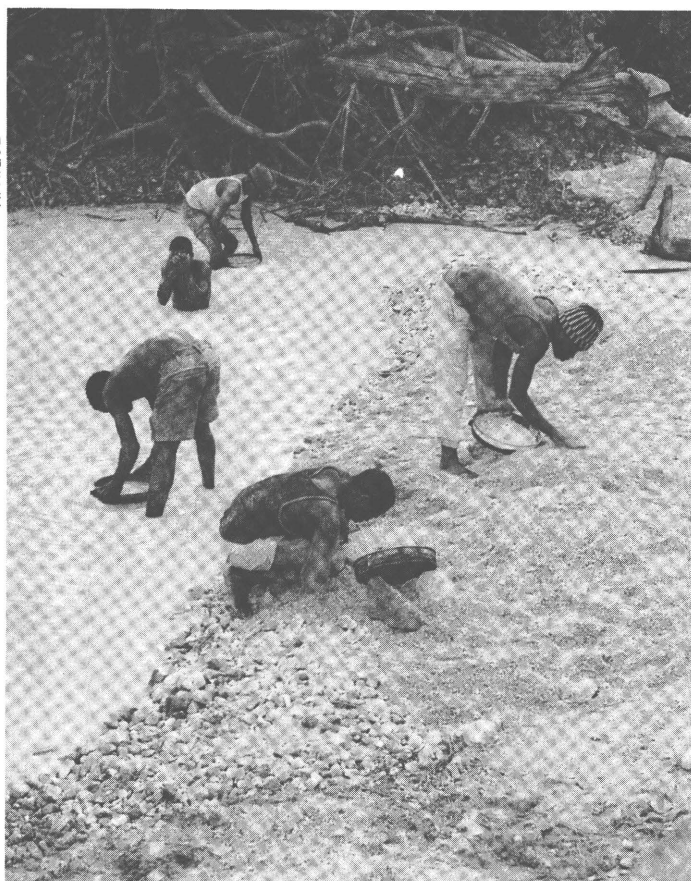
Vast areas need to be surveyed

It is surprising how much of the world remains to be explored at something better than a first reconnaissance level, possibly half its land area, not to mention nearly all the oceans. This is illustrated by the number of occurrences of economic importance which have been discovered over the last 5 years. To take only a few examples, copper deposits in Oman and Pakistan, a massive kimberlite (diamond) pipe in Botswana, and probably the largest iron ore deposit in the world (Carajas) in Brazil, have been discovered, and there is no reason to suppose that this is the end of an era of discovery. At the same time the amount of non-productive exploration should not be forgotten.

The methodology of exploration and mineral discovery is fairly well understood although open to continuous refinement. Perhaps equally difficult problems to be solved in evaluating the mineral resources of the developing world are organizational and economic and related to ultimate political and social objectives as well as to financial incentives. □

J.V.H.

AFRIQUE PHOTO — Nand



Panning for diamonds the hard way in the Ivory Coast

European mining investments in the developing countries

by Alain DANGEARD(*)

Now that excessive supply has brought about a slump on commodity markets and a feeling of safety among the consumers, the specialists have recently turned their attention to the state of Europe's external investments in mining.

Recent trends (oil investments excluded)

Does not the current availability of commodities on the world market conceal certain worrying factors for these major commodity consumers, the countries of Europe? These factors are:

- the relatively small amount of Europe's direct external investments;
- the inadequacy of annual R & D investments;
- an unwillingness to invest in developing countries, leading to an imbalance in investment patterns.

As far back as 1967, Europe was making less direct external investments than the US and Canada, two countries with considerable resources of their own. In late 1967, an IBRD study on private investments in mining and smelting gave the breakdown as:

- US & Canada: 67% of total (including Latin America 78%);
- UK (16%) & France (11%), primarily in Africa (and South Africa in the case of the UK).

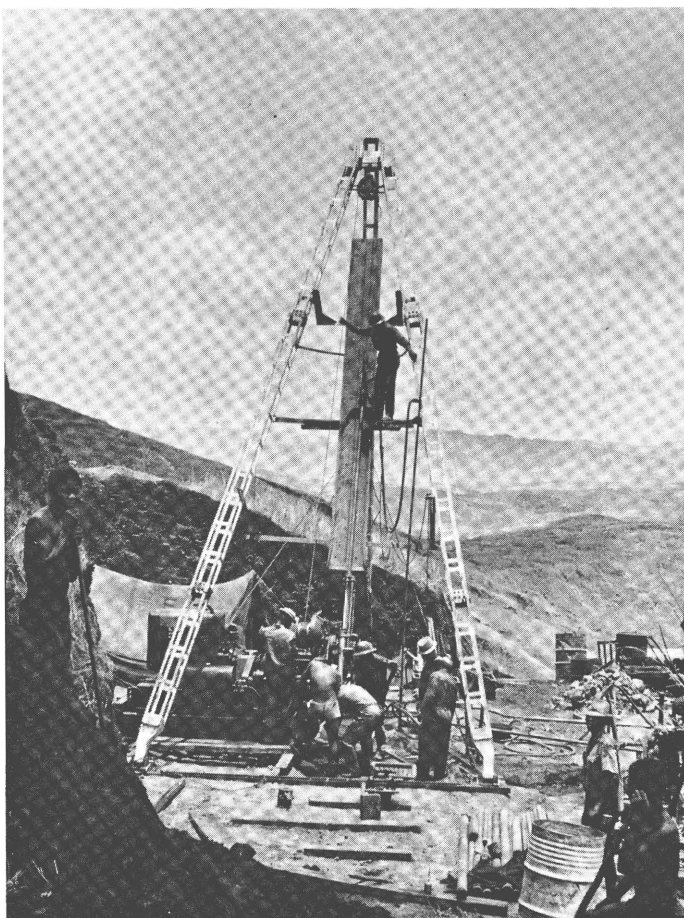
During this period, North America had more assets in Africa than French companies did.

Over the last decade, European mining investments in the world have slipped back further, largely due to:

- nationalization in the early seventies, particularly in Africa;
- a new, active Japanese policy combined with new enterprises in the developing countries (Philippines, Brazil, Mexico, etc.);
- continuing and considerable private North American investment outside the US and Canada, mainly based on new project financing banking techniques.

Official statistics shed little light on annual trends in new investments in the mining sector. However, a survey run by a group of European mining operators in early 1977 put the annual average investment at around \$500 million (capital and loan guarantees) over the 1966-75 period. This is well below what it is estimated that Europe should ordinarily be contributing, bearing in mind that the EEC consumes between 20% and 30% of the world's main commodities.

PHOTO BRGM — FRANCE



Madagascar

Trial bore for chromium

At world level, Europe's external financing would become \$2500 million, quite inadequate to replace the raw materials consumed, even supposing increasing participation on the part of the producer countries. Such overall estimates are, of course, extremely difficult to produce, but \$4000 to \$8000 million or more p.a. are the figures normally quoted.

Over the last decade, direct Japanese investments have reached and even exceeded annual European investments. North American investments would appear to have ensured the replacement of world supplies, over and above their own needs, primarily for the benefit of Europe. It should also be noted that a considerable percentage of European investments has been made by a consortium led by North American groups and that there have been virtually no purely European groupings in recent years (although there were in the fifties to exploit African deposits).

Finally, European mining operators have shown far less interest than their North American and Japanese counterparts in investing in the developing countries. Less than 25% of the mining investments of the 14 European firms in the above survey was made in developing countries and their research in these countries has also decreased regularly (from 50% to 15% of their world commitments) over the last 10 years. Although certain North American groups share this lack of enthusiasm, Canadian and American firms in general have gone on setting up in the producer countries, particularly when there has been a need to ensure supply.

(*) General Secretary of BRGM (France).

Nearly half the external investments made by Japanese firms are in developing countries.

Since Europe is the industrialized region which most depends on supplies from the developing countries, the foregoing is paradoxical and requires considerable explanation.

Why European investments in mining have declined

Although there are advantages attached to mining projects in the Third World (often higher grade ores, cheaper labour, cheap sources of energy, etc.), there are considerable handicaps as well. Infrastructure needs to be created, a favourable economic climate may be wanting, there are problems with training and the laying off of staff, the size of projects poses problems, there is no common law whereby tax and other conditions can be negotiated case by case and so on. And changes in the commodity markets make it more difficult for medium-sized operators, like European firms, to balance out the advantages and disadvantages.

Since the host countries are anxious to limit the export of profits (and practically halt that of superprofits), establishment agreements are more restrictive.

The world fluctuation of commodity prices and the instability of currencies have meant that considerable losses

have been made, without adequate compensation when rates have been high.

At the beginning at least, European firms were more committed than others to the Third World and their gross profit margins have narrowed. They tend to prefer reinvesting in smaller, more flexible projects in politically safe areas. Certain groups have even decided to abandon mining for economically stabler sectors of activity.

There is thus a whole series of reasons for European mining operators being reluctant to invest in the Third World. The fear of nationalization or expropriation in disguise (the renegotiation of initial agreements, for example) is only one of these. Although not confined to the developing countries, these non-commercial risks have nevertheless taken on a symbolic value in a context where the financing of mining projects was becoming increasingly difficult due to the economic situation being unfavourable for mining investments in general.

There are difficulties that are specific to the mining sector, as is obvious if it is compared to other European investments in the developing countries, which do not seem to have declined in the same way. Outside the mining sector, European firms have continued to be as active as their American and Japanese rivals. As far as the cause of the reduction in mining investments is concerned, it is now difficult to distinguish between higher investment costs per tonne as compared to market prices, greater non-commer-

Down below in Zaire





Pouring copper ingots: "new rules must be found for the first stage of processing"

cial risks and the problem of finding sources of financing which are willing to bet on rates rising again. Few European banks seem willing to pursue a vigorous policy of direct external investment as the New York banks did in the early seventies, particularly for major projects in Latin America, Australia and Canada.

Finally, the public authorities in Europe were slow to react to the situation. Great Britain had confidence in its mining operators. France and Germany adopted measures to encourage mineral prospection and development, but failed to introduce as complete a range of measures as Japan did when it aimed to set up an external mining sector large enough to ensure its own supplies. A lasting improvement in Europe's external mining investments would suppose incentives at all stages of development (guarantees, appropriate sources of financing, etc.), greater willingness to combine forces at European level and the establishment of a properly balanced dialogue between the countries of Europe and the producer countries of the Third World.

What is the outlook for the coming years?

The natural thing would obviously be to increase cooperation between European countries and the Third World countries which produce the raw materials as to the best way of developing the latter's mineral resources.

For some, a return to remunerative prices would remove all the present obstacles to more investments in the Third World. They quite rightly point out that, when supply is short and prices are steady (as with tin and chromium, for example), there is less reluctance to prospect and invest even in fairly unstable countries. However, without concerted action, it will be difficult to increase investments, because:

- the move may be too late to prevent dramatic price increases;

- it may bring about a new wave of excessive investments, some of which will have to be abandoned later, to the

detriment of the relevant producer countries and their development plans.

A concerted effort to stabilize commodity prices is therefore necessary and Europe, because of its dependence on certain areas of the Third World, should be its driving force. Europe alone seems able to give relevant information to the financial centres to which genuine decision-making powers belong now that those of the traditional mining companies have declined (this change is probably the part cause of certain excessive investments in the 1972-74 period and it makes it more difficult to expand investments again now). For the first time for a considerable period, stabilization is felt, in professional circles (that are anxious about the consequences of the current disorder), to be more easily attainable.

Others wonder about the chances of a balanced dialogue on mining investments with the developing countries. On the one hand there is doubt in certain circles about the advantages to the producer countries of this type of investment. They are not sure that the local economy reaps any real benefit, instability, in particular, being increased. There are, in fact, enough potentially exploitable deposits in the world, and the Third World, for any country assailed by this sort of doubt to say what it thinks without, for the moment, involving a risk of international shortage. On the other hand, Europe should ensure that those countries of the Third World which are hoping to partly found their development on their mining potential and seeking its help with so doing are not systematically disappointed and held back by the reluctance of European investors.

All the problems must therefore be dealt with. Not just those to do with security of investment, profit sharing and the transfer of technology, but the increasingly difficult issue of first-stage processing in the producer countries as well. Fewer and fewer producers now want to export crude products, although the question of processing all or part of their production is often not raised at home or put to foreign mining investors either. The problem here is that the generalization of on-the-spot processing will inevitably produce excess capacity at the first stage and any mining operator who points this out runs the risk of being accused of wanting to maintain unequal relations. Here again, it is difficult to see how things can develop harmoniously unless European authorities and producer country governments are willing to cooperate on laying down rules that take everyone's interests into account.

This outline of one or two of the problems of the decline of European mining investments in the Third World suggests that there is a certain institutional vacuum that has yet to be filled. Mining companies and producer country governments have obviously revised their ideas, as is borne out by the fact that agreements are now better balanced than they were in the past. If all the developing countries are to have even chances of developing their mineral resources, then their governments will have to go in for greater cooperation with a view to:

- dealing with the problem of price stabilization;
- seeking new rules for first-stage processing.

In a period of change, progress along both these lines would make it easier to overcome the fear of non-commercial risks—which the appropriate measures should be able to reduce in the future. □

A.D.

European support needed for minerals procurement

At the end of 1977, the retiring president of the Mining Association of the United Kingdom, Beville Pain, called for European action to halt the decline in investment in mineral exploration and procurement. The following is an extract from his speech to the Association's annual general meeting:

"The mining industry to-day is experiencing very serious problems stemming from both economic and political factors.

The world has been slow and hesitant to break out of the deep recession generated by the dramatic increase in the oil price imposed by the OPEC countries in 1974. The reduction in industrial activity which followed has forced down the price of metals, with some notable exceptions such as tin and tungsten, to historically low levels in real money terms.

This has led to the accumulation of excessive stocks which are particularly serious in the case of copper and nickel, where current prices are far below the levels needed to support new mining developments, and indeed render many existing operations unprofitable.

However, the present imbalance between supply and demand will not last indefinitely and there is evidence to suggest that the current relative abundance of metals could give way to severe shortages in the 1980s.

There has been a substantial fall in exploration and new mining activity in particular in the developing countries which (for geological and marketing reasons) remain for Europe sources of raw materials of major importance. Exploration expenditure in these countries by the major European mining companies has fallen from a peak of 57% of their overall expenditure in 1961 to 13.5% in 1973-1975.

This is particularly serious if related to the future raw materials requirements of Europe. It has been calculated that to maintain supplies of the main non-ferrous metals to Europe over the next decade an investment of \$24 billion, or \$2.4 billion per annum, will be needed. By contrast the total expenditure of the European mining companies during the 1960s and early 70s averaged only about \$400 million per annum.

The fall in activity in the developing countries has been occasioned largely by the lack of confidence in the stability of investment conditions. The size and nature of mining operations makes them especially vulnerable to risks of creeping expropriation, through the gradual erosion of the terms agreed with the host Government for the operation. A number of examples have occurred over recent years in different countries. If confidence is to be revived and mining activity increased to the level necessary both to provide economic growth in LDC's and to ensure future supplies for European manufacturing industry urgent action is needed at Government and European Community level.

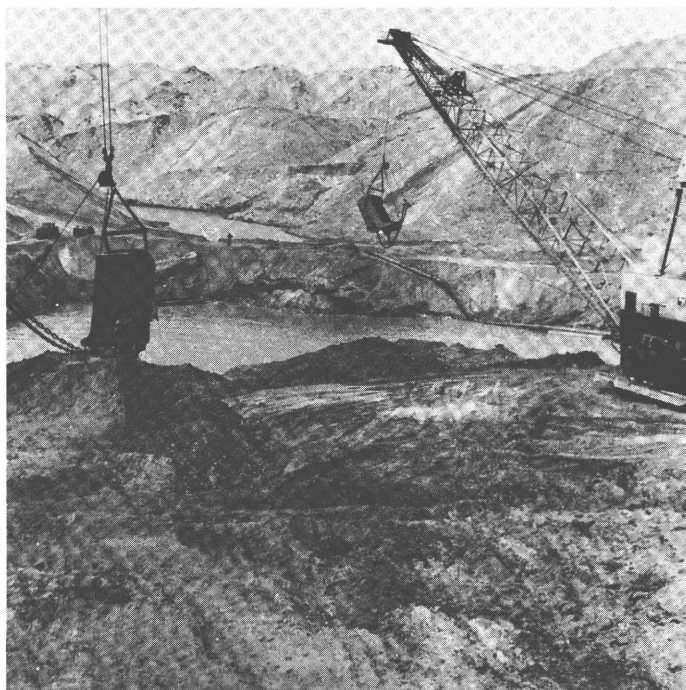
Mining Industry Proposals

To this end the European mining industry has proposed that existing national policies for minerals procurement, including national guarantee systems, should be supplemented and reinforced by European facilities thus bringing to bear the additional weight and potential effectiveness that the Community carries as a whole. Three main elements are envisaged. Firstly, mining investments would be brought within the framework of treaty agreements governing relationships between the Community, member states and host governments. This would include agreements of an ad hoc nature and multinational treaties such as the Lomé Convention, and these would provide for equitable treatment for the proposed European investment. The terms of individual mining investments concluded under the umbrella of such treaties would be recognized and protected. In the event of problems arising there would be immediate discussions between governments to seek a solution and finally recourse if necessary to agreed impartial arbitration.

Secondly, existing national political risk insurance schemes would be harmonized and brought together to form a combined European Community scheme for approved mining projects, the output from which, subject to agreed host country domestic requirements, would be made available to European consumers.

Thirdly, financial assistance would be available in the form of loans, at market rates directly to the project, or linked to raw material supply, or on more favourable terms for infrastructure or development aid associated with the project.

I believe that the introduction of proposals along these lines is essential to protect future raw material supplies for European manufactures and for the continued development of the mining industry." □



A modern phosphates mine in Senegal

The evolution of prices of non-fuel minerals

by Philip CROWSON(*)

Demand for most non fuel minerals and their immediate derivatives is dependent on economic activity in the main industrial countries. Even purchases of crude fertilizers are heavily influenced by farmers' incomes, which are in turn linked with the business cycle. The main outlets for mineral products are in capital and durable goods, demand for which is more volatile than overall economic activity.

The large number of production stages between a mine and the final uses of its products means that changes in demand for finished products only react on demand at the mine after a lengthy lag. Stock movements at various points in the chain exaggerate the effects of the initial change in demand. Meantime, in the short term, demand for minerals is highly insensitive to price movements, although relative changes in prices of different minerals affects substitution between them in the longer term. On the supply side, output does not respond quickly to altered demand, partly because of the lags mentioned. More important, the heavy fixed cost burden of most mines forces as full an utilization of capacity as possible. There is, in any case, a wide spread of production costs between different mines even in the same country, because of markedly varying geological and technical circumstances.

Shifts in demand are translated into prices rather than offsetting movements in supply

In order to offset steeply rising capital and operating costs, especially in recent years, the scale of new facilities has tended to rise, so that a new mine often adds substantially to new capacity; supply rises in discrete steps. The lead time between an initial investment decision and start up is considerable, and demand conditions can change fundamentally from those envisaged when a project is started. Shorter term supply often moves independently of demand because of strikes, transport interruptions or similar problems. The overall consequence of these various factors is that prices of minerals and their derivatives tend to be volatile; shifts in demand are translated into prices rather than offsetting movements in supply.

Chart 1 shows annual index numbers of the export prices of various minerals since 1967. Metal ores include iron, chrome, manganese, and bauxite as well as some non

ferrous ores. The index numbers are in dollar terms unadjusted for changes in the value of money. The steep increases between 1972 and 1974/5 partly reflect general inflation as well as the sharp upswing in demand of that period. The index of non ferrous base metal prices has fluctuated, even in money terms, in sympathy with economic activity, being weak or declining in the 1971-72 and post 1974 recessions. Chart 2 shows these fluctuations in more detail for individual non ferrous metals, and for iron ore, back to 1950. The original prices are converted to United States' dollars at the average exchange rates of each year, and then divided by a United States' wholesale price index to give June 1977 terms prices. This procedure highlights both the underlying fluctuations and the many special factors that have operated at times on some or all materials. Use of annual averages does, though, mask some of the more extreme market movements. In 1974, for example, the price of copper wirebars on the London Metal Exchange averaged £877/tonne, but it ranged between £529 and £1400/tonne.

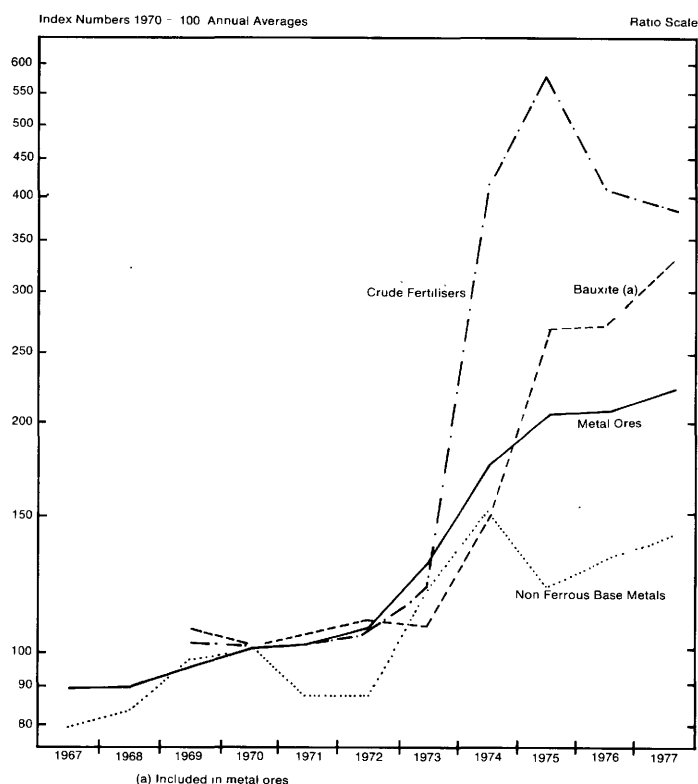
The factors which determine prices

Some of the more important factors affecting individual prices have been:

— **Market Structure:** prices are less volatile where there are few, closely integrated producers selling direct to custo-

(*) Senior economist with the Rio Tinto Zinc Corporation, London.

CHART 1
EXPORT PRICES OF MINERALS
AND NON FERROUS BASE METALS



Source: United Nations Monthly Bulletin of Statistics

mers (e.g. nickel, aluminium) than where there are many producers, and consumers and well established terminal markets (e.g. copper, lead). Prices of some ores are fixed under annual renegotiated long term contracts (iron ore, manganese), whereas others are linked to terminal market quotations for metal (copper).

— **Government controls:** as the most important consumer, and often a major producing country, the United States has a major influence on prices. It has at times (e.g. 1971-73) imposed price controls on basic metals, which have distorted world trade patterns. More recently, the vigorous application of anti trust measures has prevented concerted action by producers world wide to tailor supply to demand in many materials. The consequent price weakness has encouraged the spread of protection from the US, which further weakens the market.

— **Exchange rates:** prices on the London Metal Exchange are quoted in sterling, and most ores are priced in US dollars. Fluctuations in both currencies have exacerbated mineral price movements. More important, currency changes have greatly affected the prices received by different producers and paid by different consumers in their own currencies. For example, the sterling price of copper was 52% above its 1972 average in January 1978, but the German Deutschmark equivalent had fallen nearly 22%.

— **Technological and geological developments:** the discovery of major new mineral provinces, such as the Missouri lead belt in the 1950's, or the development of new processes or mining methods such as open pit porphyry copper mining, shortages of reserves (e.g. tin) or movements in demand (the phasing out of lead additives in petrol), have longer term impacts on prices transcending shorter term movements.

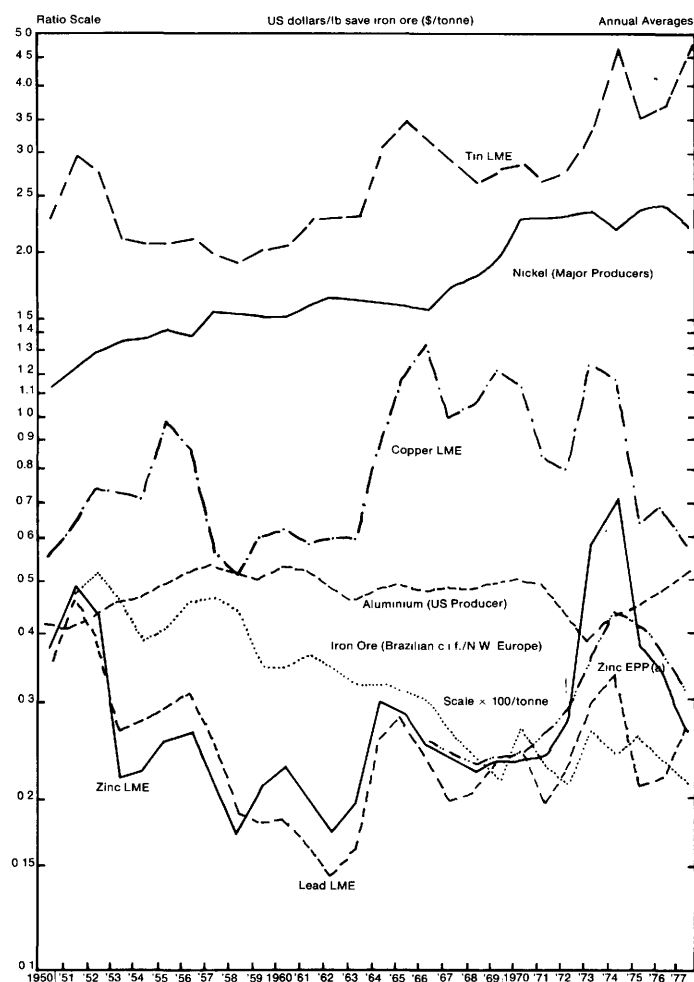
— **Cost inflation:** prior to the 1970's costs were relatively stable or increasing only modestly in many mining areas. Declining freight rates with the development of bulk carriers, allowed falling real prices of minerals in the main industrial centres (e.g. Brazilian iron ore in North West Europe). The cost explosion of the 1970's, exacerbated by the changed energy prices, has greatly affected mining and altered the relative economics of different processes (e.g. lateritic became much less competitive with sulphide nickel). Meanwhile the post 1974 recession has kept prices of minerals in check, so that profitability has been greatly squeezed.

— **International agreements:** Tin prices have been regulated by the International Tin Agreement since 1956, but the latter's price ranges have followed rather than led the market.

— **Spreading government ownership:** OPEC's actions in increasing host government control of petroleum activities and raising government take have been emulated in some minerals. Jamaica led the way in bauxite in 1974 in tying bauxite prices more closely to aluminium prices at a much higher level than hitherto, with the effects shown in Chart 1. Morocco took advantage of a temporary shortage and raised its phosphate price more than fivefold in 1974-5. Although demand slumped and prices fell back, prices of crude fertilizer minerals did jump considerably in the 1970's (Chart 1). Government involvement, though, does not always cause higher prices. Mounting government control since the 1960's has made copper markets less responsive to supply/demand imbalances and contributed to copper's present

CHART 2
TRENDS IN BASIC METAL PRICES
1950 TO 1977

Adjusted to June 1977 real terms



Sterling prices converted to US dollars at annual average exchange rates. All prices deflated to real terms with US Wholesale Price Index for Industrial Commodities.
(a) European Producer Price.
Sources: Metals Week, International Financial Statistics, IMF Survey of Current Business.

weak prices; it alone of the base metals had a lower real terms price in 1977 than at any time since the early 1960's. Mines have been inhibited from taking sufficiently speedy corrective measures because of overriding social and national priorities. Governments' needs for foreign exchange income have outweighed strictly commercial decisions.

— **Political factors:** sanctions on Rhodesia, a major source of high grade chrome, boosted chrome ore prices in the 1960's and again in 1976/7. Similarly, political unrest in major producing countries has temporarily boosted metal prices. The Vietnam war initially greatly increased copper prices. Often the effect may be indirect and delayed, through actions to increase strategic stocks.

In conclusion, prices of minerals and metals are often more affected by specific factors than by common influences. Often unpredictable such specific factors may at times reinforce the common economic influences but they are just as likely to work against them. □ P.C.

THE CONVENTION AT WORK

European Development Fund

Following favourable opinions taken by the EDF committee the European Commission has taken a number of decisions to finance projects from the 4th EDF, and one from the residue of the 2nd EDF. Total commitments from the 4th EDF amount to 1186178000 EUA. The projects are as follows:

Barbados

Trade promotion (marketing, research and technical assistance)

Grant: 100000 EUA

Fourth EDF

(1 EUA = BDS\$ 2.444)

The government of Barbados has requested aid from the Community in the following fields:

- technical assistance with the organization, guidance and management of the staff concerned with export promotion;
- training of staff on export problems (cost and price analysis, marketing, sales promotion);
- research: involving market research in those sectors of importance for exporters.

Barbados

Tourism

Grant: 100000 EUA

Fourth EDF

(1 EUA = BDS\$ 2.444)

The long-term objective of the project is to diversify the tourist market in order to ensure that there is a sustained growth in the number of visitors and, hence, in income from tourism.

The project will be carried out with a grant of 100000 EUA from the Community. The Barbadian authorities are more particularly interested in the European market. The project therefore involves:

- a study of the potential market;
- the development of promotional events;
- the establishment of business links and direct contact with European tour operators.

Mali

Ségou rice scheme — second stage

Grant: 8640000 EUA

Fourth EDF

(1 EUA = FM 560)

This EDF-financed project constitutes the second stage of a rural development project that began under the second and third EDFs and involves rice-growing in the Ségou region.

The purpose is to remedy the effects of the rise in prices in 1973/74 and this second stage is intended more especially to extend and consolidate the economic, social and financial aspects of the operation.

The project involves:

- bringing another 6000 ha or so under cultivation;
- consolidating the development of over 7000 ha;
- improving agricultural equipment;
- training managers and farmers;
- providing veterinary services in the region.

The project will cost a total of 12730000 EUA, of which 8640000 EUA will be provided by the EDF in the form of a grant and the rest from the budget of the Ségou Rice Operation (ORS), a body established under public law.

Zaire

Completion of the Butuhé tea project

Grant: 3030000 EUA

Fourth EDF

(1 EUA = Z 0.98)

This is the third contribution the EDF has made to this project. The previous contributions—from the second and third EDFs—made it possible to set up a plantation-cum-factory complex comprising 374 ha of tea bushes and a factory with a capacity of some 750 t/year. This contribution, to be spread over the period 1978-80, is aimed at:

- extending the tea plantations from 374 ha to 475 ha;
- clearing a site near the plantation which is suitable for the construction of a dam and a small hydroelectric power station.

The Zairian authorities have given priority to agriculture. Hence these works to be financed by the Community are in line with the country's development requirements.

The EDF contribution amounts to 3030000 EUA and will be in the form of a grant.

Malawi

Tobacco pilot project

Grant: 2200000 EUA

Fourth EDF

(1 EUA = MK 1.03)

The purpose of this project is to establish 250 farming families to cultivate tobacco and maize.

The EEC's financing will help:

- to increase development activities in the northern region;
- to increase smallholders' incomes;
- to produce crops for export.

The pilot phase of the project involves:

- clearing over 3000 acres of comparatively virgin land;
- establishing 836 acres of forest for future firewood requirements;
- producing annually over 300 short tons of flue-cured Virginia tobacco and 750 short tons of maize.

The total cost of the project over a period of three years is 2620000 EUA, to which the EDF will contribute 2200000 EUA as a grant.

Grenada

East coast road

Grant: 1440000 EUA

Fourth EDF

(1 EUA = EC\$ 3.13)

The government has opted for a strategy which aims at diversifying agricultural production and also at a cautious expansion of the tourist industry.

It is thus of prime importance for future economic development to have a suitable road network.

The project financed by the EDF fits in with this development planning. It involves resurfacing the 33 km long eastern coast road, which links the capital, St. George's, to Grenville, the second largest town on the island.

The Community will be contributing 1440000 EUA in the form of a grant. The total cost of the project is 1556000 EUA, so the balance (116000 EUA) will be paid by the Grenadian government.

The Gambia

Building and equipment of Brikama College

Grant: 1531000 EUA

Fourth EDF

(1 EUA = D 2.612)

The project to be financed by the EDF involves building and equipping classrooms, administrative accommodation and workshops for 260 pupils at Brikama College.

The college will provide training and retraining for primary school teachers, agricultural technicians and technicians in home economics and nutrition.

The government's objectives are as follows:

- to improve the quality of teaching;
- to increase the enrolment figures in schools;
- to provide more agricultural assistants.

The total cost of the project is 1531000 EUA, to be paid by the EDF in the form of a grant.

Chad

N'Djaména industrial estate

Grant: 267000 EUA

Fourth EDF

(1 EUA = CFAF 280)

The aim is to provide the basic minimum infrastructure for the 11 ha area constituting the first part of a larger industrial estate to be set up at N'Djaména-Farche.

The Chad authorities consider this to be a top priority project which will make an important contribution to the success of the government's employment and industrial policies.

The cost of the project, the basic components of which were outlined in a study financed by the third EDF, is estimated at 267000 EUA.

The Community is financing the whole project in the form of a grant.

Samoa

Multiannual training programme (1976-80)

Grant: 110000 EUA

Fourth EDF

(1 EUA = WS\$ 0.8628)

The Samoan authorities have requested the sum of 110000 EUA to implement a programme of study and training grants for different aspects of the rural sector. More importance is

also to be attached to the training of staff in the public and private sectors.

Tonga

Multiannual training programme (1976-80)

Grant: 20000 EUA

Fourth EDF

(1 EUA = PT 0.8949)

The Government of Tonga has requested this sum of 20000 EUA to constitute a reserve to meet requests for training locally or regionally in such areas as agriculture and public service.

Fiji

Multiannual training programme (1976-80)

Grant: 100000 EUA

Fourth EDF

(1 EUA = F\$ 1.082)

The sum of 100000 EUA has been requested from the Community to cover the costs of training in the fields of public administration, rural development, port management, small enterprises, tourism and project preparation. Assistance may also be requested with the provision of staff to plan and organize short regional seminars.

Togo

Village water engineering programme

Grant: 4270000 EUA

Fourth EDF

(1 EUA = CFAF 280)

Here the fourth EDF is to finance the execution of a programme to supply water to the rural populations in the least well-equipped regions of Togo, in particular the central, plateaux and coastal regions.

The project involves:

- drilling 280 boreholes and equipping them with manual and solar pumps;
- setting up a decentralized maintenance department for the pumping machinery;
- providing technical assistance.

A number of Togolese technicians and supervisory staff are already being trained under the current training programme (fourth EDF) to work in this field.

The local cost of the project is estimated at 4600000 EUA, part of which will be financed from Togolese resources: the Community is providing a grant of 4270000 EUA.

Jamaica

Early childhood education

Grant: 930000 EUA

Fourth EDF

(1 J\$ = 1.01 EUA)

This project to assist pre-primary education in Jamaica is in line with the objectives of the Jamaican government. The authorities are keen to provide the 4-6 age group with the best possible chances of receiving education, regardless of the parents' resources.

The following measures are urgently needed for pre-school education:

- improvement of the physical condition of many schools;
- increase in the schools' capacity.

The EDF project deals with these two aspects. It will comprise in particular:

- the construction of eleven new community schools for about 75 pupils each;
- upgrading 75 existing community schools to a sufficient standard so as to permit government recognition;
- replacing 50 structures by a very modest core structure;
- providing modern audio-visual equipment for the schools.

The Community's financial aid for this project amounts to 930000 EUA in the form of a grant.

Central African Empire

Setting up the Board for the Promotion of Small and Medium-sized Firms (OPPME)

Grant: 765000 EUA

Loan on special terms: 535000 EUA

1300000 EUA

Fourth EDF

(1 EUA = CFAF 280)

This project concerns the provision of technical and financial assistance for the OPPME set up by the Central African authorities.

The project's objectives are:

- to set up the OPPME's structures;
- to carry out studies;
- to select small and medium-sized businesses for promotion.

The total cost of the project amounts to 1300000 EUA. The Community is financing the whole operation with a loan on special terms of 535000 EUA and a grant of 765000 EUA.

Benin and Niger

Sabongari-Gaya road

Grant: 4000000 EUA

Fourth EDF

(1 EUA = CFAF 280)

The project involves improving the Sabongari-Gaya road (58 km) by reinforcing the surface, increasing its width from 3 m 50 to 7 m and improving the drainage system. This road links Niamey to the port of Cotonou. Hence it concerns two states.

The surveys and technical studies needed were carried out by a consultancy firm and by government departments.

The work is to be carried out under contract following an international invitation to tender.

The cost of the project is estimated at 5020000 EUA, including contingencies and supervision.

The EDF's contribution will amount to 4000000 EUA in the form of a grant, the balance of 1020000 EUA to be borne by the Niger government.

Gabon

Port of Owendo - additional works and equipment

Loan on special terms: 2577000 EUA

Fourth EDF

(1 EUA = CFAF 280)

The purpose of this project is the execution of certain additional works and the provision of equipment for the port of Owendo (opened between March and December 1974) so as to enable the existing installations to be used more rationally.

The project, which is in accordance with the Third Plan (1976-80) drawn up by the Gabonese authorities, comprises:

port works;

administrative buildings;

equipment for various sectors.

The total cost of the project is estimated at 12.5 million EUA. The Community will be providing 2.577 million EUA in the form of a loan on special terms, the balance being borne by the budget of the Office des Ports et Rades du Gabon (OPRAG).

Grenada

Multiannual training programme

Grant: 80000 EUA

Fourth EDF

(1 EUA = EC\$ 3.14)

The programme, which is to be run on a very small budget, has been concentrated on specific and immediately foreseeable needs, involving the recruitment of two local instructors for nine and six months respectively and the provision of one training award for four years.

Niger

Construction of wells in the Damergou region

Grant: 2100000 EUA

Fourth EDF

(1 EUA = CFAF 280)

The purpose of this project is the execution of the first phase of the programme of water engineering for the population and livestock in the Republic of Niger.

This first phase includes:

the construction of 80 wells in the Damergou region;

the provision of technical assistance for the Department of Water Engineering.

Maintenance of the structures will be entrusted to OFEDES (Office des Eaux du Sous-sol), which is responsible for all the wells and boreholes constructed in Niger.

The total cost of the project is estimated at 2100000 EUA, which will be financed by a grant from the resources of the fourth EDF.

Madagascar

Development of the Lower Mangoky River - Phase IV (final)

Grant:

second EDF 1250000 EUA

fourth EDF 893000 EUA

2143000 EUA

(1 EUA = FMG 280)

The aim of this project is to finance the work necessary to complete the third phase of hydro-agricultural development in the Lower Mangoky area.

The operations involved are the pre-fabrication and laying of irrigation canals and the completion of final development work on the remaining 1100 hectares. The total area of developed land will then be 5500 hectares.

The execution of this third phase will—as from 1980—generate additional annual production of approximately 6000 t of seed cotton and 2450 t of paddy rice.

The total cost of the work is estimated at 2571000 EUA, of which 2143000 EUA is to be paid by the EDF in the form of a grant from the second EDF (1250000 EUA) and the fourth EDF (893000 EUA).

Bahamas

Multiannual training programme

Grant: 43000 EUA.

Fourth EDF

(1 EUA = B\$ 1.162)

The Bahamas are experiencing the double problem of excessive unemployment linked with lack of expertise, particularly in middle management.

The grant of 43000 EUA is designed to finance training awards for Baham-

ian students and short-term courses for civil servants (banking management/small-scale enterprises).

Lesotho

Development of the Mphaki area

Grant: 2000000 EUA

Fourth EDF

(1 EUA = R 1)

The project aims at developing the Mphaki area, one of Lesotho's mountain areas, to increase the standard of living of the inhabitants.

Overall responsibility for the implementation of the project will be given to the Ministry of Agriculture, notably the Produce Marketing Corporation and the Livestock Marketing Corporation, which will be engaged in executing their respective parts of the programme.

The ministry will be assisted by two experts to be provided from EDF funds, each for a period of two years. They will be contracted by direct agreement.

Construction of roads, houses and buildings will be carried out by direct labour, while all transport material and equipment will be purchased after an international invitation to tender, or by direct agreement where minor equipment is involved.

The total EDF contribution will amount to 2000000 EUA, in the form of a grant, and the Lesotho government will give R 225000.

Sudan

Development studies in Jonglei canal region

Grant: 2100000 EUA

Fourth EDF

(1 EUA = LSd 0.45)

The scope of this project is confined to studies of all the resources of the region and a survey of all the diseases that are rife there.

The overall responsibility for the execution of the project will lie with the executive organ for the development projects in the Jonglei area. Construction of houses and other buildings will be carried out by direct labour. Transport material and equipment will be purchased following an international invitation to tender. Technical assistance contracts will be concluded by mutual agreement.

The EDF will make the sum of 2100000 EUA available, in the form of a grant. The Sudanese government will provide 445000 EUA. The studies will stretch over a period of two years. □

EXCEPTIONAL AID

The Commission has approved a first instalment of 1.8 million EUA exceptional aid under the Lomé Convention for six West African countries.

The European Commission has received requests from the governments of Senegal, Mali, Mauritania, the Gambia, Guinea-Bissau and Guinea-Conakry for exceptional aid under Article 59 of the Lomé Convention. This is due to the drought which has seriously affected these West African States during the 1977/78 season. (Cape Verde has already been awarded 1.5 million EUA under Article 951 of the 1977 budget.)

The third Conference of Heads of State and Government of CILSS(1) (Banjul, 20/21 December 1977) also expressed great concern about the drought and its serious effects on their economies. The Director-General of the FAO recently launched an appeal for emergency food aid(2) in the stock-rearing sector for the supply of seeds, and other actions. Although not as grave as in 1973/74, the drought poses very serious difficulties for the requesting countries. The current harvests are well below normal and are often of bad quality; this poses not only a problem of food but also for the supply of seeds for the next harvest. Moreover, the herds which constitute an important revenue in most of the countries are affected by lack of pastures.

Threat of epidemic

If no action is taken it will result in an increase in cattle diseases, and in certain cases there is a serious threat of an epidemic and a significant increase in cattle deaths.

The overall assistance requirements for stock-rearing, supply of seeds, and other actions are estimated at 20 millions EUA, that is nearly 16 m for Senegal and Mauritania (calculation of FAO) and between 2 and 3 m EUA for the Gambia and Guinea-Bissau (calcu-

(1) Permanent Inter-State Committee for the fight against drought in the Sahel.

(2) The Community recently decided to provide emergency food aid in cereals for these countries worth about 10 million EUA (Mali 5000 tonnes, Senegal 18000 tonnes, Mauritania 7000 tonnes, The Gambia 3000 tonnes, Guinea-Bissau 7500 tonnes, Guinea-Conakry 5000 tonnes). The decisions concerning butteroil and skimmed milk powder are about to be taken.

lation of the services of the Commission). The requirements of Guinea-Conakry and Mali will be calculated shortly.

On the basis of available information, the priority requirements, country by country, have been assessed. This enabled the Commission, using its power of emergency decision, to decide on 10 March 1978 the first instalments of 300000 EUA for each country involved. The second instalments will be made available after consultation with the appropriate authorities at the end of April. □

MANO RIVER UNION

2.3 m EUA agreement signed in Brussels

A financing agreement was signed in Brussels on 17 March 1978 providing 2369000 EUA(1) for studies for a hydro-scheme on the Mano River, which forms the border between Liberia and Sierra Leone. The agreement was signed by Claude Cheysson, Member of the Commission responsible for Development Policy, and Ernest Eastman, Secretary-General of the Mano River Union.

The project aims to prepare the necessary technical dossiers prior to construction of the scheme. It is the regional nature of the project which gives it special importance in the context of the Lomé Convention, since it is to be carried out under the authority of the Mano River Union, a regional grouping founded by both countries in October 1973. This institution presented the project to the Community as part of a 5 million EUA indicative programme for financing under the 10 per cent of the European Development Fund allocated for regional cooperation. The remainder of the Mano River programme will be allocated for industrial cooperation, training and research. The first two thirds of the regional fund of 300 million EUA were programmed in March 1977.

The principle aim of the project is to produce low-cost hydro-electric power which will facilitate and encourage industrial development for both partners and also facilitate the development of mineral resources and encourage new investment in the region as a whole.

(1) 1 EUA = 1.27 US dollars. The value of the project in Liberian dollars is 2,750,000 Lib. dollars, and in Leone is just over 3 million.



Ernest Eastman, Secretary-General of the Mano River Union, signing the agreement

A pre-feasibility study has already been carried out, and the present project consists of a feasibility study including:

- the preliminary engineering and design of a hydro-power dam;
- investigation into irrigated agriculture, fisheries, health, manpower and training, transportation on the lake and tourism.

Total cost of the study is estimated at 2.369 m EUA and will be financed by the EEC in the form of a grant. The study is to be executed following an invitation to tender.

The indicative aid programmes under the Lomé Convention are worth 25 m EUA and 32.5 m EUA to Liberia and Sierra Leone respectively. 74.1% of Liberia's programme is committed and 36.1% of Sierra Leone's. Liberia was the first ACP country to get loans (US\$ 35 m for iron ore) from the European Coal and Steel Community (ECSC). □

EIB

Loan for investments in industry and tourism in Liberia

Under the terms of the Lomé Convention, the European Investment Bank has provided finance totalling some 2.8 million EUA(1) to the Liberian Bank for Development and Investment (LBDI) to support the development of industry and tourism.

(1) Exchange rate applied by EIB during current quarter: 1 unit of account = Lib. \$ 1.225.

The finance has been made available in two forms. The first is a global loan for 2.5 million, for a term of 10 years at an interest rate of 6.35% after deduction of a 3% subsidy drawn from the resources of the European Development Fund, as foreseen in the Convention. This will be used to finance small and medium-scale ventures, to be selected by LBDI in agreement with the EIB. Secondly, on behalf of the European Economic Community, the EIB has acquired a 350000 Liberian dollar holding (worth about 286000 EUA) in the LBDI share capital. This operation is funded out of the resources set aside under the Lomé Convention for various types of risk capital operation to be managed by the EIB.

The LBDI is the sole institutional source of long-term credit in Liberia for local industrial undertakings. It was established in 1965 and by the end of 1977 had mounted some 300 financing operations for a total of Lib \$ 22 million, channelled mainly into industrial and agricultural projects. LBDI also receives funds from the Liberian government, Kreditanstalt für Wiederaufbau, the World Bank and the African Development Bank. □

ESSENTIAL FOODSTUFFS

At its meeting held on 8 March 1978 the Commission adopted a communication to the Council concerning the supply of essential foodstuffs to the ACP countries.

In a memorandum to the Council the ACP had stated that they wished to see preferential trade relations established between themselves and the EEC enabling them to import on the most advantageous terms certain agricultural products traditionally exported by the Community.

The Commission, being anxious to accommodate the wishes expressed by the ACP countries, is proposing to make available to firms entering into mutual supply and purchase undertakings with the countries in question certain quantities of surplus agricultural products through the operation of its market organization mechanisms.

A start could be made by providing common wheat and flour, milk products and sugar.

Through the operation of the arrangements for exports refunds and the advance fixing of those refunds the ACP would be able to acquire the

foodstuffs at prices not exceeding world prices at the time the deal was made, and these prices would stay the same throughout the delivery period, which would generally cover at least twelve months.

This proposal largely meets the requests of the signatories to the Lomé Convention, whose principal concern is to be sure of being able to obtain essential foodstuffs at the most advantageous and stable prices. □

AID COORDINATION

In November 1977 the EEC Council agreed procedures for coordinating emergency and humanitarian aid between the Commission and the EEC member states. This procedure has been working since the beginning of the year and has already shown results.

Turkey

The Commission in deciding emergency aid of 1 million EUA to help the fight against malaria has called on EEC countries to provide bilateral aid as well. As a result the Community as a whole has provided a total of \$2226000. The bilateral aid was divided as follows; Federal Germany \$237000, United Kingdom \$273000, the Netherlands \$250000, Denmark \$86000, Belgium \$94000, Ireland \$21500, Luxembourg \$7500 and Italy \$7000.

Mozambique

The Mozambican authorities have asked the Community for emergency aid to cope with the critical situation caused in certain parts of the country by floods of catastrophic proportions.

There are over 200000 disaster victims, crops have been destroyed, considerable numbers of cattle have been lost, and roads and railways have been damaged.

The government is organizing the evacuation of the flooded areas and is therefore faced with the problem of feeding the evacuees.

In response to this request the Commission decided to grant aid to Mozambique in the form of 600 tonnes of rice and 350 tonnes of vitamin-enriched skimmed milk powder, to be delivered to the port of unloading.

This operation will cost 420000 EUA.

Emergency food aid provided by the Commission is additional to aid from the British government which included medicines, blankets, and inflatable rafts. The Commission has made a call to other member states to provide other products which are in urgent demand. □

SUGAR

In a press conference on 5 April, the ambassador of Mauritius and spokesman of the ACP "sugar" group, Mr Chasle, asked that price negotiations for the 1978/79 financial year be discussed under the terms of the sugar protocol, within the range of EEC prices, to keep the agreement "economically and politically viable". Once again the spokesman for the "sugar" group has complained of the treatment of ACP sugar: the guaranteed price which the ACP obtain for their sugar rose by only 6.74% between 1975 and 1977/78, whereas the intervention price for European beet sugar rose by 11.78% over the same period.

Mr Chasle asked that the EEC takes account of the role of sugar cane production in the economies of the ACP sugar producers, and he denounced the "disparagement campaign" against the ACP, particularly on the part of the beet growers, "who accuse them of dipping to a large extent into the EEC coffers to assure themselves of over high incomes for their sugar".

Speaking of the problems raised by the sugar protocol before the Parliament development committee at the end of March, Mr Chasle asked the Parliament to help the ACP obtain a fairer basic price and he stressed the burden which freight and storage charges represent for the ACP. □

TRADE FAIRS AND EXHIBITIONS

Berlin

International Tourism Fair

ITB, the Berlin International Trade Fair, ran from 4-12 March. More than 125000 people, including 8800 from the trade, visited the stands of 632 exhibitors and representatives of 137 firms from 81 different countries were present. Eight ACP countries (Burundi,



The Kenya stand in Berlin and below the Barbados stand in Brussels



Gambia, Lesotho, Mali, Rwanda, Surinam and Zaire) were there as part of the EEC-ACP programme of international trade events and 10 others

(Bahamas, Benin, Fiji, Ghana, Ivory Coast, Kenya, Senegal, Somalia, Sudan and Uganda) and one OTC (the Netherlands Antilles) financed their own dis-

plays or received help from German cooperation bodies. As in previous years, the lively, colourful ACP stands attracted both members of the trade and the general public. The increase in interest on the part of the Berlin public reflects the growing tourist appeal of Africa and the ACP countries in general.

Brussels

20th Holiday Fair

One of the big attractions of the Brussels Holiday, Tourism and Leisure fair on 11-19 March was the ACP pavilion where, as part of the EEC-ACP trade promotion campaign, 10 ACP countries (Barbados, Cameroon, Gabon, Gambia, Lesotho, Mali, Niger, Rwanda, Senegal, Seychelles) showed what they had to offer the tourist. Three other ACP countries (Ghana, Ivory Coast and Kenya) took part without Community financing. There were almost 1300000 visitors at the 1977 fair and at least as many came again this year.

The ACP countries offered a particularly wide selection of tourist products to the trade and the general public. They ranged from simple seaside holidays to package tours of one country or several countries at a time; there were hunting holidays, cultural holidays and trips for businessmen as well. With their attractive natural environment, their traditions and their historic past, the ACP countries are constantly expanding their tourist markets.

Senegal and Rwanda, veterans of the Brussels fair, had stands again this year and as usual many people came to admire their attractive displays. And the stands of more recent participants who had only been once or twice before also aroused the curiosity of the visitors. Barbados, for example, was offering guaranteed sunshine. Seychelles, a noted tourist spot, had a stand for the first time, as did Lesotho, which took the public by surprise with its beautiful mountain scenery.

African tourism is no longer just hunting and safaris. Kenya, for example, has a healthy tourist trade in spite of the ban on hunting and the sale of animal souvenirs. ACP tourist organizers, travel agents and European visitors are showing increasing interest in the cultural and historical wealth of these countries. Gambia's contribution to the fair is worth noting here.

Sunny Africa, followed by the Caribbean and the more distant Pacific, seems to be getting closer every day and sea-and-sun holidays there are more within the financial grasp of the European public in general. □

ECONOMIC AND SOCIAL COMMITTEE

Visits to Africa

The EEC Economic and Social Committee (representatives of the various EEC socio-economic groups) is to put forward its opinion of the implementation of the Lomé Convention before this summer.

To get some ACP viewpoints at first hand, ECOSOC chairman Basil de Ferranti, vice-chairmen Berns and van Greusven, and Mr Carstens, head of external relations, went on an information tour of Kenya and Zambia in early February 1978.

This trip was immediately followed by an information mission involving members of the study group which is preparing the ground for the opinion. This delegation, led by Mr Carstens, visited Mali, Togo, Ghana and Cameroon.

The aim of the visits was to:

- discuss matters of joint interest with the authorities in these countries;
- establish contact with the various socio-economic groups;

— obtain direct experience of certain social and economic aspects of Africa.

The discussion with the leading figures and representatives of the various socio-economic groups in the countries visited were an opportunity to obtain a better grasp of the importance of the links between the EEC and these countries. The visitors noted suggestions which will be taken into account when the ECOSOC opinion is drafted.

Informal contacts

After the visits, the members of the Economic and Social Committee said they were convinced that this type of contact, outside the more official exchanges between the various administrations, could make a useful contribution to the development of cooperation between the EEC and the ACP countries.

The Commission and particularly its delegates in the different countries were of considerable assistance in the preparation of the missions. A first trip several years back was an opportunity to meet economic and social committees in Senegal and the Ivory Coast and these missions allowed similar contacts with the committees of Togo and Cameroon. □

ACP EMBASSIES

Three new ambassadors have presented their credentials to the Presidents of the Council and the EEC Commission.

Benin

Benin's new ambassador is Douwa David Gbaguidi. He was born in Savallou in 1942, completed his secondary education in Porto Novo and went on to obtain a diploma in agricultural engineering at the Ecole Nationale Supérieure Agronomique in Grignan (France) in 1966. He then specialized in rural economics, reading for a diploma at the Institut d'Administration des Entreprises in Paris and a doctorate at the Centre de Recherches Coopératives. In 1968 he joined his country's civil service as an engineer in the agricultural services and then became assistant to the prefect of Borgou. After a spell as the local head of the Borgou integrated development scheme, Mr Gbaguidi directed agricultural education and research and then, in May 1974, went to the Ministry for the Interior and Security as technical adviser on economic and financial affairs, before being promoted to director of studies and planning in the same ministry in April 1975. He has been managing director of the Benin national lottery since 1976 and now joins the diplomatic service as Benin's representative in Brussels. He is married with two children.

Ivory Coast

Seydou Diarra has just taken over from Siaka Coulibali as the Ivory Coast's ambassador to the EEC. Mr Diarra (44) qualified as an agricultural engineer at the Ecole Nationale Supérieure Agronomique in Montpellier (France) before obtaining university diplomas in biology, microbiology, plant physiology and chemistry. In 1961, he joined the consultancy office of the Ivory Coast Ministry of Agriculture and, in December of the same year, was appointed director of agricultural markets. In July 1962, he became managing director of the Centre National de Coopération et de Mutualité Agricole and then, in September 1964, went to the agricultural price and production stabilization fund as commercial director. He was permanent representative to the International Coffee Organization in London from October 1966 to January 1971, when he became ambassador to Brazil, his last stop before Brussels. Mr Diarra is married and has four children.



Mr Carstens and Mr Djondo, leaders of the European and Togolese delegations

Seychelles

The Seychelles' first ambassador to Brussels, Ralph Adam, is another envoy with no previous professional experience as a diplomat. He has had an unusual career.

For two years he was a Capuchin priest in Switzerland after studying philosophy and technology there between 1953 and 1958. Then, in 1961, he went to England, leaving the cloth for the world of commerce and eventually becoming head of accounts at Advance

Linen Services in Brighton, where he stayed for 16 years.

Mr Adam (44) is also well versed in public speaking which he studied at the University of Fribourg in Switzerland. He lives in London with his wife and child. □



Seydou Diarra of the Ivory Coast, top left, with Roy Jenkins, President of the Commission. Bottom left, Ralph Adam of the Seychelles. Below, Douwa David Gbaguidi presenting his credentials to Mr Jenkins as the new ambassador of Benin



EUROPEAN COMMUNITY

Member States

Development ministers

Germany

After a cabinet reshuffle, Rainer Offergeld (40) has taken over from Marie Schlei as Germany's Minister for Economic Cooperation.

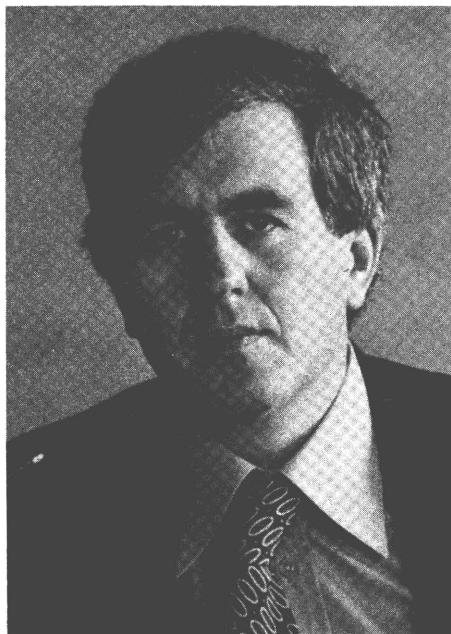
The new minister was born in Genoa (Italy) and brought up on the French/German/Swiss border near Lake Cons-

tance. He studied law and political economy in all three countries. After a spell as a notary at Waldshut, Mr Offergeld attended classes at the state academy of finance with a view to obtaining a post with the federal financial authorities. He joined the SPD in 1963 and worked his way up the hierarchy to become parliamentary secretary at Karl Schiller's Ministry for the Economy and Finance, a post he kept in 1975 when Hans Apel took over. Mr Offergeld is an eminent financial expert who specializes in taxation, including the reform of tax laws in relation to development aid, and his experience will be valuable in the management of aid funds which, thanks to a particular effort in the field of development cooperation, increased by 24% under the recent German budget.

The Netherlands

The successor to Jan Pronk, the new Dutch Minister for Development Cooperation, Jan de Koning, was born in Zwartsluis on 31 August 1926. He took his final "doctoraal" degree examinations in social geography at the State University of Utrecht in 1958.

Prior to sitting his examinations in 1955, he had joined the staff of the Sociological Institute of the Convent of Christian Social Organizations in The Hague. While in this position, he became involved in the agricultural and social information services of the Netherlands Protestant Farmer's and Market Gardeners' Federation (CBTB). He had a particular interest in problems facing farming families and in the



Rainer Offergeld

future of agriculture and market gardening. He also ran courses for agricultural extension officers.

Jan de Koning was appointed to the academic staff of the Institute of Social Science at the Free University of Amsterdam in 1961. In 1964, he was appointed General Secretary of the CBTB. Concurrently, he held the position of chairman of the Education Committees of the Federation and of the Industrial Board for Agriculture.

He was a member of the Upper House of Parliament from 1969 to 1971, representing the Calvinist ARP (Anti-Revolutionary Party), one of the three parties which were later to form the CDA (Christian Democratic Alliance). In May 1971 Mr de Koning became a member of the Lower House and of the Christian Democratic Party in the European Parliament in Strasbourg. He was a member of the agriculture committee and of the Committee on External Economic Relations of the European Parliament.

He was chairman of the ARP from May 1973 until late 1975. Other appointments held include membership of the Committee of the non-governmental Netherlands Organization for International Development Cooperation (NOVIB) from 1969 to 1975. Since 1971 he has been chairman of "Dienst over Grenzen" (Service without Borders), an organization which assists in sending professional workers to developing countries. He has also been a member of the committee of the "Gast aan Tafel" (Guests for Dinner) campaign for some years.

The minister is married and has two children.



Jan de Koning

France

Robert Galley, Minister for Cooperation in the previous government, keeps his position in the new government formed since the general elections.

■ Jean-François Deniau, Mr Cheyson's predecessor as EEC development commissioner, was returned as MP in the French elections. Mr Deniau, who was foreign secretary in the previous government, has now been appointed Minister for External Trade. □

COMMISSION

Directorate-General for Development

Since the publication in the *Courier* n° 46 (p. XII) of the staff plan of the Commission's directorate-general for development (DG 8), two new top appointments have been made. Since February, Gaetano Speranza (Italy) has been head of directorate A, dealing with general development policy and internal relations within this policy, in collaboration with the directorate-general for external relations. Mr Speranza, who is an economist, was previously with the directorate-general for economic and financial affairs, where he was head of the division which prepared medium-term economic policy programmes.

Robert Cohen (Netherlands) has returned to DG 8 after a period as head of cabinet for Mr Vredeling, the Dutch

commissioner for social affairs and employment. He is now a director, chargé de mission and attaché of director-general Klaus Meyer.

Mr Lorimer Mackenzie has also succeeded Adam Szarf at the head of the division which deals with food aid in the development directorate-general.

François Jacques Van Hoek (the Netherlands) has been named director of directorate D (operations) of DG 8. Mr Van Hoek has spent much of his career in development. For many years he was a close collaborator of the deputy secretary-general of the UN concerned with economic and social affairs. □

SENEGAL

EEC ambassadors visit SODEFITEX project

The EEC Commission delegation in Dakar organized a visit to the SODEFITEX cotton development project at Kolda for EEC ambassadors to Senegal on 20 March.

Grants totalling some CFAF 3350 million were made from the 2nd and 3rd EDFs for the introduction and extension of cotton growing and for the introduction of rainy season rice in Casamance and eastern Senegal. The EIB also provided a CFAF 250 million loan for the construction of a ginning mill, similar to the one visited at Kolda, at Vélingara. This enabled more than 30000 t of cotton seed and 22000 t of paddy rice to be produced during the 1975/76 agricultural year.

Since the signing of a financing agreement between Senegal and the EEC on 28 October 1976, Senegal has received a further grant of CFA 1700 million from EDF 4.

The visit to the Kolda mill and a cotton market 40 km away allowed the ambassadors to see for themselves the results of the joint Senegal/EEC effort to extend Senegal's cotton growing, which uses some of the most modern methods in black Africa. □

(See photo p. X)

EUROPEAN PARLIAMENT

The Committee on Development and Cooperation has been considering a number of problems of interest to the ACP states:



The ambassadors of Belgium, France, Germany and Italy, the prefect of Kolda and a representative of the French development agency (FAC) during a visit to the cotton market

Non-governmental organizations

The Committee on Development and Cooperation of the European Parliament wishes to strengthen its support for non-governmental development aid organizations. It also intends to hold direct fact-finding talks with the NGO Liaison Committee. This emerged from the wide-ranging discussions held in March by the Committee (chairman Miss C. Blesch - Lib. - Lux.), to which Dr Thom Kerstiens, chairman of the Liaison Committee, had been invited.

In the last two years the European Community has helped to finance 190 projects by 51 non-governmental organizations in 60 developing countries. By the end of 1978 the number of

projects should amount to 500, involving some 100 countries. Moreover, the European Parliament's budgetary action has led to appropriations earmarked for NGOs being tripled (from 4 to 12 m EUA). Because of this increase, the European Parliament needs more information and a measure of control in line with the flexible character of NGO operations which accounts for their speed and efficiency. Dr Kerstiens will ask the NGO Liaison Committee to study how best to keep the European Parliament and public opinion in the Nine properly informed. He has already announced measures to provide better information for the citizens of Europe on problems relating to the Lomé II negotiations, the North-South dialogue, and the election of the European Parliament by direct universal suffrage.

Delegation of ACP sugar producers

Mauritian ambassador Raymond Chasle, head of the ACP ambassadorial committee delegation, explained the ACP sugar producers' position to the Committee on Development and Cooperation at the European Parliament on 29 March 1978. He stressed the need to find a solution that was in keeping with the spirit of the Lomé Convention. The Committee on Development and Cooperation, chaired by Renato Sandri (communist, Italy) and Pierre Lagorce (socialist, France), met in Brussels on 24 and 30 March. It was invited to help the ACP countries achieve their aims and obtain a fairer basic price for guaranteed sugar exports to the Community in the

Nigeria

A vital part of a regional aflatoxin research project can now go ahead thanks to the signature on 2 March by Dieumb Djibril Gueya, executive secretary of the African Groundnut Council, and Tom Garvey, EEC Commission delegate to Nigeria and regional delegate for the project, of the contract for feasibility studies (see *Courier* n° 47, pp. 101-103).

The African Groundnut Council, whose members are Gambia, Mali, Niger, Nigeria, Senegal and Sudan, is receiving an overall contribution of 3 million EUA from the EEC.



annual negotiations now taking place in accordance with the sugar protocol of the Lomé Convention.

Mr Chasle said that the ACP countries had not wanted the Community's sugar surplus. He felt that the problem of sugar production and surpluses should be examined within an international framework. He said that the economies of certain ACP countries were extremely dependent on sugar cane exports and also mentioned the burden of freight and storage costs.

Ex-president of the European Parliament, Georges Spénale (socialist, France), and other members of the Committee said they understood these countries' problems. However, they drew attention to the need to take account of the Community's difficulties, particularly as regards maintaining the income of the sugar beet producers and reducing unemployment. "We cannot guarantee the ACP countries more than the EEC", Mr Spénale concluded.

Code of conduct

The other main subject of discussion was the code of conduct for EEC firms with interests in South Africa. The code, which was adopted by the Nine's ministers for foreign affairs on 20 September, has been the subject of violent criticism on the part of the member states. Can it actually be applied? How will it be applied and does it not, as it stands, contain elements of racialism? These were just some of the questions brought up.

After lengthy discussion, it was decided that the Committee on Development and Cooperation should propose that Parliament be given a report on the context, form and status of the code, possible improvements and Parliament's role in its implementation. □

LIBERIA, MALI AND NIGER

Cheysson on tour to check Lomé aid

Development commissioner Claude Cheysson went on an official visit to Liberia, Mali and Niger from 27 February to 4 March 1978. The trip included stopovers in Conakry and Abidjan.

Mr Cheysson met Presidents William Tolbert of Liberia, Moussa Traoré of

CORRECTION

We apologise to readers for a mistake in the caption on page 21 of *Courier* No 48. The Cape Verdean women are in fact carrying rocks to build terraces, dams or dykes, and not farm produce as indicated.

Mali, Seyni Kountché of Niger and Sekou Touré of Guinea, and the Ivory Coast planning minister Abdoulaye Koné. They discussed EEC-ACP cooperation, the current problems and their effect on the future, and the prospects for renewal of the Lomé Convention.

The tour ended in Niamey, where Mr Cheysson said that the Convention involved Europeans putting a certain number of means at the disposal of their ACP partners and that it was "the partners themselves who decide how to use them. Every country has the right to choose its own development model and it is therefore up to it to decide how the means we provide are to be used. Quite naturally, therefore, the commissioner for development makes periodic visits to the partner countries. This is of particular importance now we are about to open negotiations on renewal of the Convention. Before discussing the future, we should see how the Convention has worked so far and what the good and bad points are, so we can do better in the future".

ACP INVESTMENT BANK

An experts' group set up within the United Nations to study the creation of a "trade and investment bank" for the African, Caribbean and Pacific states (ACP) which are signatories to the Lomé Convention has started its work. The group is presided over by Mr J.H. Frimpong-Ansah (Ghana), the vice-chairman is Mr H. Neuman (Belgium), the members are Mr A. Yameogo (Upper Volta), P. De Seynes (France), H. Simon Bloch (United States), W.G. Demas (Trinidad and Tobago) and D. Wirmark (Sweden) and the secretary is Mr J.P. Benoit (Haiti). The group is assisted by an advisory panel made up of people from the banking and finance world.

The UN Under-Secretary General, Mr I.S. Djermaoye, who is responsible for technical cooperation and development for the study, has intimated the objectives of the study, which is to cover both the nature and operation of the bank to be created and an evaluation of the financial needs and priorities of the ACP states.

The creation of such a body had already been the subject of preliminary studies carried out by the BIRD, and the ACP Council of Ministers had adopted a decision in principle in favour of this last December in Lusaka (Zambia), by deciding to ask the United Nations for technical assistance. □



A warm welcome for Claude Cheysson from President Tolbert

GENERAL INFORMATION

Third World debt — progress at UNCTAD

Intensive international discussion on the Third World's debt has been going on for two years now. The problem was dealt with at UNCTAD IV in Nairobi in May 1976, and the International Conference on Economic Cooperation in Paris which ended in June 1977. UNCTAD's permanent bodies in Geneva have also been examining it since July 1977.

Why these discussions?

So far, developing countries in debt have only been dealt with individually when any of them had a repayments crisis and then usually by a group of creditors. The best-known of these *ad hoc* bodies is the Club of Paris (so called because the French Minister for Finance provides the secretarial services) which recently revised the arrangements for the debts of Zaire and Sierra Leone.

The developing countries' main complaint about this method is its lack of organization. There are no internationally recognized rules which are laid down in advance and applied to any developing country without discrimination and the procedure for dealing with difficult situations is short-sighted and concentrates far too much on purely financial aspects. The fact that the industrialized countries realized this led to the adoption of UNCTAD resolution 94(IV) and to presentation of the EEC/USA text on features at the North-South dialogue.

The Community's position

These features (as they are called in the international negotiations on debt), in fact amount to a series of rules, on the handling of future debt situations, set out in a text that the Community

would like to see all developed and developing countries adopt.

The EEC/USA proposal to adopt an organized and coherent procedure was made during the 1976-March 1978 discussions and had the backing of other industrialized countries. It was a new and positive element in the international debate on debt. It was in line with the demands of the developing countries, but the latter felt it was still inadequate and made counter-proposals at both the ICEC and UNCTAD with a view to adopting a different procedure for dealing with debt. They also called for immediate and general measures to relieve the situation in respect of certain categories of debt in certain developing countries.

Until last March, the fundamental differences of approach on the part of the EEC/USA and the Group of 77 prevented any progress being made towards the adoption of a compromise.

Geneva agreement

It was against this background of stalemate that the ministerial meeting of UNCTAD's Trade and Development Board (TDB) was held in Geneva on 6-10 March 1978. The main items on the agenda were two aspects of Third World debt. The first was the immediate and general relief which the 77 were claiming for certain categories of

debt in certain developing countries or the retroactive adjustment of the terms of official development aid (1). The second was the definition of a procedure for dealing with debt in the future (features).

On 8 March 1978, the EEC/USA text from the ICEC on future cases of debt was submitted in the form of a draft resolution from the Nine and the USA plus Australia, Austria, Canada, Japan and Switzerland. It was clear from the start of the meeting that the countries in Group B were giving serious consideration to the question of retroactive readjustment and on 10 March, they made a unilateral declaration based on a Community proposal.

The heated debate only drew to a close after a night of uninterrupted discussion and the meeting ended on Saturday 11 March with the adoption of a single TDB resolution on the problems of the Third World's debt and development.

The final "package deal" combines an undertaking on the part of the industrialized countries to organize the terms of past official development aid with the Group of 77's recognition of basic concepts barring the way to the adoption of features (i.e. the adoption of case-by-case treatment of debt situations and a distinction between acute and chronic difficulties).

The Geneva agreement has not of course solved the problem. However, the task of the intergovernmental group of experts on debt, due to produce details of the features by March 1979, has been made much easier by the fact that there are basic concepts on which both industrialized and developing countries agree and this is why

(1) Notion based on lining up the terms of past official development aid with the more favourable terms now accorded to the poorer developing countries. It in fact amounts to writing them off, although this is not stated explicitly.



Lalith Athulathmudali (Sri Lanka), the conference chairman, addressing delegates during the 9th session

the Geneva meeting was a big step along the path towards agreement on this matter. □

EASTERN EUROPE

The communist countries are giving less development aid, says the OECD.

An OECD study suggests that the already fairly small volume of development aid granted by six eastern European countries (Bulgaria, Czechoslovakia, East Germany, Hungary, Poland and Romania) is decreasing further. Between 1970 and 1976, this aid (including various trade credits on normal terms but excluding aid to Cuba and Vietnam) averaged \$ 110 million p.a., something like 0.04% of GNP. Romania and Czechoslovakia were the most generous and the main beneficiaries (about half the total) were the Arab countries. More than one quarter went to southern Asia and the Far East and one fifth to Latin America. Very little went to Africa south of the Sahara.

Aid from the centrally planned economies is almost entirely bilateral and on much harsher terms than that granted by the OECD countries, where it represented an average of 0.33% of GNP in 1976. □

EMERGENCY AID

Lebanon

In view of the serious events affecting southern Lebanon, the Commission has decided to grant immediate emergency aid of 100000 EUA(1) for all the disaster victims, who number at least 200000. This amount will be paid to the International Committee of the Red Cross (ICRC) in Geneva to buy necessities (medicines, disinfectants, insecticides, blankets, etc), which will be distributed on the spot by the Lebanese Red Cross and the Palestinian Red Crescent under the supervision of the ICRC.

Furthermore, the Commission is doing all it can to speed up as far as possible the deliveries of food aid granted to Lebanon under the 1977 and 1978 programmes, which amounts to a total of around 15 million EUA:

— 45000 tonnes of unprocessed cereals, equivalent to 16880 tonnes of wheat and 10650 tonnes of milled rice. The first deliveries should arrived in Lebanon in March (8880 tonnes of wheat, 6000 tonnes of rice).

— 2625 tonnes of milk powder(2), of which the first instalment (275 tonnes) began to arrive at the beginning of April.

— 1890 tonnes of butteroil(2), of which the first instalment (240 tonnes) should arrived in March.

This aid is in addition to action already adopted by Federal Germany within the limits of a 400000 EUA ceiling. Moreover, in view of the scale of the requirements and in compliance with the coordination procedures recently adopted by the Council for such an event, a request was made to each EEC country to take additional, bilateral measures.

Tunisia

Tunisia's drought victims will be receiving 320 tonnes of skimmed milk powder as emergency aid from the Community. The Commission decided to send the aid, which will be channelled via the Catholic Relief Service, on 3 March 1978.

The operation is estimated to cost somewhere in the region of 160000 EUA. □

(1) Article 950 of the budget (aid to disaster victims).

(2) 350 tonnes of milk powder and 650 tonnes of butteroil for 1978, on which a decision is still to be taken by the Council.

WORLD BANK

1977 edition of the World Bank Atlas

Kuwait, the United Arab Emirates and Qatar continued to be the richest countries in the world in 1975-1976, with a per capita Gross National Product of more than 10000 dollars. Switzerland, Sweden, the United States, Canada, Denmark, Norway and the Federal Republic of Germany complete the list of the ten highest income countries.

These data have been published in the 1977 edition of the World Bank Atlas. For 1976, the provisional data show a net recovery, whereas recession had reached its maximum in 1975. Recovery in 1976 has been quite substantial in most countries, resulting in large increases in GNP per capita growth rates in the industrialized countries and more than doubling of the growth rates in some of the developing regions. However, the capital surplus oil exporters showed a slow-down in their growth.

In 1975, about a quarter of the world's population belonged to the poorest countries with less than 200 dollars per capita income. Another

33% of the world population fared only a little better with an average per capita income of 350 dollars. On the other hand, 10% of the population in the richest countries had an average per capita income of 6820 dollars.

The combination of modest GNP growth rates with high population growths resulted in a decline in the growth of real income for 40 countries with 177 million people. □

WORLD TRADE

According to the initial assessments of the GATT Secretariat, international trade in 1977 totalled 1150 billion dollars, an increase of 13% in dollar terms — roughly at the same rate as in 1976. Conversely, in terms of volume, growth was only 4% in 1977 compared with 11% in 1976. This relative weakness is explained by the levelling off in trade in the second half of 1977.

The difference in the growth in volume and in value represents the change in dollar unit values of world trade, which increased by nearly 9% in 1977 compared with 2% in 1976. This variation is the result of two basic developments: that of the domestic prices of goods and that of the exchange rate of the dollar. The rise in unit values was fairly uniform among all the major product groups and trade flows.

— Industrialized countries. Following the slowing down of domestic demand, the volume of imports increased by only 4-5% compared with 14% in 1976. Purchases from the oil-exporting countries increased by only 1-2%, the strong expansion of purchases going into the United States having been largely offset by a fall in the imports of the majority of West European countries and Japan. Imports from other developing countries increased by about 20%. The growth in imports varied considerably from one industrialized country to another: 12% for the United States, 5% for federal Germany, 2.5% for the United Kingdom and Japan, while they remained unchanged in France and Italy and diminished in Sweden.

The volume of industrial countries' exports increased in 1977 at about the same rate as imports (4-5%), is about half as rapidly as in 1976. The increase was 10% for the oil-exporters. Considerable differences are also noted in the growth of exports: 9% for Canada and the United Kingdom, 7% for France, 5% for Federal Germany, Japan and Italy, while the volume of American exports remained practically unchanged.

The aggregate trade deficit of North America, Japan and the West European industrial countries (not including southern Europe) went from about 38 billion dollars in 1976 to some 42 billion. For the southern European countries, the deficit was 20 billion in 1976 and 23 billion in 1977.

— Oil-exporting developing countries. Their export revenue increased from about 11% in 1977, mainly because of the rise in prices. Their trade balances only moderately diminished from 64 billion dollars in 1976 to 60 billion in 1977.

— Other developing countries. Their export revenue increased by about a fifth in 1977, a similar increase to that in 1976. However, while in 1976 the increase in revenue was largely due to the increase in volume, in 1977 well over half of the revenue increase was due to the increase in prices. The volume of imports increased in 1977 by about 13%, a much larger percentage than in the previous two years. The volume of products imported increased by 3-4%, thus returning to its 1974 level. The combined balance of trade deficit was about 20 billion dollars in 1977 compared with 27 billion in 1976.

— Eastern countries. The value of exports increased by about 15% in 1977 and imports by about 10%. The global trade deficit diminished for the second consecutive year, falling to 2 billion dollars compared with 27 billion in 1976.

As regards immediate prospects, the GATT Secretariat considers that it would be prudent to assume only a modest increase in world trade in the first half of 1978. □

DAC

Recommendations on conditions of aid revised

The members of the OECD Development Assistance Committee (DAC) have adopted a revised recommendation on terms and conditions of development aid, which supersedes the 1972 recommendation (Italy having reserved its position). The main objective of the revised recommendation is to implement certain points of the agreement reached during the Paris Conference in June 1977.

— DAC recommends raising, as soon as possible, the overall grant element target for each donor's official development assistance (ODA) commitments to at least 86% (instead of 84%);

— The member countries should extend ODA to the least-developed countries essentially in the form of grants;

— They should extend ODA to other countries whose needs are greatest on the best grant element possible;

— While acknowledging the advantages of the project approach, the member countries of OECD/DAC recognize that it is necessary to consider the overall needs of the developing country as well as its balance of payments and other factors and that it may be appropriate to provide aid to finance general import costs or local costs of development, or both. □

MULTILATERAL TRADE NEGOTIATIONS

A report by the European Parliament

After more than four years of preparatory technical discussions, the "Tokyo Round" is now entering a decisive phase. The Committee on External Economic Relations has just defined its position on these multilateral trade negotiations within GATT through its adoption of a report drawn up by Mr Pierre-Bernard Couste (France, EPD). This report outlines the matters exercising Members of Parliament and sets out the guidelines they wish to suggest to the EEC negotiators. Basically, their aims are:

— to protest against the revival of protectionism, which is hampering the development of international trade and whose effects could be exacerbated by the present monetary situation;

— to ensure an orderly expansion of trade in a better organized market;

— to modify the generalized preferences system so as to encourage exports from the poorest developing countries and to harmonize the concessions granted by the industrialized countries;

— to introduce a "social clause" establishing for workers in certain countries which export goods on a large scale, standards based on the regulations of the International Labour Organization;

— to put an end to the state-trading countries' dumping practices;

— to combine these measures with the simultaneous implementation within the EEC of a common industrial policy and the structural adjustments needed in order to safeguard jobs and stay competitive.

The committee also adopted the report by Mr Manfred Schmidt, (Germany, C-D) on the state of relations between the EEC and the East European state-trading countries and COMECON. Pointing out that for over three years these relations have not been governed by any form of agreement, the rapporteur calls upon the Council and Commission to continue energetically to pursue their current objectives, in particular the achievement of balanced mutual advantages, the harmonious development of trade, the application of the most-favoured-nation clause and the liberalization of imports.

He also asks these institutions to notify the European Parliament of the results achieved following the Helsinki and Belgrade Conferences. He concludes by expressing support for "... the Commission's efforts to negotiate commercial agreements with individual state-trading countries" and welcomes its intention of "concluding an outline agreement to develop, and perhaps subsequently extend, cooperation with COMECON in areas of mutual competence; stresses that differing interpretations of the question of competence should not be allowed to impede the development of such contacts".

These reports by Mr Couste and Mr Schmidt will be submitted to Parliament at its part-session in Strasbourg from 8 to 12 May. □

SPORT

World 5000 m record to Kenya

Kenya has held a new world record since Henri Rono ran the 5000 m in 13'8.4" in Berkley (USA) on 10 April 1978. The 26 year old Kenyan, currently an agricultural student at the University of Washington, beat former record holder Dick Quax from New Zealand by 4.5".

Commonwealth Games

Edmonton, capital of the Canadian province of Alberta, will be capital of the Commonwealth when it hosts the eleventh Commonwealth Games in August. The organizers have decided that the Games will not just be a sporting event but a great cultural and artistic gathering as well and have therefore worked out a "Festival 78" programme of art exhibitions, plays and folk singing and dancing from more than 20 countries. □

EUROPEAN COUNCIL

10th session of the European Council

The 10th, and many would say historic, meeting of the European Council was held in Copenhagen on 7 and 8 April. Perhaps the most memorable decision was the one fixing the date of direct elections to the European Parliament for 7-10 June 1979. This will give all the member states time to respect their own electoral traditions. The Nine linked this question to a declaration on democracy, on a genuine act of faith which makes the respect and maintenance of representative democracy and human rights in each of the member

countries the essential principles for membership of the Community. This is exceedingly important as far as any further enlargement is concerned.

However, above all, the Copenhagen summit concentrated on economic matters, although in fact few spectacular decisions were taken in this field. The Community heads of state and government agreed to work out a common strategy over the next three months to reverse the present economic and social trends. It would cover

economic and monetary issues, employment, trade, industry and relations with the developing countries.

The 10th Council felt that the internal growth rate of the Community should reach 4.5% by mid-1978. This is an ambitious target, bearing in mind that it was only 1.9% in 1977, but a logical one in view of the need (stressed at Copenhagen) to combat unemployment. Monetary stability was another great necessity and the Nine are determined to bring it about in the EEC and to seek to improve the world situation.

Finally, the Nine decided to increase their cooperation in the fight against terrorism and to set up a European cultural foundation.

The next European Council is scheduled to take place in Bremen (Germany) in July. □



The Council in session in Copenhagen

CHINA

EEC-China trade agreement signed in Brussels

The EEC-China trade agreement (see *Courier* no 48, page XX) was signed on 3 April at a ceremony in Brussels. Mr K.B. Andersen (centre of photo overleaf), Danish Minister for Foreign

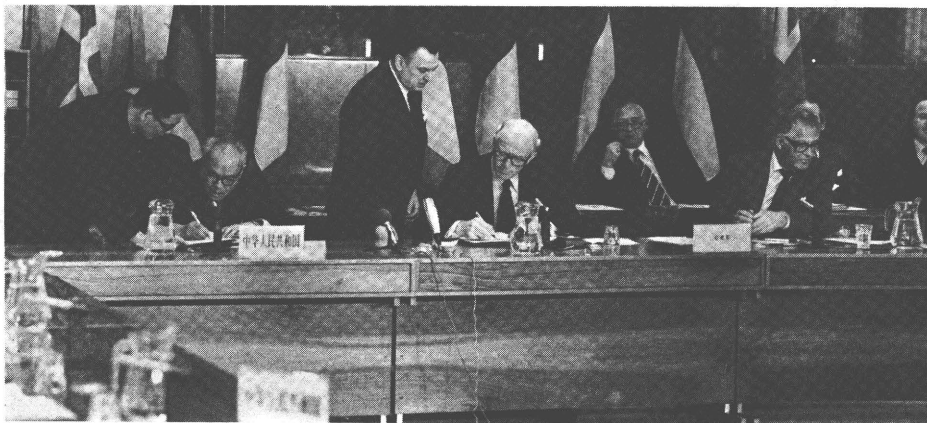
Affairs and current President of the EEC Council of Ministers, and Mr W. Haferkamp (right), vice-president of the Commission and head of external relations, signed for the EEC and Mr Li Kiang, Minister for External Trade, signed for China.

Mr Andersen said the agreement was a decisive step in the positive development of relations between the Community and the People's Republic. It marked the beginning of a new era in their commercial relations, since there

was considerable unexploited potential in trade between the EEC and China.

Mr Haferkamp underlined the importance of the agreement, not just for economic reasons, but also and above all for political reasons. As he saw it, the agreement was proof of China's favourable attitude to the political union of the peoples of Europe.

Mr Li Kiang said that the prospects of economic and commercial relations between his country and the Community were very considerable. □



Signing the EEC-China trade agreement

CORRECTION

"The Community's Money"

Due to a typing error in the original text, the per capita contribution to the national budget in the Netherlands in the article on the Community's money in the dossier of no 48 of the *Courier* (p. 37) was given as Fl 1412. It should in fact have been Fl 6103.

KENYA

Tana River scheme

The ground-breaking ceremony of the Tana River Reservoir project in Kenya took place on 2 March in the presence of the Kenyan Minister for Water Development, Dr J.G. Kiano, the EEC Commission delegate, the Federal German ambassador, and the British High Commissioner.

The Tana River is Kenya's largest river and its development is expected to irrigate up to 100000 ha of land, supply water to seven million people, including the population of the capital, Nairobi, and expand the river's hydro-electric potential. The lake could also be used for fish production and recreation.

The cost of the project will be more than a billion Kenyan shillings and apart from the Kenyan government itself, funds will come from the EEC, Britain and Federal Germany. The Tana scheme is the biggest single development project in Kenya. Dr Kiano called the scheme "a shining example of international harambee", a reference to Kenya's national motto which roughly means "pull together", because of the way the Kenyan government had worked together with the EEC, the British and Germany governments to get the project underway in almost record time. Of the billion shillings involved, said the minister, the EEC is providing KSh. 250 m, Germany KSh. 307 m and Britain KSh. 150 m.

Dr Kiano said he was particularly pleased that part of the funds had come from the EEC since he himself, as Minister of Commerce and Industry, had had the pleasure of signing the Lomé Convention on behalf of Kenya.

The man-made lake behind the dam will be the largest in East Africa, covering an area of 120 sq. km, and the reservoir capacity will be more than 1500 cubic metres. □

SENEGAL

EEC-backed projects reach the active stage

Lorenzo Lanari, the Commission's delegate in Senegal, recently gave an interview to the Senegalese press association in Dakar on the state of several EEC-financed projects in Senegal. According to Mr Lanari, three projects will soon be started since preliminary studies have been carried out and tenders have already been sought. These projects are firstly the development of Soubédioune Bay, which will require an investment of 1000 million CFA francs, secondly the construction of an inter-state school of science and veterinary medicine which will cost almost 2.6 thousand million CFA francs, and thirdly the surfacing of the Kolca-Velingara road which will cost 3.1 thousand million CFA francs.

Another project which is well advanced is a pilot programme as part of the regional programme of research into the problem of aflatoxin in groundnuts. There is also a study project to evaluate the water resources in the Casamance region. The Commission's delegate also gave figures of food aid: 17000 tonnes have already been delivered and a second delivery of 18000 tonnes will arrive before the rainy season.

The total resources which Senegal will receive under the Lomé Convention amount to some 59 million EUA which is roughly 17 thousand million CFA francs. The Senegalese government has decided to spend 33% of these funds on rural development 28% on the road programme, 19.9% in school buildings, 6.1% on training, 1.3% on commercial promotion, 2.5% on industrial cooperation and 0.2% on other projects. □

"Treaty of Rome"

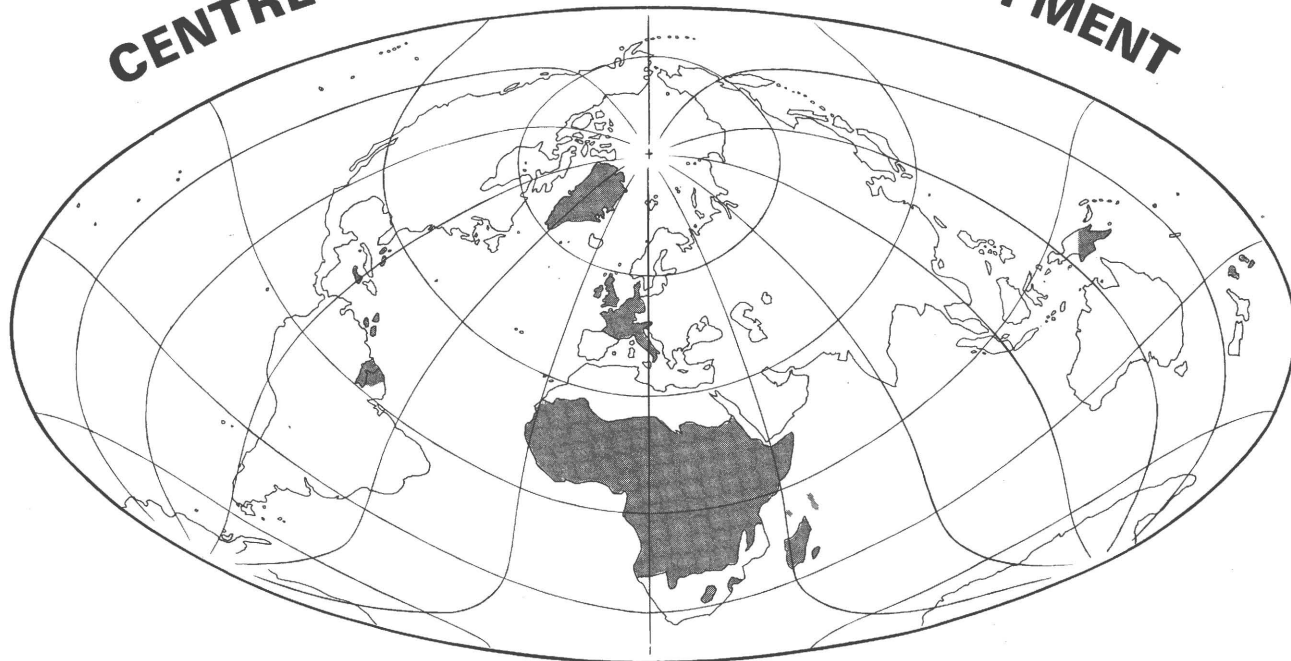
"Treaty of Rome", the EEC entry in the Whitbread round-the-world yacht race, came safely home to Portsmouth (England) on 27 March. The smallest boat in the race, she led at start and finished third overall.

It was a fine achievement for a yacht of only 15.6 metres with a frequently-changing crew of different nationalities. "Treaty of Rome" carried the number EUR 1 as a symbol of European unity around the world on the eight-month, four-stage race, and confounded the pessimists.

Belgian skipper Philippe Hanin and his crew of eight (in fact 15 young sailors who took turns on the yacht) from all over the Community took the idea of Europe with them and proved that good teamwork could raise even the humblest participant in the race to the level of the most famous and experienced of ships and crews. □



CENTRE FOR INDUSTRIAL DEVELOPMENT



BUSINESS OPPORTUNITIES

Three CID business trips in ACP states

The Centre for Industrial Development (CID) continues to maintain its key role in maintaining an on-going cooperation between the EEC and the ACP countries within the frame work of the Lomé Convention.

This is underlined by the latest CID mission to Madagascar, the Seychelles and Mauritius, led by the CID's director, Mr Roger Theisen.

Madagascar

It was no coincidence that Mr Theisen and his colleague Mr J. Razafindra-soava, the CID's technical consultant, visited Tananarive from 25 February to 1 March 1978 at the request of the Malagasy authorities at a time when their recently adopted development plan, which covers the short, medium and long term was about to be put into effect. It was a confirmation of the great interest that the Malagasy government has in the activities of the CID by associating the CID with their projects.

This interest is even more apparent in the overtures that the government of Madagascar has made for cooperation

from private investment outside the country to fulfill its development strategy, in both the public and private sector. Also, the recently instituted investment code — outlining precise references for each category of investment — should allow for ample flexibility of negotiation, prior to agreement on participation, particularly in the case where the state itself is the promoter.

Madagascar has plenty of natural resources. There are a considerable number of unique medicinal plants found only on the island. To date these have been exported only as dried plants, but never as a final pharmaceutical product.

One pharmaceutical production project is currently at the planning stage and possible European partners have already been contacted for their assistance in marketing the finished product which should have a ready market in both Europe and the United States.

Funding for this project — a very profitable project indeed — would require an investment of approximately US \$ 4 million, and should be finalised very shortly. The CID plays an important role in this project as it will be involved in the final investment arrangements.

Madagascar produces a great amount of fruit and vegetables, but due to the lack of adequate transportation a large percentage of this produce per-

ishes each year as it cannot be transported rapidly enough across the island to Tananarive from where it could be exported.

Mr Theisen has suggested a vacuum-cooling system to the Malagasy authorities that consists of a new cooling and partial dehydration method. This system would preserve fruit, vegetables and flowers by preserving them in a sealed plastic vacuum pack, keeping them fresh for three months at a normal temperature.

This system would enable the Malagasy to create the maximum distribution and commercialisation of their produce not only on the local market but also for export under the best conditions for both transportation and preservation. This system is flexible and makes it particularly interesting during the harvesting and fruit-picking seasons.

The CID is prepared to carry out an in-depth study for this project, which would certainly be a great improvement to the Malagasy agricultural development programme and benefit Madagascar's foreign trade in the short and long term, particularly when considering the tremendous demand for many of these fruit and vegetables in the European market place.

This vacuum-cooling system would also preserve flowers in a perfect condition. So perfect, that after packing

and transportation they would return to their original form when unpacked at their destination. West Germany alone would account for 500 tons of locally produced orchids per month. This would be a tremendous market if such a system were installed in Madagascar.

Here again, the CID could lend a helping hand with their technological and marketing experience in this area.

In Nigeria the CID has also just begun its most important project; the exploitation of a major bed of bituminous sands representing a total project investment of more than US \$ 300 million.

In Madagascar, however, there is a similar source of bituminous sands — in fact one of the three largest beds of bituminous sands in the world. The Malagasy authorities are greatly concerned to push ahead with exploitation of this local resource in order to extract, as a first step, the necessary tar for national road construction and, as a second step, a substantial local reserve for crude oil production.

Of course, this is an extremely ambitious project for Madagascar which would mean an investment of several hundred million dollars, and would rate as the most important single project in the country.

For the moment the most crucial tasks are to find the necessary technological and financial backing for the project. Based on the experience the CID has gained in this field with the Nigeria project, an initial plan for an exploration project has already been submitted to the Malagasy government and is currently under study.

During Mr Theisen's visit to Tananarive it was agreed that the Malagasy authorities would send a detailed study on this to the CID who, would prepare a detailed outline of the available European techniques suited for the exploitation of the sands located in Bemolanga.

Included in the long list of industry based projects under consideration for Madagascar are the following: the treatment of lignite; the production of urea; an industrial poultry-farm; the processing of molasses; a soda plant; and a manufacturing plant for electric generators, etc.

The Malagasy authorities are prepared to take any assistance from the CID for either technical consulting, funding methods, control of projects or the handling of technological needs and the search for possible financial and commercial partners.

In addition to their concern in the development of the industrial sector, the Malagasy authorities have plans for the construction of over 20000 lodgings per year. The Ministry for Trade and the Economy have also a priority on industrial construction projects. These include plants for the production of pre-fabricated panels, asbestos

material, lime, bricks, plumbing materials, electric light bulbs, and ceramic tiles.

The Malagasy Ministry has already introduced an official request to the CID for many of these projects. For the others the CID has still to submit studies and information. The CID has also been asked by the Malagasy Government to carry out a number of market research studies within the EEC. The Malagasy authorities have also requested the CID's assistance in finding technical and commercial expertise in Europe for a gelatine factory and a marble factory, as both are currently in technical and commercial difficulties.

As Mr Justin Rarivoson, Minister for Trade and the Economy has said, the contribution of the CID is not only greatly desired but also needed in the fulfilment of the Malagasy development plan. This applies to both existing and new projects. The Minister also underlined that Madagascar greatly appreciates the contribution of the CID within the private sector in the country.

Seychelles

Roger Theisen, Director of the Centre for Industrial Development involving the EEC and ACP countries, paid an official visit to the Seychelles from 1st - 5th March at the government's invitation. During his stay he had the opportunity to meet France Albert René, the Seychelles President, J.O.M. Ferrari, Minister of Agriculture, and M. Servina, Minister of Labour, as well as a great many government and private figures.

The CID have already sponsored a number of schemes, and consequently Mr Theisen was able to refer to progress made in areas that are the responsibility of the Minister of Agriculture in talks with him. Such schemes included a plant to produce compost from household refuse and waste vegetable matter, one for bottling water, and one for deriving salt from salinas. There is also a project relating to the production of activated charcoal from coconuts.

In the context of a significant construction programme at low cost currently being implemented, the Seychelles authorities showed great interest in receiving items already researched by the CID, especially panels with a fibre and cement base which had been studied for similar purposes in Jamaica. Moreover, those who spoke to Mr Theisen showed great interest in a project currently being implemented to produce panels with bases of fibre-glass, polystyrene, and possibly coconut-fibre, the employment of which would enable building to take place at very moderate production costs.

Bearing in mind that the Seychelles population consumes some thirty thousand imported chickens per

month, the government consider it would be desirable to think in terms of a local, mechanised, production unit with brood-hens and slaughter-houses, for which the CID, who have already researched a similar scheme, could complete a feasibility study.

Furthermore, since the fishing industry is so important, the CID were approached for help in the quest for technology appropriate for setting up a plant for drying and smoking fish, and for advice on marketing it. The CID will similarly be able to combine this scheme with further research on the question of how mariculture can be established.

Still on the subject of fishing, the Minister of Agriculture showed special interest in a scheme to build a fleet of wooden fishing-boats 52-65 foot long, which would permit fishing to be developed. The CID would make a contribution to research on this, and also seek interested parties.

As for making the best use of natural and agricultural resources, the CID, who made a proposal to the Mauritius and Madagascar governments regarding the employment of a conservation and storage unit for flowers, fruit and vegetables by means of a refrigeration process and partial vacuum dehydration, pointed out that if a unit of this type were set up, it could be operated just as profitably in the Seychelles and that they would be able to start research on this scheme. The same scheme could likewise be applied to making commercial orchid-growing profitable.

The Seychelles authorities also indicated that they would be pleased to receive from the CID information on processing and maximizing profit from cinnamon and patchouli, the processing of which is at present a cottage industry. The CID will be able to supply information on how to process these plants as well as on the uses to which they can be put, their export, and possible applications for their extracts. In conjunction with a reafforestation programme, the CID will also study the possibilities for improving and developing the production of charcoal from local species of tree.

Finally, the CID will be able to start research on the establishment of a factory to produce wood and bamboo furniture — at present highly prized in Europe — with special reference to its technology (including design) and marketing.

Mauritius

Mr Roger Theisen, Director of the Centre for Industrial Development, led a delegation to Mauritius from 5th - 10th March. On this visit he was able to meet Sir Seewoosagur Ramgoolam, the Prime Minister, Mr Basant Rai, Minister for Trade and Industry, Mr

"Industry is our profession"

Ghurburrun, Minister for Planning and Economic Development, and Mr Ghoo-rah, Financial Secretary and national Chief Accountant for the EDF, as well as their many associates.

The CID mission was mainly concerned with the industrialization of Mauritius, and the personal meetings are evidence of the lively interest the government of Mauritius shows in CID operations and in the assistance the CID will be able to give in implementing the new industrialization programme which include the improvement of means of transportation and the valorization of the Industrial Free zone. From these negotiations it emerged that the government of Mauritius asked the CID to sound out possible European investors within the framework of a coordinated European programme and this could result in the establishment of joint ventures. The government further requested the CID's help to market products from Mauritius in EEC countries.

As for establishing projects that have a priority rating, the CID will be able to supply considerable information and, in some cases, seek out the most relevant technology as well as possible contractors. This particularly applies to the industry which produces ethyl alcohol from refined sugar, for industrial uses. It also applies to yeast for making bread and yeast for cattle-feed, and to the production of fodder, citric acid, glass frames for plants and pulp made from cane-trash.

Other priority projects were also mentioned. There is the case of a plant for conserving market-gardening produce through a vacuum cooling process which would enable optimum storage to operate in an ideal environment for several months, and this would give rise to planned marketing on both the domestic and export markets. This process could be applied to the commercial cultivation of flowers such as orchids, anthuriums and andreasums, which would be earmarked for the European market.

Other projects have been carefully considered, such as the production of dried fruit and quality jams for export; the manufacture of building materials at low production costs; a plant for producing 30000 telephone receivers each year; a plant for producing electric generators; a plant for producing methane from animal manure; the semi-finishing of quartz watches, and a plant for making labels through metal-plating on to paper in a vacuum.

Further missions were also made to Gabon, Nigeria and Sudan. Copies of the reports on these visits can be obtained from the CID.

To the Community industrialist: Investment in manufacturing plants in the ACP countries

The Centre for Industrial Development (CID) is helping to put profitable

industry into the ACP states. If you invest in a joint venture industry, you share in the profits!

One of the methods the Centre uses is the business profile. A business profile is a statement by Community industry of the type of industry in which Community industrialists are prepared to invest.

The critical elements are the scale of manufacture and the market: the availability and cost of the raw materials: the availability and cost of energy: the cost of labour, the recommended plant and of course the fixed working capital required. The Community industrialist helps us to build up a business profile which sets out this information.

The Centre publishes and prints the profile in English and French and distributes it free of charge to ACP principals in all ACP states. The demand for these Profiles is increasing all the time and already industrial projects are in negotiation as a result of these profiles.

The ACP principal studies the profile; studies his market and the cost of the raw materials and energy: calculates the approximate unit cost of manufacture: and determines whether the project will be profitable. Then he sends his assessment to the Centre. We check the assessment and then pass it to the industrialists who have expressed an interest in projects of this nature. That industrialist could be you! Even after that, the Centre may still be prepared to help with a feasibility study or market survey and is usually prepared to help find the loan finance.

Are you interested in this approach? The Centre will be happy to send you copies of any profile: you can then tell us if it represents an industrial project in which you too would like to invest.

If you have additional profiles to offer, please let us know.

Address correspondence to The Director, Attention M. O'Hagan.

Timber

The ACP states are anxious to develop industries for the processing of tropical timbers. Timber processing may be for the local market on the export market. It is the export market which offers the greatest opportunities. Processed wood products from the ACP are normally entitled to duty-free access to the Community under the terms of the Lomé Convention.

Any industrialist interested in the possibility of establishing a timber processing factory in an ACP state is invited to contact the Centre. We can help you in your negotiations: help with the feasibility studies: help find finance. Write to us attention Division 1.

Large-scale manufacture

In many industries, large-scale manufacture is essential. For these industries, the Centre is examining with the ACP states how to set up regional factories which can manufacture at a scale which gives a competitive unit cost—the key to this approach

is the ability to secure the market for the whole region.

If you would like your manufacturing industry to be discussed, let us know the product and the scale of manufacture which you need.

We hope that preliminary examination of what industries and what scale will start in October. The decisions on the industries to be examined will probably be made in June/July this year. This is a major opportunity for you to build an overseas joint venture facility. **We believe this is a line of action which can create jobs in both the ACP and the Community states.**

Address correspondence to The Director, CID, Attention M. O'Hagan.

Opportunities in the ACP states

Manufacture of razor blades (Uganda)

A private entrepreneur wants to establish a plant capable of producing, when at full capacity, 40 million razor blades per annum. EEC technical and financial partner required.

Molasses processing (Uganda)

It is proposed to set up a plant for producing enguli and industrial alcohol. It is planned to produce 50000 litres of 50%/vol of alcohol or enguli per day. EEC technical and financial partner required.

Maize mill (Uganda)

Private sponsors want to promote a maize mill to produce first grade maize for the domestic market. The selected plant would have an annual capacity of 1000 tons of maize flour in the first year increasing to growth of 7000 tons eventually. EEC technical and financial partner required.

Ceramic products (Togo)

It is planned to establish a plant capable of producing 1800 tons of ceramic tiles, 1500 tons of sand-stone, 500 tons of sanitary ware, 500 tons of crockery per year. Estimated onvestment: 3.3 million CFA. Technical and financial partner required.

Instant coffee (Togo)

The objective is the industrial processing of green coffee into instant coffee. Scale of production: 1000 tons/year of instant coffee from 2500 tons of green coffee.

EEC firms looking for ACP partners

Expanded Clay

Italian company is looking for an ACP partner to produce "expanded

clay". The minimum investment is around BF 180/200 million.

Decoration of metal panels

A Belgian firm wishes to establish a small plant for the decoration of metal panels (brass or iron) by chemical etching. Markets aimed at: Europe, certain ACP countries and local tourists.

To ACP managers

Preservation of food

In favourable circumstances the pay-back for a whole plant can be less than one year.

In many tropical countries, the crop losses from premature sprouting from vermin and from insects will exceed 15% of the crop value. In these circumstances, it can be highly profitable to treat the produce by irradiation and this way, achieve a substantial reduction of the losses.

This technique is now in use in many countries, particularly for onions, grain, etc.

The Community industrialists have expressed an interest in establishing plants of this type in ACP states. Principals having an interest in a plant of this type are invited to contact the Centre (Division 1). Expressions of interest should include the type of crop to be preserved and the quality of each crop to be treated each year.

Business Profiles

As described in earlier issues of the "Business Opportunities", the Centre is preparing a series of business profiles. Each profile describes a small scale industrial process which might be viable in your country. Each profile gives you a brief description of the product and the process; the raw materials; labour and energy required; the fixed and working capital; and generally helps you to determine whether this industry will be profitable in your environment.

The Centre has now business profiles available (in French and English) on the following subjects:

1. Ceramic floor and wall tiles
2. Ceramic tableware
3. Sanitary ware
4. Hypodermic syringes
5. Electrical plugs and fittings
6. Vitrified clay pipes
7. Glass containers
8. Concrete roofing tiles

A further 15 profiles have been commissioned and will shortly be available:

1. Aluminium hollow-ware
2. Dry batteries
3. Fruit juices
4. Fibreglass
5. Industrial footwear
6. Cement sacks
7. Cement
8. Biscuits
9. Matches
10. Jerricans
11. Semi-automatic bakeries
12. Bandages
13. Caustic soda

14. Light bulbs

15. Overhead irrigation pipes

In each of the industries discussed in these profiles, at least one Community industrialist is interested in negotiating a joint venture. In most cases, several industrialists are interested.

The Centre welcomes suggestions for additional profiles

o o o

Fresh orchids for the Community

The Centre believes that there is a large and growing market for fresh orchids from tropical countries.

Vacuum-cooling methods together with airfreight could get orchids to European markets in time.

Expressions of interest regarding conditions for growing orchids, the technology of preservation and marketing are invited.

Shellfish, de luxe fruit and early vegetables for the Community

There is a possibility that a major market exists within the Community for **de luxe** fruits, early vegetables and shellfish.

If there is sufficient demand from ACP states, the Centre is willing to place studies in the Community to determine the size and nature of this market. □

A QUICK RESPONSE

If you are interested in any of the items mentioned in this periodical, send us a telex quoting the reference and we will send you further information when it is available.

Address all correspondence to:

**Centre for Industrial Development
"Business Opportunities"
451, Avenue Georges Henri
1200 BRUSSELS,
BELGIUM.**

**Telex No. CDI 61427
Telephone (02) 7358073.**

From production to processing

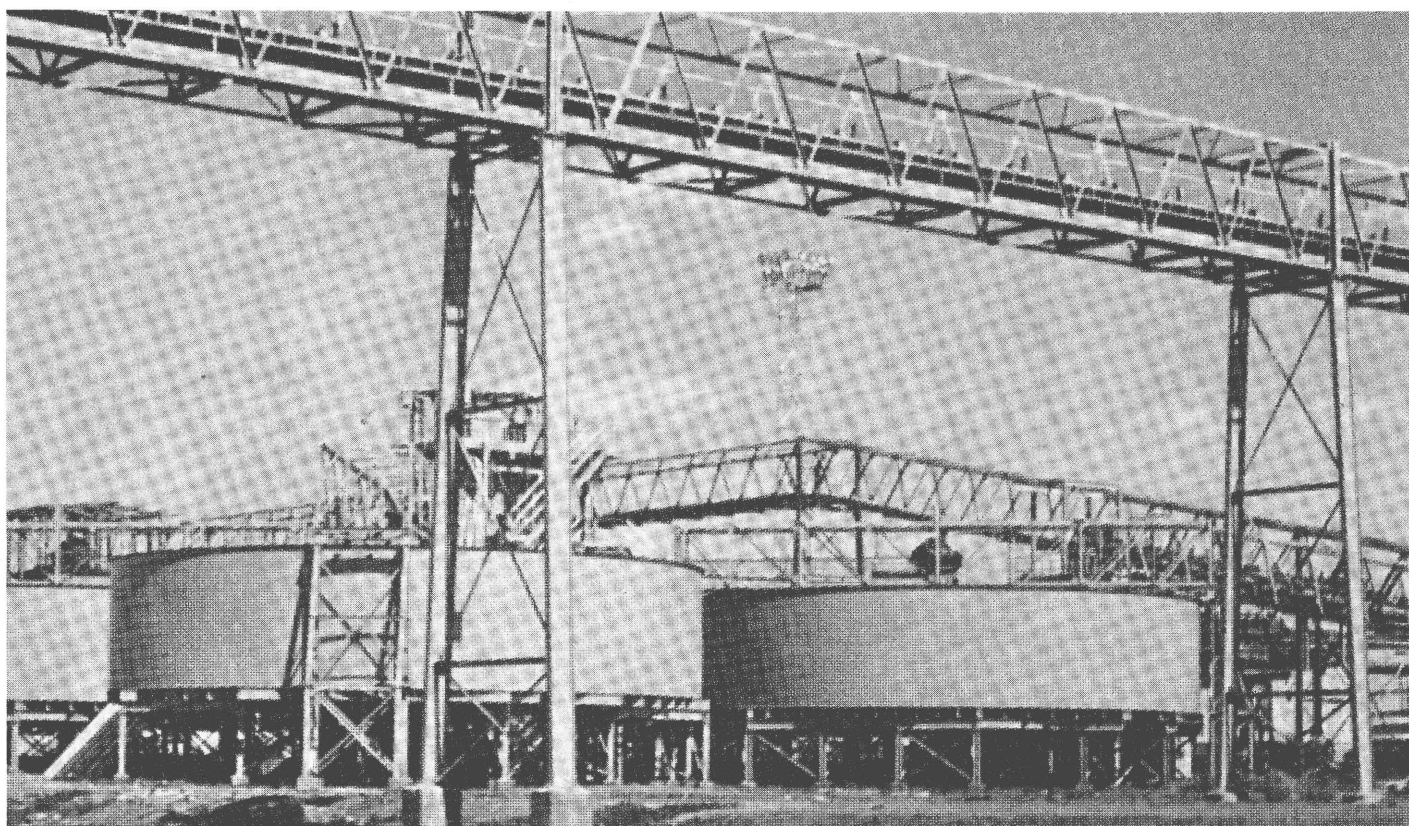
The processing of mineral raw materials, like mining itself, is geographically concentrated in certain areas. For historical reasons, most processing is done in the industrialized countries which are the main consumers of minerals. These countries were often major mineral producers themselves when they began the process of industrialization, and although many of them have turned more to foreign sources they have maintained their processing capability. For some minerals a degree of processing on the spot in developing countries is essential to lessen transport problems, but the fact remains that only 30% of the mineral raw materials produced by developing countries is processed before being passed on to the consumer. The trend to processing in the developing countries is marked, but over the last twenty years this trend has no more than kept pace with increases in production and as a result the figure of 30% has remained more or less constant for the whole period.

Processing is an important extension of the extractive industry. As a recent United Nations' study by the committee for natural resources remarked, "this trend towards increased processing in mineral-producing countries is primarily motivated by two basic underlying objectives: import substitution and export promotion. The first can lead

to increased forward integration though the addition of semi-manufacturing and manufacturing installations, especially in countries with a larger national market. But additional benefits can also be derived for smaller countries if they establish regional cooperation. Further processing motivated by export promotion will result in growing foreign exchange earnings."

At present three quarters of the world's mineral production is accounted for by a dozen countries: the USSR, 18.7%; the USA, 15.9%; Canada, 11.5%; Chile, 4.6%; Zambia, 4.1%; Australia 3.4%; China 3.2%; Zaire 2.4%; Peru, 2.3%; South Africa, 1.9%; Mexico, 1.8% and Brazil, 1.6%. Consumption is also heavily in favour of developed economies, 65% being consumed by the developed market economies, 25% by the communist countries and 10% by the developing market economies. When the figures for processing are considered, the same type of imbalance occurs. The communist countries almost achieve a balance of production and processing, the developing countries, South Africa and Australia share a weak level of processing while the main OECD countries, and particularly Japan, show a very high level of processing. The following table indicates the disparities:

Copper plant in Botswana; more than 70% of copper ore is processed in the developing countries themselves



Degree of processing conducted in different regions (1)

Minerals processed as a percentage of total minerals mined in each region (2)

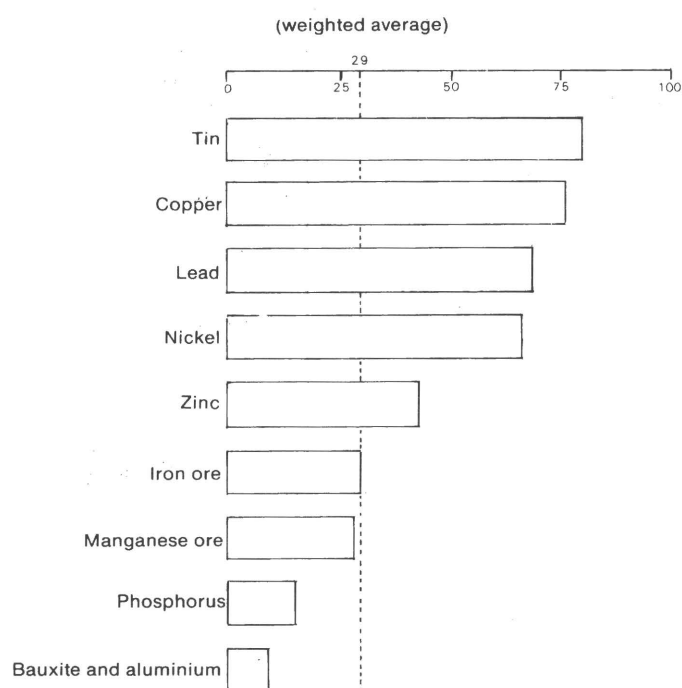
Region	1950	1960	1970
United States and Canada	146	179	179
Western Europe	250	250	295
Japan	235	381	1 046
Australia and South Africa	89	72	38
Developing market economies	30	28	29
Centrally planned economies	99	102	108

(1) Source: Bossom and Varon, *The Mining Industry and the Developing Countries*, published by the World Bank.

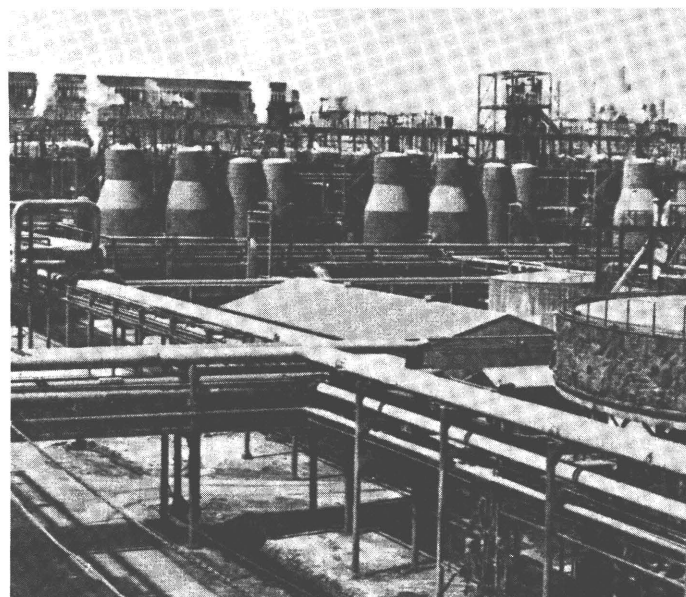
(2) Computed as the value produced by mining and processing operations as a percentage of total value produced, had all ore mined been processed to metal ingot stage, except for iron ore, manganese ore, and phosphate rock for which pelletized or sinterized iron ore, ferromanganese, and super-phosphate fertilizer were taken as representing the processed product.

The degree of processing in the developing countries also varies from product to product. A variety of factors is responsible for this such as the structure of the industry, the level of technology required and its availability, the energy input needed, and distance from, and access to, markets. As has been mentioned the average level of processing in the developing countries is around 30%, but that average hides wide variations depending on the metal. Over 75% of tin and copper produced in the developing countries, is processed there, for example, while the figure for phosphorus and bauxite is less than 20%. The following chart gives the level of processing for the nine main minerals produced by developing countries.

Percentage of processing conducted for nine minerals in developing market economies, 1970 (3)



(3) Bossom and Varon.



Alumina plant in Surinam

The trend to processing also varies according to the metal. It has been rapid in tin, for example, but sluggish in the case of iron ore. At present UNCTAD is studying ways to accelerate the trend to on-the-spot processing for a number of minerals. Bension Varon of the World Bank has estimated that "if the entire current mineral output of developing countries were to be processed up to this (the metal bar) stage, the value of their aggregate output could be as much as \$10-12 billion higher". The same author's estimate of the value of the developing market economies' production of the nine main minerals in 1970, was \$5.3 billion.

The barriers to achieving the added value created by processing in the developing countries are varied. There are tariff barriers, which although small and unimportant on ores and concentrates, rise with the degree of processing. The developed countries adopted such tariffs mainly to protect themselves against other developed competitors. While such tariffs may hinder processing in developing countries, the greater barrier remains what Bossom and Varon describe as "limited access to processing equipment and technology". Technical assistance in processing is often necessary from outside as it is with surveying, extraction and marketing, and most developing countries, including the expansion of processing in their national mining plans, have to seek such assistance from international agencies and developed countries with the appropriate expertise.

Finally there is the important question of international cooperation in expanding processing in the developing countries. As with all forms of industrialization in the Third World it will bring greater competition for the developed countries. They will need to adapt their own economies to take account of the desire of the developing countries to increase their share of processing. Relatively few countries would be involved in attempts to structure the trade in any given mineral, and this may help bring agreement on a transfer of more processing to the developing countries. And it should also be remembered that not all the producers with relatively low levels of processing are developing countries. Canada and Australia, both members of the OECD, are planning to process more of their mineral raw materials. The international debate therefore, on the ways and means of transferring more processing to the producers who currently feel they do too little, will not be a simple one of north verses south. □

IAN PIPER

For a better control of the markets

Ten years of CIPEC

by Sacha GUERONIK(*)

Last June was the tenth anniversary of the first Intergovernmental Conference of Copper Exporting Countries convened in Lusaka by President Kaunda of Zambia. The Conference decided to set up a permanent organization of these countries, since commonly known as CIPEC from the French and Spanish initials of its full official name: Intergovernmental Council of Copper Exporting Countries.

The occasion is perhaps appropriate to draw a tentative appraisal of the role and meaning of such an association of producers in the light of the current attempts to reform the existing international economic system and also of the criticism levelled in certain parts of the world against producers associations.

The initial and still basically unchanged objectives of CIPEC, as stated in the CIPEC Agreement are:

- to coordinate measures designed to foster, through the expansion of the industry, dynamic and continuous growth of real earnings from copper exports, and to ensure a realistic forecast of such earnings;
- to promote the harmonization of the decisions and policies of the member countries on problems relating to the production and the marketing of copper;
- to obtain for the member countries better and more complete information and appropriate advice on the production and marketing of copper;
- in general, to increase resources for the economic and social development of producer countries bearing in mind the interest of consumers.

These objectives are substantially those which nine years later were to be accepted, on a more general basis and extended to other basic commodities exported by developing countries, as a basis for UNCTAD IV's consensus in Nairobi on an Integrated Programme for Commodities (IPC).

The four original members of CIPEC were two Latin American and two African countries: Chile, Peru, Zambia and Zaire, which accounted in 1965 for 1675000 tonnes net of copper exports out of a world total of 2260000 tonnes, i.e., 74% of the international trade in copper which comes second in terms of value only to oil, and on a par with coffee, as a major commodity in international trade.

CIPEC's evolving role

In the period since it has been set up what have been CIPEC's activities and their impact on its members and on the world copper market?



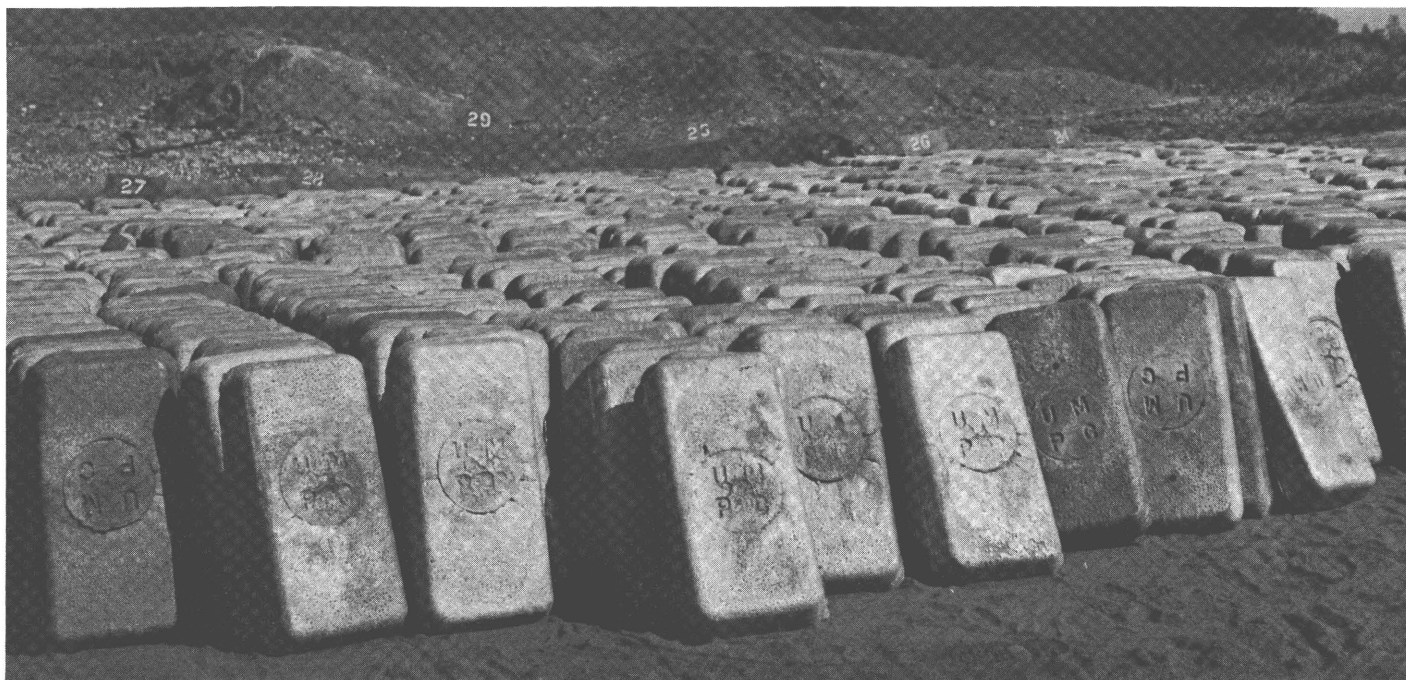
In the foundry (Zambia)

The first role of CIPEC, basically a consultative organization with no delegated powers of its own, was to contribute to the information and to the "self-learning process" of the governments and administrations of its four initial members as they, for the first time in history for most of them, had recently taken over the running of their economies and in particular of their copper industry, a major feature of all their economies. The provision of centralized up-to-date information on copper markets, marketing techniques and investment problems, facilitated the gradual formulation of national policies. The end product of this evolutionary process is strikingly similar in the four countries, in spite of the basic differences in cultural, political and social background. In each of them a number of specialized governmental and parastatal institutions have been set up with government departments specially responsible for the mining industry and state corporations involved in the production, export and marketing of copper. The names of these corporations are now familiar to all those interested in copper: CODELCO in Chile, MINERO PERU and MINPECO in Peru, Gecamines and SOZACOM in Zaire, NCCM, RCM and MEMACO in Zambia. As a result, the copper industry is now closely integrated into the national economy in all of them and no longer functions as an autonomous foreign enclave as used to be the case before.

Cooperative competitors

In the course of common studies and discussion of common problems, the participating countries have devel-

(*) Secretary-General of CIPEC.



Copper ingots stockpiled at Lubumbashi (Zaire)

oped a practice of mutual understanding and joint approach to many problems concerning their relations with the outside world. It is obviously in the field of marketing policy and techniques that this growing cooperation has most progressed. In spite of the fact that they still remain competitors, CIPEC marketing corporations have been able to compare the details of their sales contracts and endeavoured to harmonize most of their clauses.

A further step in cooperation was reached when some members were faced with special problems or grave threats to their economy. One can mention the help given to Chile when it was faced with a boycott of some of its copper exports as a result of the nationalization of large scale mining enterprises and, more recently, at the depth of the 1974-75 recession, the decision to curtail production on a uniform basis, in spite of differing conditions, which affected more especially the African members of CIPEC. In the same context, CIPEC has efficiently carried out negotiations with key consuming countries, such as Japan, to prevent harmful re-exports of refined copper to a weak market.

It should not be concluded from this brief summary of the three major aspects of CIPEC's past activities that the organization is inward looking and thinking only of the interests of the major copper exporting countries. A determined effort has been made both to enlarge the organization and to establish and strengthen links with outside producers. The first approach has resulted in five new copper exporting countries joining CIPEC since 1975, one as a full member (Indonesia) and four as associate members (Australia, Papua New Guinea, Mauritania and Yugoslavia)(1). Of these five, three were not yet mining copper at the time CIPEC was set up.

Neither have the interests of consumers, already specifically referred to in the objectives of the organization, been forgotten by CIPEC. Through regular meetings with the representative organizations of the main fabricators, it has been possible to promote a better mutual understanding of the problems facing both sides of the market.

It is a sign of this growing involvement of CIPEC in all aspects of the world copper picture that the organization recently decided to embark on a collective promotion programme of the uses of copper throughout the world. Sufficient financial resources were contributed by the major producing countries, even though it was a time of depressed copper prices, and it involved the cooperation of other interested sectors of the industry outside the CIPEC countries.

The next ten years

Now, entering its second decade, what are the prospects for CIPEC as an organization of producing countries?

Since CIPEC's Ministerial Conference in Lima at the end of 1975 the organization has taken the initiative in promoting a constructive dialogue between copper producing and copper consuming countries and has emerged as a spokesman of producers' interests, whether or not they are members of the organization, with a view to bringing this dialogue to a positive conclusion.

A first intergovernmental conference was held, at CIPEC's initiative, early in 1976 and has been pursued, after UNCTAD IV, within the general framework of the Integrated Programme for Commodities. It will now be pursued on a permanent basis within a specialized intergovernmental body. The CIPEC secretariat is participating directly in these discussions.

The normal conclusion of this dialogue should be an international agreement on market stabilization and the setting up of a joint organization of producing and consuming countries entrusted with carrying out the management of this agreement. This new framework for better understanding between both sides of the market will not do away with the need for a close cooperation between producing countries but rather direct this cooperation toward more constructive objectives. Thus CIPEC will not only carry on with its past mission of mutual assistance and promotion but play its full role, within its naturally limited sphere of competence, toward the creation of an improved international economic order. □

S.G.

(1) Four of the nine CIPEC countries are members of the ACP group.

The International Bauxite Association

by Garnet BROWN(*)

The International Bauxite Association is an inter-governmental organization of major bauxite-producing countries established by treaty.

The Association was formed in 1974 but formally came into being in July 1975 following legal ratification of the treaty by each founding member. The catalysing force behind its formation was a growing awareness among the major bauxite-producing countries of the need to exercise greater sovereignty over their bauxite resources. It also represents yet another effort on the part of capital-deficient but resource-rich developing countries to correct the historical imbalance in the terms of trade between themselves and the capital-rich developed world. In modern parlance, the Association may be regarded as one of the building blocks in the quest towards the establishment of a New International Economic Order.

"Safeguard their permanent sovereignty over their natural resources"

The countries involved were conscious of the importance of bauxite and its products to the world economy in general, and to their own national economies in particular, and anxious "to promote the orderly and rational management, including the mining, processing and marketing of the bauxite resources of producing countries". They also saw "the need to involve their own nationals more directly in such management".

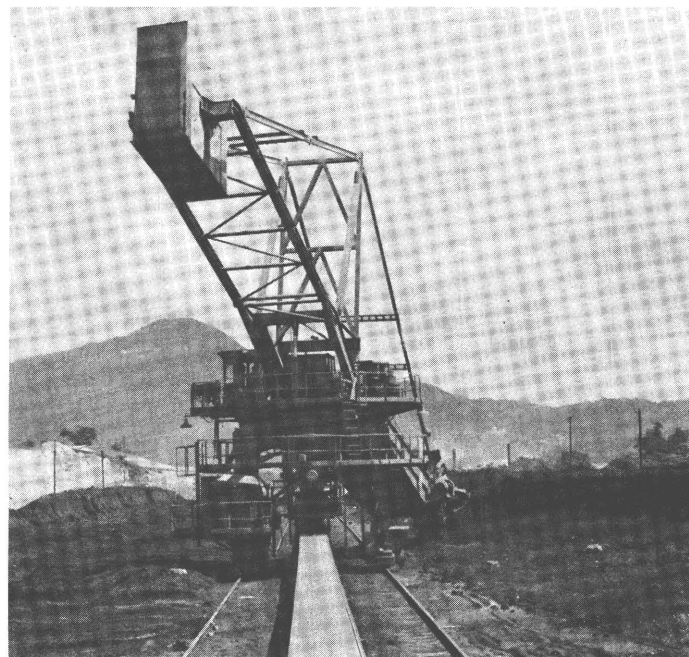
Recognising the power and influence of multinational corporations in the exploitation and processing of bauxite and the marketing of its products, they decided that increased cooperation and concerted action on the part of bauxite producing countries would contribute to the maximization of economic and social benefits accruing to their peoples from the exploitation of their bauxite resources. They wanted, in effect "to safeguard their permanent sovereignty over their natural resources".

The Association consists of eleven member countries, seven of which are founding members: Australia, Guinea, Guyana, Jamaica, Sierra Leone, Surinam and Yugoslavia. The remaining members are the Dominican Republic, Ghana, Haiti and Indonesia(1). Membership is open to any other bauxite producing country agreed by the IBA's Council of Ministers.

The stated objectives of the Association are:

- To promote the orderly and rational development of the bauxite industry;
- To secure for member countries fair and reasonable returns from the exploitation, processing and marketing of bauxite and its products for the economic and social development of their peoples, bearing in mind the recognized interests of consumers;
- Generally to safeguard the interests of member countries in relation to the bauxite industry.

The members exchange information concerning all aspects of the exploitation, processing, marketing and use of bauxite and its derivatives and try to harmonize their decisions and policies in those fields.



Bauxite mining in Jamaica, the biggest ACP producer

They try to ensure that member countries enjoy reasonable returns from their production and that consumers are adequately supplied at reasonable prices.

Together the 11 IBA members take action aimed at securing maximum national ownership of and effective national control over the exploitation of bauxite and endeavour to ensure that operations, or projected operations, by multinational corporations in the bauxite industry of one member country shall not be used to damage the interests of the others.

They also conduct joint research and explore the possibilities of group purchasing of materials and equipment and of providing common services to member countries.

Bauxite reserves

The eleven member countries of the Association possess approximately 24 billion tonnes of recoverable reserves which represent 72% of the world's known bauxite reserves on a dry-bone basis (see Table I). These reserves are widely distributed around the globe and include the world's largest deposits in West Africa and Australia. Some of these deposits are strategically well located with respect to major market centres. With the possible exception of Malaysia in relation to the Japanese market and perhaps Greece and Hungary in relation to the European and Soviet markets respectively, there are few deposits, if any, outside of the IBA membership that enjoy such market proximity as that enjoyed by the Dominican Republic, Haiti and Jamaica in relation to the American market and by Australia and Indonesia with respect to the Japanese Market. This proximity to market centres is of prime importance in the transportation and pricing of the ore.

Bauxite production

Table II shows the quantum of production of bauxite in member and non-member countries between the years 1971 and 1976. Some data is also presented for 1977. The figures show that over a six-year period, production in IBA member

(*) Director of technical information IBA secretariat, Kingston, Jamaica.

(1) Six of the eleven members are therefore ACP countries.

Table 1
World recoverable bauxite reserves (on dry-bone basis) and alumina equivalent as at January 1977 (in millions of tonnes)

Country	Recoverable reserves			Alumina equivalent			Total alumina equivalent	
	Measured	Possible	Total	Measured	Possible	Total	% of IBA	% of World
Australia	3 922	1 253	5 175	1 480	564	2 053	19.8	14.6
Dom. Rep.	17	—	17	7	—	7	0.1	< 0.1
Ghana	381	401	782	174	178	352	3.4	2.5
Guinea	3 572	9 008	12 580	1 562	3 894	5 456	52.8	38.7
Guyana	678	1 142	1 820	339	509	848	8.2	6.0
Haiti	5	—	5	2	—	2	0.1	< 0.1
Indonesia	55	745	800	23	310	333	3.2	2.4
Jamaica	2 134	—	2 134	918	—	918	8.9	6.5
Sierra Leone	130	8	138	57	4	61	0.6	0.4
Surinam	227	185	412	118	96	214	2.1	1.5
Yugoslavia	120	70	190	57	34	91	0.9	0.6
Total IBA	11 241	12 812	24 053	4 746	5 584	10 335	100.0	73.4
Brazil	2 192	1 000	3 192	939	470	1 409		10.1
Cameroon	865	729	1 594	337	284	621		4.4
Greece	119	324	443	54	149	203		1.4
Hungary	117	48	165	46	20	66		0.4
India	122	999	1 121	62	451	513		3.6
Malaysia	14	36	50	6	18	24		0.2
Selected non-IBA	3 429	3 136	6 565	1 444	1 392	2 836		20.1
China	109	729	838	49	328	377		2.7
Colombia	—	66	66	—	30	30		0.2
Costa Rica	—	109	109	—	38	38		0.3
France	29	—	29	13	—	13		0.1
Fr. Guiana	51	73	124	20	29	49		0.3
Italy	29	—	29	13	—	13		0.1
Romania	20	—	20	10	—	10		0.1
Solomon Is.	60	—	60	27	—	27		0.2
Turkey	21	70	91	11	35	46		0.3
U.S.A.	45	—	45	20	—	20		0.1
U.S.S.R.	300	—	300	120	—	120		0.8
Venezuela	37	328	365	18	146	164		1.2
Total other	701	1 375	2 076	301	606	907		6.4
Total non-IBA	4 130	4 511	8 641	1 745	1 998	3 743		26.6
World total	15 371	17 323	32 694	6 491	7 587	14 078		100.0

countries rose from 66% to 73% of world production representing a 7% increase. Of significance is that since the formation of the IBA in 1974, bauxite production in IBA member countries has equalized and kept pace with the proportion of world reserves in these countries, i.e. approximately 72%. Furthermore, the total increase in world production of about 14 million tonnes between 1971 and 1976 has been accounted for by increased production in IBA member countries.

This dominance by IBA members is expected to continue up to 1985 when some of the initiatives being pursued in non-member countries are expected to come to fruition. Even at that stage, however, the Association is expected to continue to grow in strength by virtue of the fact that the demand for bauxite is expected to increase at a greater rate

than world productive capacity, and the already developed IBA deposits are likely to be the most flexible in adjusting to fulfil this increased demand. Furthermore, it is reasonable to expect that IBA's membership will increase with an increase in the number of significant bauxite producers. It is therefore not unreasonable to conclude that the Association will continue to be a most formidable force with which to reckon.

IBA and the industry within member countries

Although the Association is a legal body independent of each member country, its influence on the development of the industry within any one member country is limited by the

Table 2
Global bauxite production ('000 tonnes)
(1971-1977)

IBA member Countries	1971	1972	1973	1974	1975	1976	1977
Australia	12 733	14 437	17 596	20 065	21 003	24 085	
Dominican Republic	1 032	1 087	1 146	1 477	910	529	721
Ghana	329	340	357	421	353	268	
Guinea	2 530	2 600	2 806	5 010	7 674	11 316	10 871
Guyana	4 234	3 668	3 464	3 168	3 559	3 134	
Haiti	765	783	709	641	522	635	616
Indonesia	978	1 277	1 229	1 290	993	940	1 301
Jamaica	12 440	12 539	13 601	15 328	11 571	10 311	11 433
Sierra Leone	591	693	693	672	716	651	
Surinam	6 718	6 777	6 533	6 385	4 929	4 612	
Yugoslavia	1 958	2 197	2 167	2 370	2 306	2 033	
Total	44 308	46 398	50 301	56 827	54 540	58 514	
IBA % of world total	66 %	67 %	70 %	72 %	72 %	73 %	
Other countries							
Brazil	566	765	849	985	1 277	1 000	
France	3 184	3 258	3 312	2 923	2 527	2 315	
Greece	2 861	2 409	2 748	2 813	2 844	2 747	
Hungary	2 090	2 358	2 600	2 751	2 390	2 918	
India	1 487	1 684	1 285	1 270	1 269	1 437	
Malaysia	978	1 076	1 143	948	703	661	
U.S.A.	2 020	1 841	1 909	1 998	1 831	1 989	
U.S.S.R. (E)	7 000	7 400	5 800	6 000	6 000	6 700	
Others	2 169	2 026	1 901	2 023	2 202	2 246	
World total	66 663	69 215	71 848	78 543	76 080	80 375	

Source: Member Countries; World Metal Statistics.
Export figures (US Bureau of Mines).
E = Estimated.

need for consensus between all members on any specific issue. The organization therefore provides a forum for discussion between member countries out of which harmonization of policies is achieved and these policies are then translated into action internationally. The degree to which the organization is successful in any undertaking depends therefore on how it lends itself to harmonization between member countries.

In its formative years, the efforts of the Association were directed towards the exchange of information between members and also ensuring that member countries attained a high level of understanding of the bauxite/alumina/aluminium industries and how these are structured internationally. This goal was achieved within a reasonable time. Concurrently, the complex subject of a common pricing policy for bauxite was undertaken, and despite the various factors to be considered, member countries found a common ground for agreement on such a policy in December 1977. It is pertinent to note that although there is common agreement on a minimum price for exported bauxite between all members, the Association does not seek to stipulate the precise way any one member should achieve this minimum price. This leaves individual member countries the freedom to administer their internal policies and legislation to achieve this price in a manner most suited to each. This general principle is paramount to the operations of the Association vis-a-vis the rights of individual member states.

As far as technical development of the industry within member countries is concerned, the Association serves as a coordinator and disseminator of information on advances in mining and processing technology, and on research and development in allied fields. Close monitoring is also maintained of such topics as freighting, recycling, environmental considerations, performances of competitive materials, the development of substitutes, price movements in raw materials used in the industry, etc. In effect, the Association acts as the international watchdog of the industry, on behalf of member countries.

Efforts in joint technical research and group purchasing of materials and equipment are expected to be made in the near future.

The International Bauxite Association has so far been successful in achieving some of its aims and objectives on a reasoned, logical basis, without undue confrontation with the developed, industrialized nations which use bauxite as a raw material. Although the surface has merely been scratched, the Association has to some extent demonstrated that the much sought-after New International Economic Order is achievable through international understanding and genuineness of purpose on the part of both the developing and the developed world. IBA still has many mileposts to pass, but the organization is ready for a long journey and the passage of each mile will represent a significant victory not only for member countries but for mankind in general. □

G.B.

SOUTH-WEST PACIFIC

Mineral exploration and exploitation

by Howard COLLEY(*)

Usually one associates the Pacific with idyllic islands bounded by beautiful coral reefs rather than mining, but this industry has been part of the region's economy for many years. Fiji, for example, has been a gold producer since 1935.

Although it was realised that the region contained valuable mineral deposits, for many years the mining industry paid little attention to further exploration. Then in 1963 an immense copper deposit was discovered at Panguna on Bougainville island in Papua New Guinea, and in 1972 one of the world's largest copper mines was opened at Panguna. This find provided a great stimulus for mineral exploration in the region and a host of international mining companies along with government institutions have carried out exploration during the past ten years.

In the South-West Pacific area, Papua New Guinea (PNG), Fiji, Tonga, and Western Samoa are partners to the Lomé Convention. With the exception of W. Samoa these countries form part of the geological structure known as the Melanesian island arc. Island arcs are mobile areas of the earth's crust characterised by active volcanoes and earthquake belts; they are also favourable centres for the concentration of many metals, particularly copper, lead, zinc, gold, and silver. Of notable importance in Melanesia is a type of deposit called by geologists "porphyry copper". This is a large-tonnage, low-grade type which usually contains more than 200 million tonnes of ore with a copper content between 1/2 and 1 per cent. In addition, the deposits often contain sufficient gold to warrant extraction.

Mineral exploration in Melanesia is a difficult business, especially on the larger islands of Papua New Guinea and Fiji. Dense tropical rainforest, high rainfall, rugged to extremely rugged terrain, and poor communications are just some of the problems. Throughout the region, mineral exploration involves the use of geochemical and geophysical prospecting techniques with three distinct stages in the exploration programme. The first stage concerns the collection of silt samples from rivers and streams within a large area. These samples are geochemically analysed to assess their metal content. In this way areas of high metal content suitable for the second stage of exploration are outlined. The second stage involves the collection of further geochemical samples from streams and soils in a small area, and the application of geophysical prospecting techniques. The latter usually necessitates measuring electrical or magnetic currents passing through the ground. Mineralized rocks



Prospecting in dense tropical rainforest on Viti Levu, Fiji

beneath the surface affect these currents in a characteristic way and it is possible to determine the extent of mineralization beneath the ground. If there are favourable responses to this second stage investigation, the prospect is drilled in many places and the metal content of rock core-samples from depth is measured. Mine development can begin if these metal values are sufficiently high. So far, first stage exploration has been carried out over large tracts of land in Papua New Guinea and Fiji, and in each country around 20 prospects have received detailed exploration and drilling.

Papua New Guinea

Since becoming fully independent in 1975 the PNG government has continued a policy of promoting mineral exploration, and in late 1977 published a White Paper on mining policy outlining new financial and taxation arrangements. In the past, drastic fluctuations in the world price for copper have made negotiations with mining companies operating in the country difficult. It is hoped that the new mining policy will lead to more flexible arrangements and a better understanding. The government recognizes the need for foreign investment, for it costs about A\$500 million (1) to establish a large porphyry copper mine, but it stresses that the country must share in any excessive profits caused by a rise in world metal prices. The tremendous impact that new large-scale mining can have on a developing country is illustrated by the Panguna porphyry copper mine.

Detailed geological investigations at Panguna took six years to complete at a cost of A\$20 million. With the completion of evaluation studies in 1969 mine development commenced. The mine opened in 1972 following expenditure of a staggering A\$400 million on development of mine facilities, excavation of a pit of 2.5×2 km² from tropical rainforest, construction of a port and a 25 km highway linking it to the mine, and the building of two townships. Such development consumed capital at a rate of A\$3.2 million per week!

(*) Dr. Colley has carried out geological research in the South-West Pacific since 1966. From 1970 to 1976 he was a geologist with the Mineral Resources Division in Fiji. Currently he is a lecturer at the Vrije Universiteit, Amsterdam.

(1) 1 EUA = A\$1.1 (Australian dollar).

The mine provides employment for approximately 3500 workers and supports 12000 inhabitants in the two townships. The ore receives primary processing and is exported in concentrate form, not as the pure metal. The controlling company, a subsidiary of Cozinc Riotinto of Australia (CRA), has long-term contracts to supply smelters in Japan, Spain, and West Germany. Current estimates of reserves are of 800 million tonnes of ore containing 0.45% copper and 0.5g/tonne gold, and extraction at the present rate of 30 to 35 million tonnes of ore per year gives the mine a life of 25 to 30 years. The PNG government derives much of its total revenue from the mine in the form of direct taxation, royalties, and a 20% holding in the operating company. Unfortunately this means that any disturbance of this single enterprise can radically affect the country's income, and even in its short life the Panguna mine has had numerous problems. The more important of these have been the fall in price of copper from nearly A\$3000 per tonne when the mine opened to a present price of A\$1200, a copper surplus in the world leading to the Japanese smelters cutting back their demands, and a secessionist movement on Bougainville island which has caused strikes at the mine.

In view of this vulnerable dependence, the government is eager to promote other mining enterprises. There are about 20 other significant copper prospects in the country, principally in the New Guinea Highlands (6), on Manus in the Admiralty Group (4), in New Britain-New Ireland (8) and on Misima in the Louisiade Archipelago. Of these, the ones at Ok Tedi, Frieda River, and Yandera in the New Guinea Highlands are the most important.

Ok Tedi lies in the Star mountain range close to the border with Irian Jaya. Detailed investigations began in 1969 and so far about A\$20 million has been spent on evaluating the prospect. Currently exploration is being carried out by a consortium of Australian and West German interests and drilling and trial excavations indicate a main orebody of 250 million tonnes containing 0.85% copper and 0.65 g/tonne gold. This can be mined by opencast methods whilst an adjacent orebody of 27 million tonnes containing 2.5% copper can be mined economically using more expensive

underground methods. Feasibility studies should be complete by 1979 and if development begins a mine could be operational by the mid-1980s.

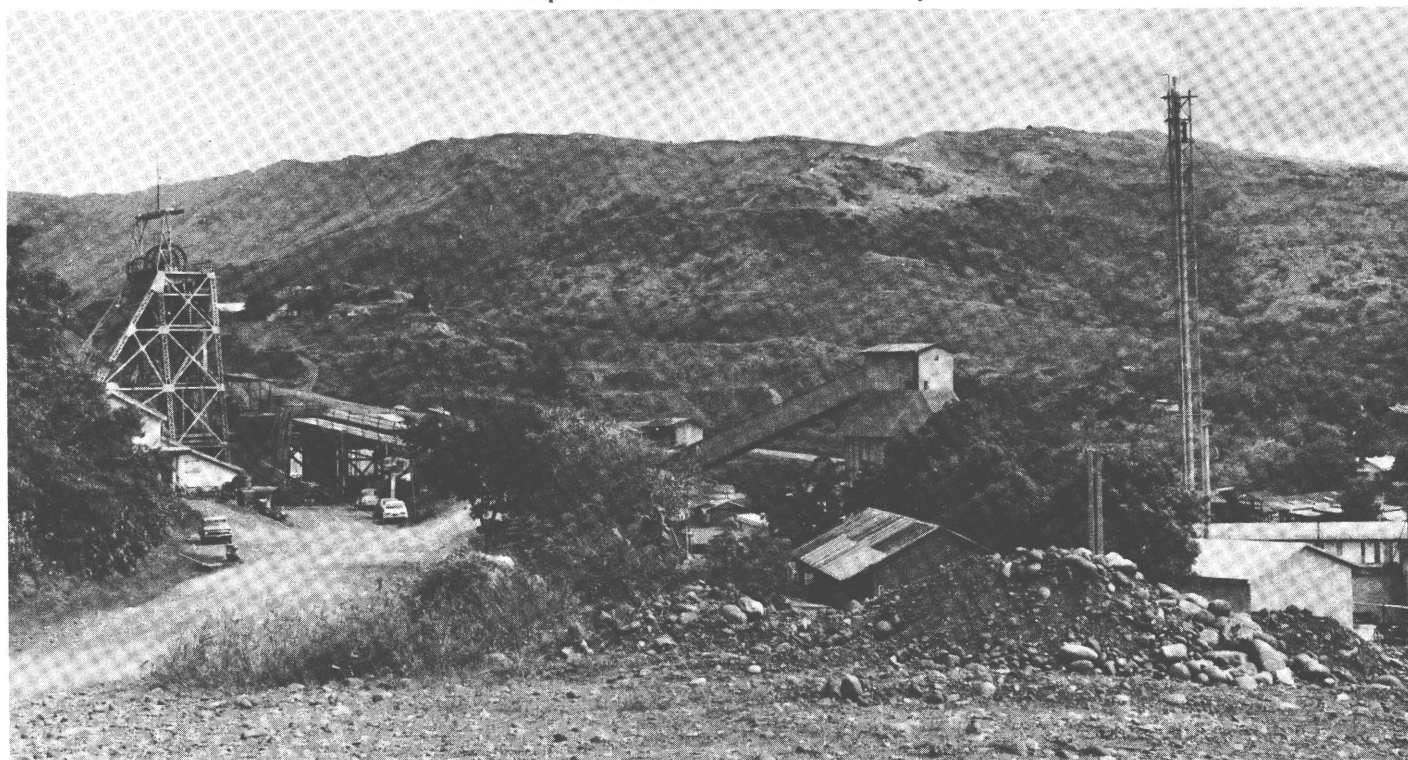
The Frieda River prospect is also in the Star Mountains and its relative closeness to Ok Tedi may make it possible to develop facilities such as power to serve both areas and thus reduce development costs. At present an intensive programme of drilling by a consortium of Japanese and Australian companies at Frieda River is nearing completion. Exploration costs so far are in the region of A\$20 million and current estimates indicate an orebody of 500 million tonnes containing 0.5% copper. Again a mine could be operational at this site by the mid-1980s.

In the eastern part of the New Guinea Highlands a group of Australian mining companies has spent about A\$5 million evaluating the Yandera copper prospect. A drilling programme was completed in 1975 but since that time little further work has been done. However, a greater world demand for copper would probably lead to further exploration of this prospect.

Current PNG government policy is to encourage exploration in the outer islands and in mid-1977 a call was made for companies to submit exploration proposals for copper prospects on Manus island. The best prospect is reported to contain 165 million tonnes of ore containing 0.32% copper. This is much smaller and of lower grade than the mainland prospects but has the advantage of being far more accessible and easier to exploit.

A small amount of exploration has been carried out in the search for metals other than copper. Indeed, gold has been mined on a small scale in the Wau district for some time and other gold prospects occur at Kainantu and Maprik on the mainland and on Misima in the Louisiade Archipelago. Exploration for chromium has also been carried out on the mainland in the region of Morobe. In the future, though, there seems little doubt that copper will dominate the economy of Papua New Guinea. Development of the Ok Tedi

The Emperor Gold Mine at Vatukoula in Fiji



and Frieda River prospects would lead to foreign investment of approximately A\$1000 million, work for between 5000 and 7000 people and for the country as a whole a total production of some 500000 tonnes of copper per year. This would make PNG one of the world's leading copper producers and warrant the setting up of smelting facilities within the country and this could act as a springboard for further industrial development.

Fiji

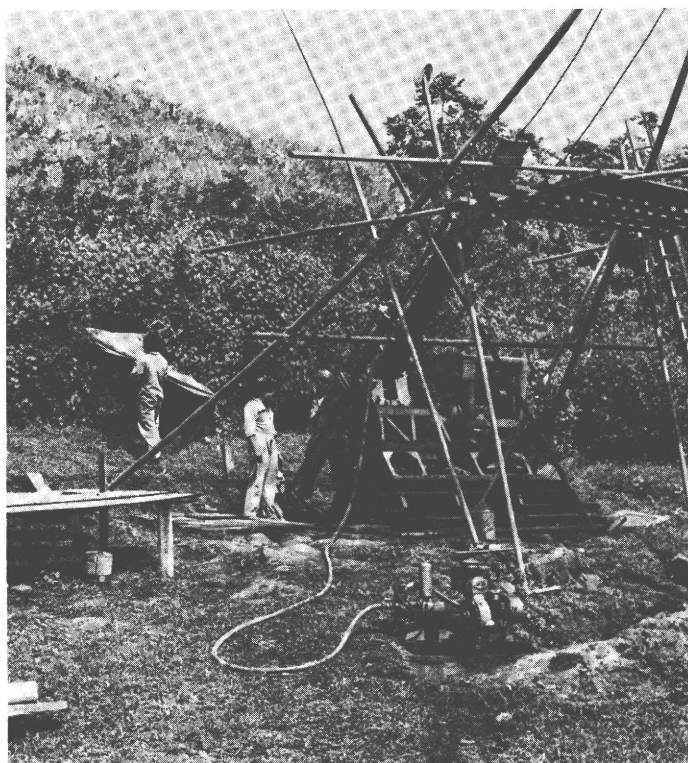
Fiji became fully independent in 1970 and since that time the government has shown a keen interest in mineral exploration by encouraging mining companies to carry out prospecting and by developing its own exploration expertise within the Mineral Resources Division. So far, practically all the larger islands have received stage one sampling and drilling has been carried out at more than 20 prospects. However, only the porphyry copper prospect at Namosi in the south-eastern part of the main island, Viti Levu, has been drilled extensively. Evaluation by a consortium of Australian and European companies has been underway at Namosi since 1968 and to date about A\$8 million has been spent on exploration. The present drilling programme is due for completion by 1979 and as yet there are no published figures on the size or grade of the deposit. The deposit is thought to be of moderate size and should mine development begin soon, a mine could be operational by the mid-1980s.

Porphyry copper prospects at eight other locations on Viti Levu and at two locations on Vanua Levu, the other large island of the group, have received a small amount of drilling. In addition there has been detailed investigation, including drilling, of small high-grade copper-lead-zinc prospects in north-eastern Vanua Levu. In late 1977 the Australian company carrying out exploration announced the find of another rich copper outcrop in the region.

Although current exploration interest in Fiji is centred on copper, traditionally gold has been Fiji's most important metal. Gold has been mined at Vatukoula on Viti Levu since 1935 but in recent years the operator, Emperor Gold Mining Co Ltd., has been in considerable financial difficulty. Basically the problem is that the mine is nearing the end of its life and the remaining ore is of low-grade and erratically distributed. Therefore mining is difficult and expensive and for the mine to be economically viable a gold price of US \$ 190/oz is needed; in January of this year the price stood at US \$ 160/oz. The company has carried out exploration around Vatukoula and at a number of other locations on Viti Levu and Vanua Levu but so far mineable gold deposits have not been found. In addition there have been labour problems and in fact the mine closed in February 1977 following a strike. Government intervention brought about the re-opening in March 1977 and re-instatement of the 1300 workers. However, in spite of government financial aid, the company, which is the biggest employer of labour outside the government, has found it impossible to remain viable and 700 workers were laid off in January 1978. Faced with the closure of a major industry and massive redundancy it seems that the government is seriously considering taking over the mine in spite of its being uneconomic.

Offshore prospecting

Geological structures in the islands of Tonga and Western Samoa are not considered very favourable for the concentration of mineral deposits. Geologically-speaking, many of the islands are very young and the deeper crustal rocks



Drilling at a copper prospect in Fiji

which contain the mineral deposits are not exposed. However, the ocean floor around these islands is known to be covered by rich concentrations of manganese nodules. In addition to manganese, these nodules contain high levels of copper, nickel and cobalt. At present, there are numerous financial, technical, and legal problems opposing mining but there seems little doubt that they will be mined eventually. Already a number of research vessels from academic and government institutions have studied the nodule fields around Tonga, W. Samoa, and Fiji. In fact, the Fiji government will soon have its own research vessel equipped for offshore prospecting. A number of Pacific countries, including all those of the ACP pact, are concerned that offshore prospecting should continue in an orderly manner. So in 1972 under the sponsorship of the Economic and Social Commission for Asia and the Pacific (ESCAP), the Committee for Coordination of Joint Prospecting for Mineral Resources in South Pacific Offshore Areas (CCOP/SOPAC) was formed. Since then this committee has met annually to review current developments. Furthermore in 1975 the UNDP provided funds for the setting up of an advisory office to deal with technical and scientific business arising from CCOP/SOPAC meetings.

For the immediate future it appears that copper mining will dominate the mineral economies of Papua New Guinea and Fiji. At the present time there is over-production of copper in the world and experts expect this to continue for at least five years. However, by the time the new generation of copper mines is established demand for copper should have increased. Mining is never an easy business and days of hard bargaining lie ahead for governments and mining companies, yet in the South-West Pacific there seems to be a real effort by both parties to reach amicable agreements. Hopefully the lessons taught by Bougainville and Vatukoula concerning the birth and death of mining will enable governments to prepare for such problems. Cooperation is also required if the wealth of the seabed is to be exploited and already within the South-West Pacific a spirit of friendship and cooperation prevails and augers well for the future. □

H.C.

Mineral resources and national development: three ACP cases

BOTSWANA

by Dr G.K.T. CHIEPE

The importance of minerals in Botswana's economy has increased from insignificance at independence in 1966 to their being the nation's most important earner of foreign exchange, in just over one decade. This paper provides a description of these mineral developments and their impact on the economy, and presents a moderately optimistic forecast for the future, with a look at the policies which have influenced past development and will shape the future course of growth in the minerals sector.

Role of minerals in the economy

At independence in 1966, Botswana ranked among the world's poorest nations with an annual per capita income of about 40 Pula(1) and a GDP below P40 million. The nation's only export commodity of significance was beef, which is subject to serious damage from periodic droughts. Mineral production was under P40000 per year and of little significance to the economy. The outlook for sustained growth of the economy was unfavourable from almost any perspective.

The unknown factor at independence was that Botswana contained considerable mineral wealth that would soon be proven and developed. The development of the nation's mineral potential has been a major factor in raising the nation's GDP to about P290 million in 1977. In real terms the growth of GDP averaged 12-15% per annum over most of the first decade of independence. During the 1978-1985 period minerals are expected to continue to be a major contributor to sustaining a projected growth rate in GDP of 10% per annum.

Total sales of Botswana's mineral products climbed from insignificance at independence to P125 million in 1977, and

by the mid-1980's sales are expected to at least double again in constant 1977 money terms. Although Botswana's mines are capital intensive, they do provide direct employment for about 4500 people which represents about 7% of the formal sector employment within Botswana. If it is assumed that for each job created directly in mining two are created indirectly, then the direct and indirect employment resulting from mining accounts for about 20% of formal sector employment in the nation.

In considering the large gains achieved over the past decade in the mineral sector it should be emphasized that Botswana started from a seriously impoverished position in 1966. Even with the impressive growth to date, and favourable expectations through the mid-1980s, Botswana will still have very formidable development problems to overcome. Today, only about 9% of the entire population is formally employed, and we have yet to supply adequate water to the many villages throughout the nation. Both health and educational facilities are inadequate and the income is very unevenly distributed. In the rural areas, 5% of the households receive as much of the total rural income as the bottom 70% of the rural households. These problems are not acceptable for a nation that strives to provide a better standard of living to all, not just for a few.

The first decade of mineral development

Within one year of independence the world's second largest diamond pipe in surface area was discovered. This major discovery in northern Botswana was developed into the Orapa mine that began production in 1971 at 2.35 million carats per year. A second much smaller diamond mine near Letlhakane commenced production in late 1976 at an annual rate of 320 thousand carats per year. In 1977, total sales of Botswana's diamonds produced P49 million in foreign exchange earnings.

During the late 1960s a substantial copper and nickel deposit was proven in eastern Botswana and subsequently developed into the Selebi-Phikwe mine and smelter. The mine began production in 1974 and produced about P66.5 million in copper-nickel matte in 1977.

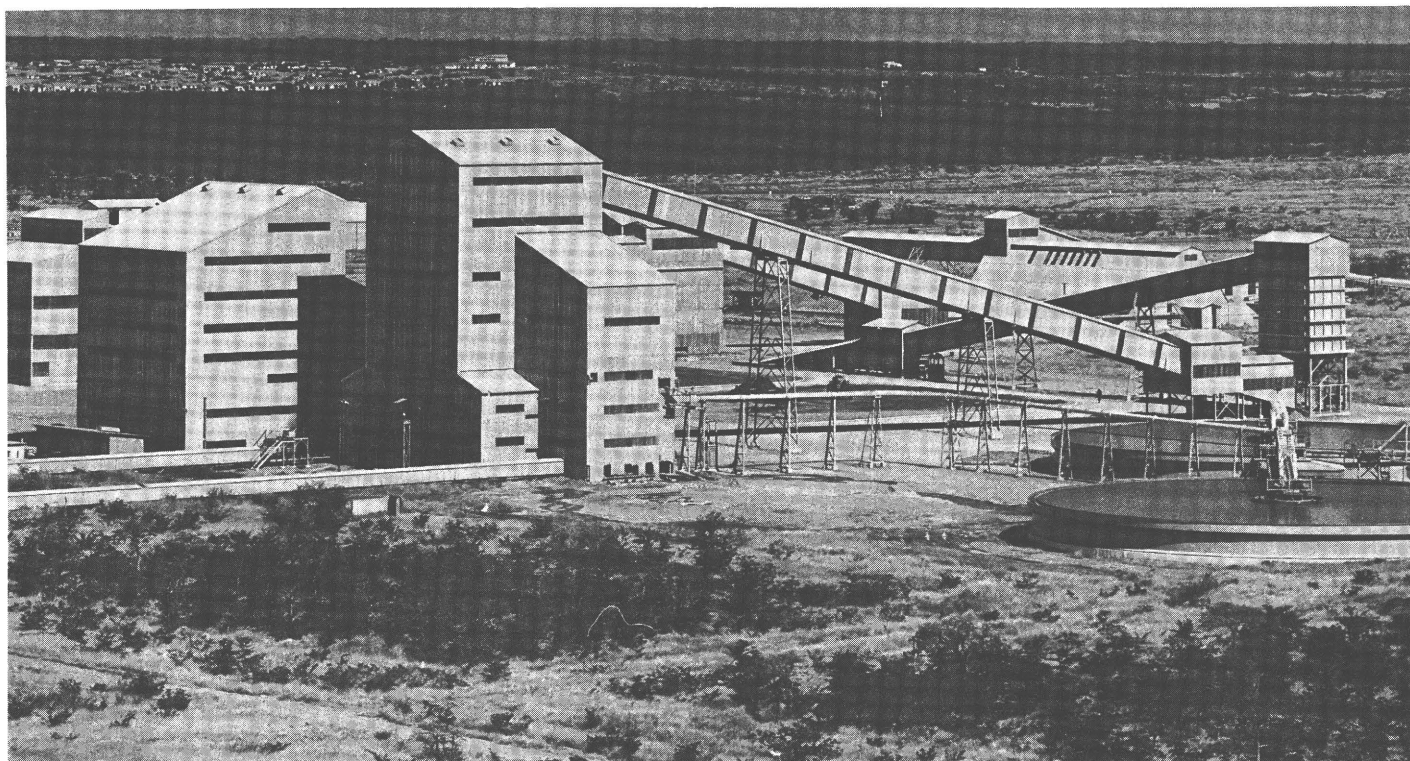
The second decade: assured mineral developments

Already committed mineral projects will ensure continued growth in the minerals sector to almost the end of Botswana's second decade of independence. In late 1978, production at the Orapa diamond mine will be almost doubled to 4.5 million carats per year. This expansion will be followed in 1979 by an expansion of the Letlhakane diamond mine

Dr Chiepe is Botswana's Minister for Mineral Resources and Water Affairs. She was previously Minister of Trade and Industry, and was High Commissioner in London during the Lomé Convention negotiations.



(1) 1 Pula = US \$ 1.21.



The Orapa diamond mine (Botswana)

from the present 320 thousand carats to 400 thousand carats per year.

In 1982, a third diamond mine will be brought into production in the south. It will be called the Jwaneng mine and will be based on the development of a large pipe buried beneath the Kgalagadi sands. When the mine reaches full production, the value of diamond production is expected to exceed by a substantial margin the total value of Botswana's diamond production in 1977 (P49 million).

Development of the Jwaneng mine will result in the development of a new town of 5000 to 10000 people about 120 km west of Gaborone. Direct employment in the mine will be between 1000 and 1500 people.

The second decade: potential mineral developments

Soda Ash/Salt. The extensive Makgadikgadi Pans in northern Botswana contain hundreds of millions of tonnes of soda ash and salt in brines. The deposit has been known since the early 1960s and considerable exploration and pilot plant test work has been completed. The primary constraint to commercial development has been the remote location of the deposit and inadequate transportation systems to markets. A large Japanese company is presently attempting to put together a consortium of companies that would carry out further feasibility work on this deposit.

Coal. Botswana has large coal resources that are estimated to be on the order of 40 billion tonnes. The energy crisis, beginning in late 1973, resulted in increased interest by major oil companies in Botswana's coal, and a major exploration programme has continued to the present. The results of this exploration have confirmed that Botswana's coal is of steaming coal quality, and can be washed to produce a low sulphur export quality steaming coal product.

Small tonnages of this coal are already used to generate much of the electricity used in Botswana, but lack of adequate transport systems appears to be a serious constraint to large-scale development for export.

Other minerals. The potential for additional discoveries of diamond pipes must be described as quite favourable. There are a number of relatively small copper, copper-nickel and gold deposits that are presently being evaluated, and it is hoped that one or more of these deposits will prove to be commercially viable. During the past two years a number of companies have begun exploring for radioactive minerals in the country. Although no commercial deposits have been reported, a few radioactive anomalies have been discovered. In addition, there is moderate potential for a major discovery of manganese and asbestos and more speculative prospects for lead, zinc, fluorite, petroleum or natural gas, platinum and chromite.

National goal of mineral development

The overall goal of Botswana's mineral policies is to obtain the optimum benefit for the nation from present and future mineral developments. This national goal is quite similar to the goals stated throughout the world by both developing and developed nations.

Mineral policy objectives

The measurement of the effectiveness of alternative mineral policies against the national goal is not achievable in practice. Therefore, more clearly defined and measurable subgoals or objectives are necessary. Botswana's mineral policies and policy instruments are intended to encourage mineral development that will contribute to the achievement of the following seven objectives:

- (i) contribute to regional and national development;
- (ii) provide substantial revenues to the government;
- (iii) provide employment opportunities for Botswana at all levels, and help in the development of a skilled labour force;

(iv) before export, process mineral commodities to the maximum extent possible consistent with reasonable economic practice;

(v) diversify mineral development among a number of companies in order to provide more competition for Botswana's mineral resources;

(vi) diversify the number of commodities produced and export markets to reduce risk;

(vii) protect the environment, the health of the people and use the nation's scarce water resources judiciously.

Mineral policy

It is recognized that all of the above objectives cannot be readily quantified in practice nor can all of the objectives be simultaneously maximized. To compare an additional unit of pollution with one unit of employment or revenue or regional development is clearly possible in theory but exceedingly difficult in practice in the developing world or perhaps even in the developed world. I believe the most important element of our mineral policy is to decide on the weightings to be given to our various mineral policy objectives. Given that no absolute weights are known for the various objectives, it is a major responsibility of the Minister with the help of the Cabinet and the advice of a Mineral Policy Committee to provide subjective weights to the various objectives. This is the approach used in Botswana to attempt to approximate optimum mineral development for the nation. Increasingly, inputs are being sought from other Ministries to ensure that the implications of particular mineral developments on their activities are taken into account in making major decisions. This process increases the chances for recognizing areas of possible synergism while avoiding or reducing the negative effects that can result from mineral developments.

Role of the private sector. The primary mechanism for mineral exploration, development and operation of mines has been and will continue to be the private sector. The role of the private sector is primarily to provide critical technical and management expertise, appropriate technology, marketing channels and most of the finance for mineral developments.

In return for the above essential inputs for rapid mineral development, the government is prepared to negotiate long-term agreements (up to 25 years) for the development, operation and management of mines that will provide a reasonable opportunity for the investor to earn a satisfactory return on his investment. An important element in negotiating financial arrangements is to leave an opportunity for the investor of capital to retain a share of extra profits that may be produced through better than average performance. Today, the expected return on investment in constant money for most mineral investments in the developing world appears to fall in the 13 to 20 percent range. This is generally achievable in Botswana.

Policy instruments. The principal policy instruments available to the government for guiding mineral development are as follows:

(i) the Mines and Minerals Act (1976) which describes the requirements and rights of the investor;

(ii) a negotiated fiscal regime that is varied to suit the characteristics of specific minerals and deposits (e.g. the terms for a rich diamond deposit are not suitable for most copper deposits, which have much lower profit margins and more volatile markets);

(iii) direct government equity participation (normally 15-25%) and the equivalent board representation;

(iv) participation (financial and policy) in the provision and operation of infrastructure.

Future policy directions

During the first decade of independence, the government had no practical option but to place the most emphasis on the revenue generating capacity of the mineral sector. The government needed substantial revenues in addition to revenue from cattle and aid if significant real growth and development was to be sustained. The need for increased revenue will continue to be important in the decade ahead; however, the combined effect of cattle, mineral and aid-generated revenues is expected to maintain the economy on a reasonably sound financial footing for the decade ahead. As a consequence, more attention can now be given to other objectives. In particular, the objectives of regional development, employment and protection of the environment will receive more attention in the future.

As is the case in many developing countries, urban incomes are far above incomes in the rural areas. This has promoted migration of people from the rural areas to a few urban centres in search of better jobs. The result is the urban population growth has exceeded the growth in availability of jobs, housing, water, sanitation and other infrastructure facilities. To help stem the migration from the rural areas to the urban areas of the southeastern part of the country, more employment opportunities are needed in the rural regions of the country.

In the granting of mineral exploration licences preference will be given to companies that will explore in the less developed regions of the country with the exception of such areas as the Okavango Swamps and Chobe National Park where the delicate ecological system might be disrupted by large scale mine and infrastructure development. The government has also accelerated its regional exploration programme over the extensive Kgalagadi sands that cover 80% of the country. The preliminary results of a recent aeromagnetic survey over this region indicate promising areas for future exploration.

The mineral sector can never provide sufficient job opportunities for the majority of Botswana even though it already is one of the nation's most important sectors for formal employment. More effort is being made to develop supporting industries to provide food, clothes, boots, equipment repair, miner's hats and tools that could be readily manufactured or assembled in Botswana. Mine management will increasingly have to demonstrate that they are making real efforts to encourage development of small supporting businesses.

In planning and providing infrastructure the government is now examining regional needs to determine how infrastructure can be of greatest benefit to the balanced development of regions. For example, the route of a road or water line may have a major impact on the development of other sectors such as agriculture. This is an important reason for an increased government role in the planning and financing of infrastructure for mineral developments.

In closing, my vision of the longer-term future is for a number of mineral developments spread across Botswana. Associated with these mineral developments will be towns that have been designed to facilitate growth of agriculture and other rural industries. It is through this more integrated approach to future mineral development that I believe the government can move toward achieving optimum benefit to the people of Botswana. □

G.K.T.C.

Mauritania⁽¹⁾

Mauritania covers more than a million km². It is one vast peneplain, rising regularly from sea level to 400 m at the frontier with Algeria and Mali. It is studded with small hills worn down to a hard core, the largest of which is Kedied Ijill (917 m). These guelbs (small peaks) are often outcrops of granite or quartz rich in minerals: Guelb Moghrein, for example, contains iron, copper and gold.

One of the great geological discoveries of the last 20 years was made in the '60's, when a team of geologists led by J. Sougy successfully identified the Mauritanide chain along a line from Sélibaby to Bou Naga and then north-west to Akjoujt, parallel to the plateaux of Assaban Tagent and Adrad. This was reported for the first time in a basic article, the "West African Fold Belt", in the bulletin of the Geological Society of America. The Mauritanide belt can be compared with the Appalachians and certain Brazilian chains. It is linked to the chain across the western Sahara, which reappears in southern Morocco, and it runs from Sélibaby to Sierra Leone in the south. The total length is more than 2500 km.

Elsewhere, the later sedentary formations (primarily the Taoudeni and Tindouf synclines, the Rigaibat ridge region and the coastal zone) have been studied in detail. Forty or so competent geologists worked on the general map (1: 1000000) which was completed on 30 June 1968. There is no room here to give details of their work, but it is clearly explained in "Plan minéral de la République Islamique de Mauritanie", published by the BRGM, with an introduction by A. Blanchot, who discovered the Akjoujt copper deposit.

Mineral deposits

The geologists listed details of mineral deposits and these are still being systematically examined by the most modern ground and aerial prospection methods.

By far the commonest mineral is iron, found in vast quantities around Zouerate, in Tiris (where 10 million t of 65% grade ore is mined every year) and in Tasiast along the Mauritanides. These reserves will last for 40-60 years.

The only copper mines so far are at Akjoujt (12000 t p.a. of concentrate with a 60% content; reserves for 20 years),

Iron ore exports (1976)		
Country	Tonnes	Percentage
France	2 223 721	23.0%
United Kingdom	1 670 682	17.2%
Japan	1 446 872	14.9%
Italy	1 266 600	13.1%
Germany	1 126 444	11.6%
Belgium	1 097 747	11.3%
Spain	521 394	5.4%
Portugal	142 970	1.4%
Netherlands	131 454	1.3%
Switzerland	36 225	0.3%

although there appear to be copper deposits in many other places.

There are small, isolated deposits of chromium in the Amsaga between Akjoujt and Atar, and in the Mbout area.

MICUMA has found tungsten in the Tabrinkout region, near Akjoujt.

To the west of the plateaux, the Mauritanide and Amsaga formations disappear beneath a much more recent sedimentary basin. At the top of the Gorgol formation, small deposits of good grade phosphates have been found.

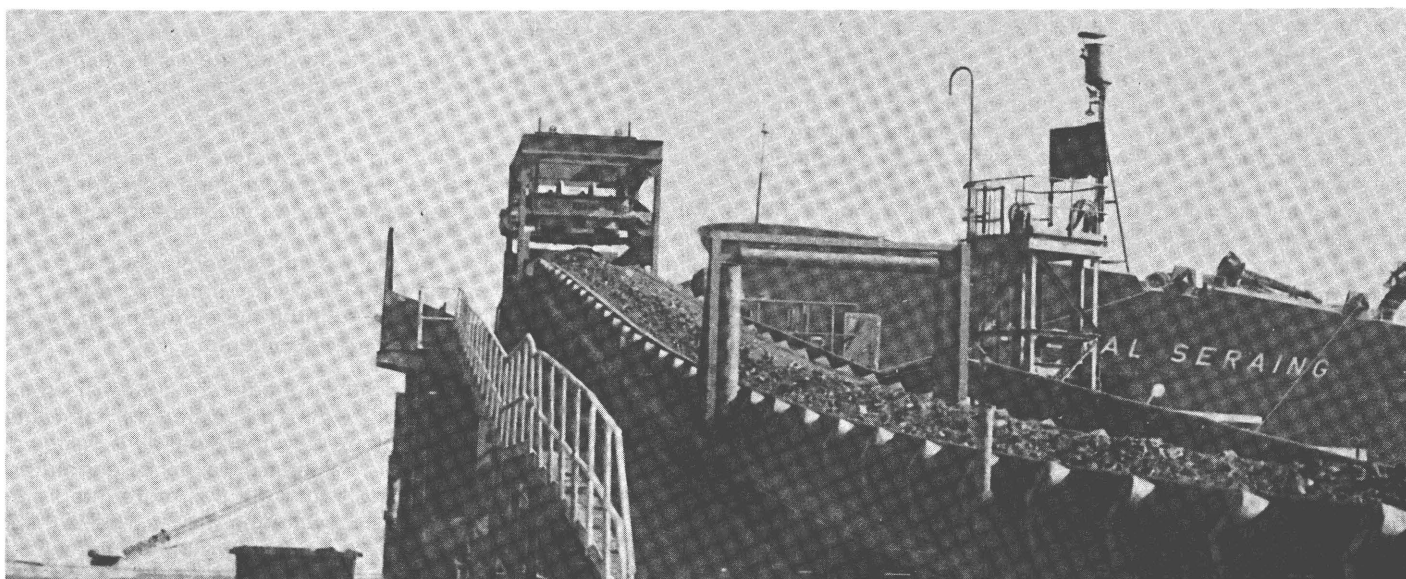
Studies of the action of the sea in the quarternary period, by P. Elouard, show that there is a large sebkha zone to the north of Nouakchott, where there are reserves of many millions of tons of extremely pure gypsum.

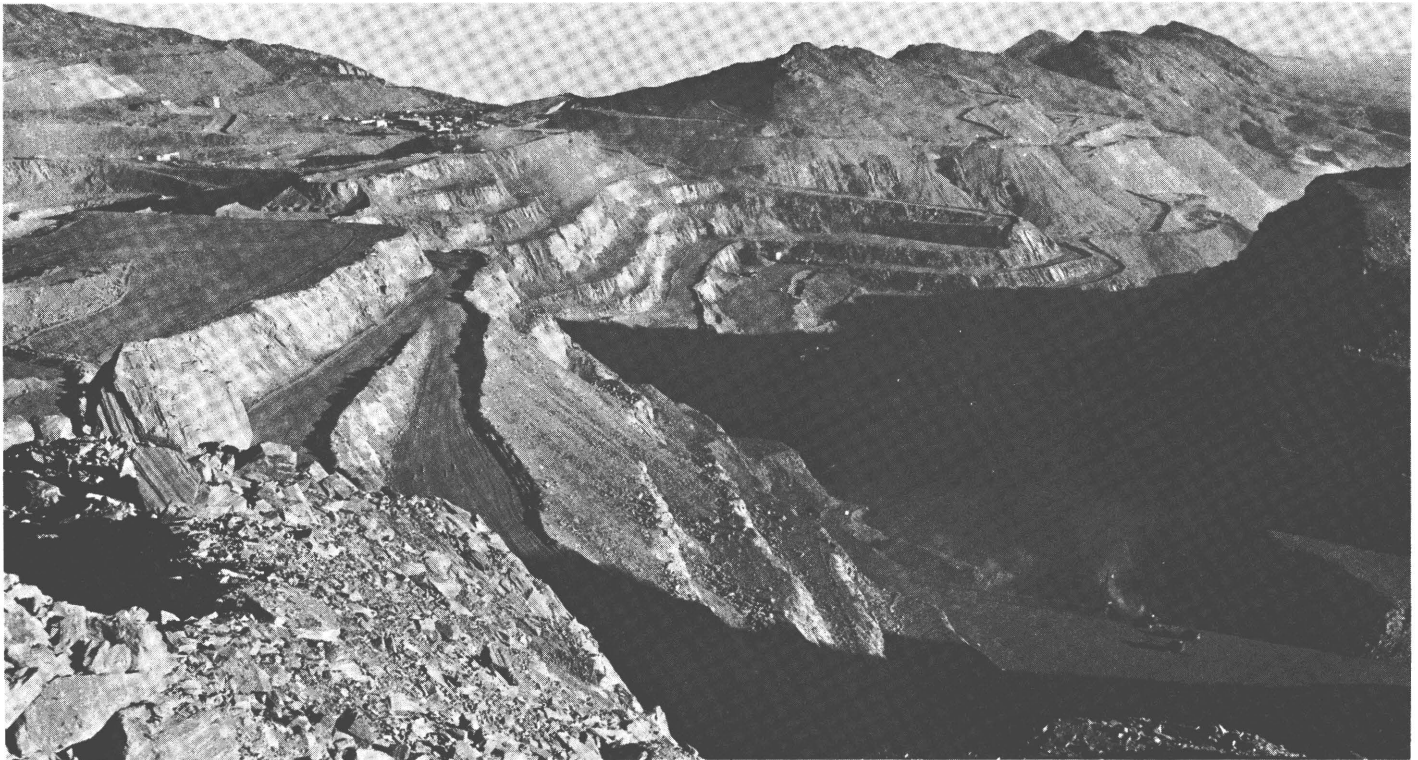
Mining

SNIM, the national industrial and mining company, has mines (hematite and quartz with a 65% iron content) in Tazadit, Rouessa and F'Derik, each of which has its own quarries, processing plant and railway station to load the ore.

(1) Article contributed by SNIM, the Mauritanian industrial and mining company (Société Nationale Industrielle et Minière).

Loading an ore freighter in the port of Nouadhibou: Mauritania exported nearly 10 million tons of iron ore in 1976





Mining iron near Zouerate (Mauritania)

Iron ore production

	Mined (million tonnes)	Transported	Sold
1963-68	35.3	35.5	34.5
1969	8.7	8.6	8.6
1970	9.1	9.2	9.2
1971	8.5	8.4	8.6
1972	9.0	9.3	8.6
1973	10.4	10.2	10.3
1974	11.8	11.9	11.7
1975	8.5	8.6	8.7
1976	9.5	9.3	9.7

Processing mainly involves crushing and sifting with a flow sheet to suit the texture of the ore.

The processing plants can handle 12 million t p.a.

1977 was marked by the world economic crisis, which forced sales down to 8.3 million t, and by foreign attacks on the longest trains in the world (four 2500 hp locomotives pulling 15000 t of ore in 180 wagons, more than 2 km long twice a day) which moves the ore down a 650 km railway.

Akjoujt copper mine

Exploitation of the oxide ore in the Guelb Moghrein mine began in 1971. The 2.5% grade ore is put through the TORCO segregation process, which involves reduction by chlorine at 800°. This section of the deposit is running out and will be exhausted in two years time, when exploitation of the lower layers of sulfide ore (15700000 t at 2.5% Cu and 1.17 g per t Au) will begin.

Every year, 1.2 million t can be extracted and processed, which should mean that the deposit will last at least 14 years after the probable start of mining in 1979. Open mining methods will be used, the ground being tiered down to 100 m below the level of the plain.

Gypsum

There is a very rich gypsum deposit (94-96% $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) 55 km from Nouakchott in the Akjoujt direction. There are reserves of at least 14 million t. Since 1973, the 12000 t p.a. extracted have all been exported to Senegal and once the factory is operational this figure should go up to 22000 t.

Second wind for Mauritanian industry

Iron, copper and gypsum mining in Mauritania are undergoing a period of change.

Kediet Ijill will be exhausted by 1991 and production will start falling rapidly in 1980.

There are plans to replace hematite production by mining the guelbs (magnetite in quartz) and substantial investments are needed to create a new centre of activity. The financing required in 1978 for the first phase (\$460 million) has already been found.

The oxide ores in the Akjoujt mines will be exhausted in a year or two, so a processing plant for sulfide ore will have to be set up. An investment of \$75 million has to be found for alterations to the factory, for the electricity power station, replacement machinery and installation of a furnace (25000 t of Bessemer copper p.a.).

The extremely pure gypsum yields plaster of excellent physical and mechanical properties and simple facilities, costing only about \$5 million, would suffice.

So, it is large-scale financing that will give Mauritanian industry its second wind in 1980. It can then face the rest of the century with equanimity, since it will have raised the country's standard of living to allow the introduction of social changes which have been studied with clear foresight by the SNIM. □

SURINAM

The story of bauxite mining

The old stories telling of the discovery of bauxite in Surinam are as varied and colourful as the varieties of the ore around which they are spun. One is that of the prisoner escaping from French Guiana who, on his way to freedom in Surinam, stumbled over some rocks which had the same appearance as the ones he knew from his place of birth in France, Les Baux, from where the name of the ore originates. Today, mining brings in some 35% of Surinam's GDP.

In 1915, World War I cut off the supply of bauxite from Europe to the United States where the young Aluminum Company of America was trying to integrate itself to include mining of the ore of aluminium. When the supply from Europe, stopped Alcoa had to look around for another source of ore. During the first few years it was assumed that bauxite in Surinam was mainly found in hills, and the story goes that the early geologists simply climbed a high tree to look for bauxite in the jungle. The search for bauxite and the possibilities for mining were found to be encouraging.

On December 19, 1916, the "Surinaamsche Bauxite Maatschappij N.V." was incorporated as a wholly-owned affiliate of Alcoa. The work of the new bauxite company started in Moengo.

The first shipment of green ore did not leave Moengo until 1922. In that year a total of 12447 tons was shipped.

In 1927, the first dried ore was shipped and that year production passed the 100000 ton mark.

In 1928 the company paid its first tax on profits and in 1929 bauxite became the most important export product of Surinam.

During World War II American troops were sent to Surinam to protect the bauxite plants. Since 1941 those included the facilities of the Dutch Billiton Company which had

started mining and processing of ore at Onverwacht, next to Paranam.

The Nazis, too, considered bauxite from Surinam important, and they stationed U-boats off the coast which torpedoed several ships on their way to Trinidad. Nevertheless the export of bauxite between 1939 and 1943 tripled in quantity. The last years of the war, when bauxite from elsewhere reduced the need for Surinam ore, brought a reduction of the activity here.

After the war the plants at Moengo and Paranam had to produce for the commercial market again and competition became severe. In 1945 both plants together did not even ship 600000 tons. Yet in the '50s production was increased, mainly by technological improvements in mining, processing and shipping.

The integrated aluminium industry

In 1950, when Surinam was first surveyed from the air, an expert came forward with the idea of damming the Surinam River as a promising method of producing energy for the further industrialization of the country. It soon became clear that if an HEP plant was built, the large quantities of energy could best be used in an aluminium smelter, which for every pound of metal would need approximately 10 kWh of electricity.

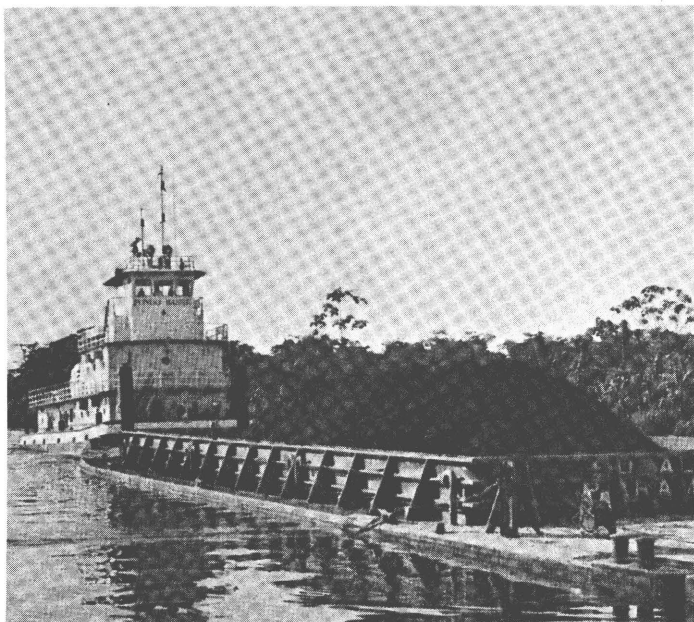
The 41-year old Surinaamsche Bauxite Maatschappij NV ended and a new company was founded: the Suriname Aluminum Company, again a subsidiary of Alcoa, soon shortened to Suralco. In the beginning of 1958 the document known as the Brokopondo Agreement was signed by representatives of Surinam and Suralco in the knowledge that realization of the project would only be possible on the basis of a joint-venture, which for 75 years would give both partners the best possible results. Surinam accepted the cost of the preliminary engineering study as its share in all development.

It furthermore provided the necessary plots of land, water and roads. It accepted the job of resettling more than 5000 people and their possessions from the future storage lake area, and maintained technical hygiene and sanitation in the reservoir.

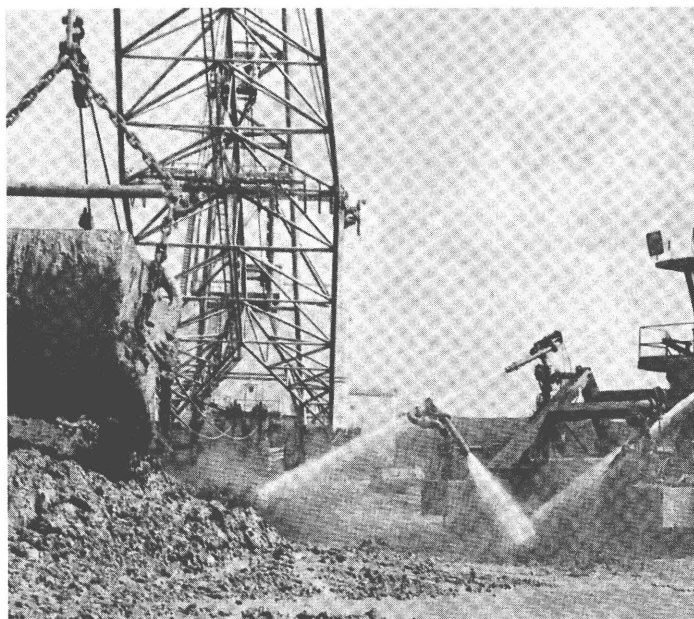
Surinam received the advantages of a construction programme of a few hundred million guilders in which thousands would find a temporary living. In the end, Surinam would have a completely integrated aluminium indu-

Exports							
Year	Bauxite		Alumina		Aluminium		% in total exports
	1 000 M-Tons	Value 1 000 Sf.	1 000 M-Tons	Value 1 000 Sf.	M-Tons	Value 1 000 Sf.	
1964	3 985	72 698	—	—	—	—	82
1965	4 369	80 608	59	6 216	1 254	904	81
1968	3 786	77 268	702	76 454	43 229	34 199	87
1972	3 476	82 100	1 279	147 800	52 558	47 600	92
1976	1 989	84 500	1 096	231 600	46 297	64 800	?(1)
1977(2)	2 206	?	1 099	?	58 000	?	?

(1) Figures of overall foreign trade unavailable.
(2) Estimated.
N.B.: 1 Sf. = ± 0,50 European units of account.



Bauxite carrier at Paranam (Surinam)



Extracting bauxite by the slurry system

stry which would not only bring more taxes and foreign currency but also permanent employment for many. The Brokopondo Project would bring development of a large part of the interior and 80 million kWh of electrical energy per year for general use. At the end of the agreement Surinam would receive the hydro-works in good condition, free of charge.

As its share in the venture, Suralco accepted responsibility for the financing and construction of the project, maintenance and operation of the future dam and powerhouse, the construction of a 40-mile road and installation of a high-voltage line from Afobakka to Paranam, where Suralco was to build an aluminium smelter with a production capacity of 60 000 tons per year and install an alumina plant with a capacity sufficiently large to supply the smelter with raw material. The company also agreed to spend 10 million guilders in 20 years in a geological survey of a large area of unknown jungle in the eastern part of the country. Suralco would make the results of its investigation available to the government and would in the end have a right to 20 000 ha

of ground containing bauxite as a concession, while its present bauxite concessions would be extended. Surinam's acceptance in 1962 as an associate of the European Economic Community offered the possibility of exporting the products of the integrated aluminium industry to Europe. The Brokopondo Agreement made the start of a mine-to-metal industry in Surinam an acceptable commercial risk and put Surinam a big step forward on the road to industrialization.

In 1963 the construction of a first 200 000 ton alumina production unit was announced. When the Billiton Company considered delivery of alumina to a new aluminium smelter in Holland there was an opportunity to add to the Paranam plant a second unit for toll-fabrication of Billiton's bauxite into alumina for Billiton.

An increased demand for alumina and integration of Suralco production facilities in total Alcoa operations made further expansion possible and a third and fourth production unit were added to the alumina plant, which now has a rated capacity of 800 000 tons per year.

On 9 October 1965 Queen Juliana of the Netherlands officially inaugurated the fully integrated industry at Paranam by pouring the first ingot of aluminium. That put the crown on six years of hard work; an investment of some 300 million guilders could start bearing fruit. On the last day of the year 1965 a first shipment of 1254 tons of Surinam aluminium could leave the plant. (Extracts from "Suralco Magazine", December 1976.)

The place of the aluminium industry in the economy of Surinam

This investment brought about an important change both in the structure of the gross domestic product and in the pattern of foreign trade.

The contribution of the mining sector to GDP rose from 27.4% in 1963 to 31.2% in 1968, to reach a peak of 35% in 1974.

Foreign trade is largely dominated by the export of bauxite, alumina and aluminium, as can be seen in the table.

Owing to world recession, the production of bauxite has declined drastically since 1975; however, this has largely been compensated by the considerable increase in world market prices. The Surinam government took its share in this development by agreeing at the end of 1974 with the two mining companies, Suralco and Billiton, on a new system of taxation: the levy due to the state was linked, not as formerly with the volume of extraction of the ore, but with the selling price of aluminium; thus, 26% of the total revenue of the ordinary budget is derived from this levy.

Furthermore, the mining sector contributes not inconsiderably to the state revenue through income tax, both on corporations and physical persons, customs duties on imported materials and materiel, and derived activities; owing to the lack of statistical data, the precise impact of this contribution cannot be assessed.

Finally, although, as can be seen, the mining sector is of paramount importance in the economy of Surinam, it should be noted that, owing to the capital intensive nature of its largely mechanized activities, it employs only about 6 or 7% of the total active population. □

COMMUNITY AID IN ACTION

EDF: The Transgabonese railway

Gabon is heavily involved in manganese and uranium mining and has a large iron deposit waiting to be opened up in the east, some 600 km from the coast. The EDF, with other bilateral and multilateral aid sources, is helping to build the Transgabonese railway, which will contribute to the country's development by increasing the revenue from mining.

The Transgabonese should give Gabon a modern transport infrastructure and strengthen its economic and political unity, and its independence, by providing links with foreign transport networks.

Three sections are planned:

1. Owendo-Port Booué (332 km), which should mean that forests in zone three can be exploited.
2. Booué-Liyami-Franceville (342 km), which will ensure that any manganese in excess of the 2 million t which is transported via the Congo can be brought out.
3. Booué-Bélinga (237 km), which will enable iron deposits in the Bélinga-Mekambo region to be exploited.

There is a two-stage work plan. Stage one began at the end of 1974 and involves building the first two sections simultaneously. There will also be two branch lines: Liyami-Moanda (21 km) and PK9-Santa Clara (30 km). The first section is scheduled to come into service at the end of 1978 and the second at the end of 1980.

The Owendo-Franceville line will go through 5000 ha of forest land. It will involve moving 45 million t of earth, building 30 bridges and a 185 m tunnel, laying 85000 t of rails (welded, with a standard gauge of 1437 cm) on 1300000 sleepers.

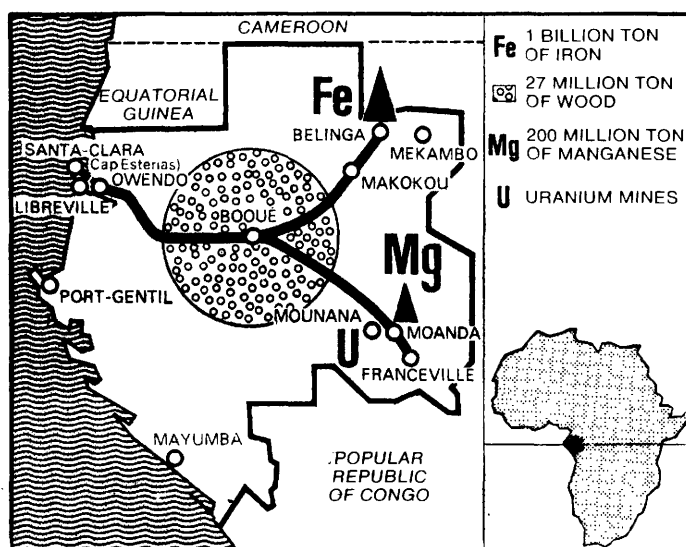
Stage two, the Booué-Bélinga section, has not yet begun, but the studies for it are practically complete.

The estimated costs of stage one are: railway proper, CFAF 166000 million; complementary work on the citrus port of Owendo 4000 million, and the ore port of Santa Clara 15000 million, making CFAF 190000 million in all; roads, CFAF 11000 million. The total is somewhere in the region of CFAF 200000 million. This stage will be cofinanced by the Gabon (which will be covering CFAF 120000 million worth of civil engineering works), the EEC, France, the ADB, Germany, Italy, Canada, AID, Eximbank, Zaire, Algeria and Morocco, with supplier credit from Switzerland and Japan.

Manganese

Ore exports represented 9.1% (in value) of Gabon's total foreign sales in 1975.

COMILOG, the Ogoué mining company based in Moanda, north-west of Franceville, has been working manganese since 1962. The Moanda deposit was discovered in 1951.



Since there were no overland links with Libreville or Port Gentil, Gabon's manganese had to be transported via the Congo. COMILOG therefore set up a 76 km overhead line across the Chaillu massif to M'Binda in the Congo. It also updated the railway from M'Binda and laid a 285 km section to Mont-Belo (on Congolese territory) where the ore trains use the Congo railways for 200 km through the Mayombe forest to the COMILOG wharf at Pointe Noire.

Manganese reserves are estimated at 200 million t, an enormous deposit which, at 1975 rates of mining, will not be exhausted until the year 2060 or 2065.

The ore is easily extracted by open-cast methods. In 1975, 2230000 t of ore was mined and exports brought in CFAF 18300 million.

Uranium

This was discovered at Mounana, 55 km from Franceville, in 1956. In 1975 production was 1762 t of 32.5% concentrate and exports were worth CFAF 2312 million.

Reserves are estimated at 4500000 t of natural ore, giving 20000 t of metal.

Iron

None has so far been mined. Reserves are estimated at 950 million t, 60% of them in the Bélinga region and 30% in the Boka Boka and Batavala regions.

The problem of transporting the ore will be solved once the Transgabonese railway and the port of Santa Clara have been opened.

SOMIFER, the Mekambo iron mining company, is in charge of promoting exploitation of the ore.

Open-cast methods will be used. They should produce 10-12 million t per year, which means that SOMIFER can go on working for almost a hundred years to come.

The Community contribution

The EDF has concentrated on transport and communications, which accounted for 63.2% of aid under the first fund, 88.4% under the second and 95.1% under the third, i.e. 84.2% overall. Almost 65% of this aid went on two projects, the port of Owendo and the Owendo-Booué railway. The construction of a deep-water port at Owendo alone accounted for almost 50% of total aid (under the three funds) to infrastructure in the transport and communications sector. □

The EIB and loans for the mining industry

The EIB is an EEC bank specialized in financing investments which contribute to economic development. Since the first Yaoundé Convention (signed in 1963), it has been an important source of financing for projects in the ACP countries and the Lomé Convention (which entered into effect on 1 April 1976) increased its scope by enabling it to assess and finance projects in mining, industry and the tourist trade⁽¹⁾.

Loans in general

The Lomé Convention and the EEC Council decision on the overseas countries and territories provide for the EIB to grant loans totalling 400 million u.a. from its own resources, generally with 3-point interest rate subsidies for which 100 million u.a. has been earmarked from the EDF. The EIB also has the management of 101 million u.a. from EDF resources as risk capital.

The aim here is to provide direct support for the funds of the enterprises themselves or to provide quasi-capital aid for the financing of their investments. Thus the EIB can hold minority shares on behalf of the Community and it can grant quasi-capital aid to ACP states or national financing bodies to enable shares to be obtained in an enterprise. Risk capital may also be granted in the form of subordinated loans (only reimbursed once priority loans have been paid off) or conditional loans (rate of reimbursement tied to fulfilment of conditions indicating that the project has overcome certain risks inherent in the early stages of implementation or has reached a given rate of return).

In all cases, the investments to be financed are chosen in agreement with the government of the country in question. The EIB assesses projects and grants financing as laid down in its regulations — which are, in practice, the same as those of other international long-term financing bodies which have to look to the capital markets to obtain the resources they need for their loans.

In view of the various methods of financing provided by the Lomé Convention and the large numbers of grants and loans on very favourable conditions, EIB loans from own resources are reserved for projects where a reasonable rate of return is assured. The servicing of capital loans and interest should normally be covered by the results of project operation or by resources directly created by it. The 3% interest rate subsidy applied to all loans from the EIB's own resources bar those for investments in oil or in mining (except, in the latter case, where they are situated in one of the less developed ACP countries listed in Article 48 of the Convention).

EIB financing may therefore take the form of loans from own resources (normally with an interest rate subsidy) or risk capital, according to the nature and the circumstances of the investment project. Since both methods of financing

are complementary, they may be, and often are, combined for the same project.

Financing of mining investments

Both methods of financing have been used for mining investments. Since 1964, the EIB has granted seven loans (three for each of the Yaoundé Conventions and one for Lomé). Six of these were financed from own resources and the seventh from risk capital, as a subordinated loan, the latter being the first of its kind the EIB had granted in the mining sector. This loan helped finance investments to develop the production and processing of tin in Rwanda, one of the least developed countries of Africa. This is particularly important in that the local industry is still in its infancy and state resources are very limited.

With these seven loans, the EIB has provided financing of 62.6 million u.a. for mining projects, thereby contributing to investments totalling some 850 million u.a. (prices at time of implementation) and the direct creation of almost 10000 jobs. However, these figures only partially reflect the effect of the Bank's interventions, as EIB aid tends to lead to other financing being granted. For the ACP countries, the exploitation of their national resources, accompanied by considerable technological progress, is likely to substantially improve the balance of payments and public finances.

The EIB loans to help exploit these resources have directly contributed to the mining of various deposits in countries belonging to the Yaoundé and the Lomé Conventions:

— The first financing for which EIB aid was granted (1966) was the Congo potash company, CPC, to exploit a potassium deposit in the Congo. The company received 9 million u.a. to invest in the extraction and processing of potassium salt.

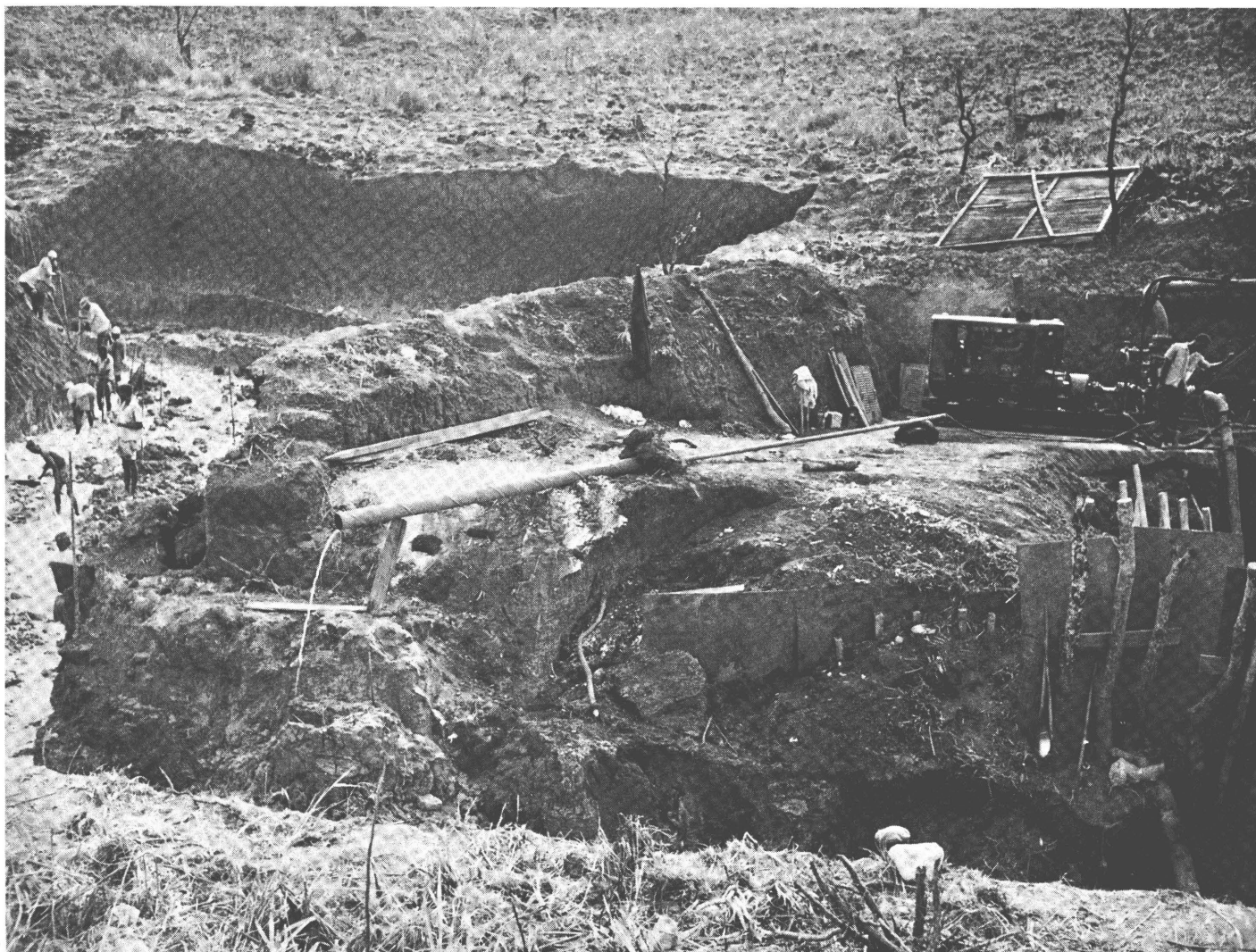
— Two loans have been granted for investments in nickel extraction in New Caledonia. The first, in 1969, involved 2 million u.a. and cofinanced an increase of 12600 t in the production capacity of the SLN nickel company. It included opening a new mine to produce 2400000 t of ore p.a. plus storage and handling facilities.

The second, in 1976, involving 5 million u.a., was granted to the same company (which had become the "Société Métallurgique de Nickel") to increase factory production by 13000 t p.a., increase the productivity of the installations, reduce pollution, cut down on energy consumption and improve working conditions.

— In 1968, an EIB loan of 11 million u.a. was made to SOMIMA, the Mauritanian mining company, for a project to exploit a copper deposit in Mauritania. The Bank has also helped finance major investments in Zaire. In 1971, a loan of 16 million u.a. was granted to GECOMINES, the Zaire mining company (a state body mining the Shaba seam) to help increase the production capacity from 360000 t to 460000 t of metal p.a. by opening a new mine, expanding processing plants and increasing production and the processing capacity of various factories. In 1974, the same company (which had by then become GECAMINES, a mining and quarrying company) was given a further EIB loan, of 16.6 million u.a. this time, for investments to bring the annual production capacity of copper to 590000 t and that of cobalt to 21000 t.

— Finally, the Bank has granted the subordinated loan from risk capital already mentioned, as a contribution to the

(1) Article contributed by EIB staff.



Tin mine

The latest EIB loan for ACP mining went to tin ore (cassiterite)

development of tin ore (cassiterite) deposits. The recipient here was SOMIRWA, the mining company of Rwanda, a semi-public body which mines the country's cassiterite and wolfram deposits. The 3 million u.a. involved here will contribute to investments to step up cassiterite production from 2200 t to 2500 t p.a. and wolfram production from 825 t to 1080 t p.a. Above all, it will mean that cassiterite can be processed into tin on the spot thanks to the construction of an very modern foundry.

An essential contribution to the development of mineral resources

These are large investments. They are particularly important in that the countries concerned are only just beginning their industrial development. Furthermore, over the last few years, EIB loans have become especially important for the countries which receive them. The vagaries of the market and the relatively long period before investments pay off have discouraged traditional investors and the EIB has therefore become an essential means of developing mineral resources in the producing countries. Quite naturally, solidarity has developed between the Community and these countries. This was apparent in the financing already granted under Yaoundé I and II and Lomé and there are more projects on the drawing-board which will open up new horizons and make this interdependence more dynamic.

In the longer term, two things may extend the scope of EIB aid to mining outside the Community:

— The EEC Council of Ministers has recently received a Commission memo on the need and guidelines for Community schemes to encourage European investment in the developing countries (see opposite). It suggests that agreements be concluded on the basic rules of investment, that specific agreements be negotiated for individual projects on certain priority investments, particularly in mining, and that a Community guarantee formula, reserved for projects covered by specific agreements, be introduced for non-commercial risks. Contributions from Community financial organizations, in particular the EIB, would also be made for such projects.

— Special application of these general principles to the ACP countries is on the agenda of the preliminary talks on the forthcoming ACP-EEC negotiations for Lomé II.

More generally, investments in this sector seem to be a focus for two convergent concerns:

- for the ACP, faster development of their natural resources is an essential part of any development strategy;
- for the EEC, the supply of raw materials is of increasing concern and its own further expansion depends on the economic development of its partners in the Third World. □

European investment in the developing countries

An extract from a Commission communication to the EEC Council

Increasing the factors of production, which is vital for the developing countries, depends to a large extent on the importation of capital, technical knowhow and management capabilities — items which are combined in the private investment input. Without this contribution the economic development, and in particular the industrialization, of the developing countries would be seriously affected.

For the Community, it is essential that a large number of major investments be made in the various sectors of the developing countries' economies in order to:

- provide itself with more secure and diverse supplies of raw materials,
- create a durable basis for the expansion of its trade with the developing countries,
- maintain and strengthen the presence of European industry and trade on the developing countries' markets in the face of international competition.

The importance of such action, which is obvious in a medium-term perspective, is enhanced in the present economic climate, as an increase in private flows to the developing countries can only help boost external demand for the products of the Community's capital goods industries.

Lastly, private companies are seeking the best possible locations in terms of production costs, raw materials and energy supplies, and market access.

The need is to improve the investment climate in the developing countries: in so far as investors are prepared to assume specific obligations vis-à-vis the host countries and in particular to tailor their activities to those countries' development policies, they are entitled to expect in return protection against non-commercial risks which might jeopardize their operations in an unforeseeable manner.

Mining investment

The Commission is particularly concerned at the situation in mining industry. In the past few years there has been a disturbing decline in European companies' exploration activities in the Third World. Whereas in 1961 expenditure on exploration in developing countries accounted for 57% of the total amount spent by European companies on exploration throughout the world, this percentage fell to 13.5% during the period 1973-75.

This trend represents, in the longer or shorter term, a serious obstacle to the development of the developing countries and a grave danger to the supplies of the Community's manufacturing and processing industries and even to world markets for many mineral substances.

From the geological point of view, the main exploration effort should be concentrated upon the developing countries⁽¹⁾. From the security of supplies angle too, it is clear that the industrialized countries, which is where the bulk of investment is being channelled at present, cannot constitute an adequate solution in the medium term because they will increasingly consume their own production.

The main reason for the stagnation of investment in this field is the difficulty faced by mining companies, but above all by the banking circles which finance them, in taking on the considerable medium- and long-term financing commitments involved in starting up production so long as they consider that in many Third World countries they run non-commercial risks to which they feel they should not be exposed.

It is for this reason that specific requests for Community action to encourage investment in the developing countries have been made to the Commission by a European consortium of mining companies. □

(1) For instance, it has been estimated that between half and nearly all of the free world's supplies of five essential minerals (cobalt, tin, phosphates, tungsten, copper) will have to come from the developing countries in 1985.

Useful reading

The UN Centre for Natural Resources, Energy and Transport publishes two periodicals which deal in part with mining and minerals. Quote from the blurb: "it is the objective of the *Natural Resources Forum* to acquaint policymakers and planners with the problems of resources and energy development, provide them with information they may use in the formulation of policies, and to be a forum for constructive debate of controversial issues. There is a need for efficient communication because the political and economic developments of this decade have brought to the fore more forcefully than ever the complex problems of natural resources and their contribution to the global welfare. These have to be viewed within the context of rapidly changing international relations and the quest for a new international economic order. The important substantive issues, such as availability of raw materials, technology transfer, protection of the environment, improvement of terms of trade and accelerated industrialization for developing countries, to mention only a few, all require continued study by experts and policy decision by leaders. Policymakers will need to draw more than ever upon the full range of scientific, technical and managerial expertise for the implementation of their decision. The *Natural Resources Forum* attempts to contribute to a satisfactory solution of global issues under discussion.

Each issue contains between five and seven substantive articles written by specialists and decisionmakers from many countries, notes on important technological or economic trends, conference reviews, book and correspondence."

Information on subscriptions can be obtained from the Natural Resources Forum, Centre for Natural Resources, Energy and Transport, United Nations, New York, 10017, USA. The *Natural Resources and Energy Newsletter* can be obtained free from the same address.

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A World Bank publication: *The Mining Industry and the Developing Countries*, by Rex Bosson and Benson Varon.

"This study of the world mineral industry examines its structure, objectives, and operation, as well as the major factors bearing on them, such as the location and physical characteristics of mineral resources, lead times from exploration to exploitation, economies of scale, capital requirements, and economic and political risk. The nature of production, consumption, and trade patterns are surveyed, together with the behaviour of mineral prices and the industry's effect on development. In examining the principal problems and challenges facing the industry, the book reviews the role that public and private policy can and must assume to meet the needs of society while safeguarding the interests of nations, especially those of developing countries.

Practical prescriptions for action focus on the truly international character of the industry and the need for cooperation between developing and industrialized countries in order to expand the flow of mineral resources to world markets. Mineral development needs physical, financial, and technical resources from varied sources, and has to move its products across national boundaries. The industry thrives best in a climate of cooperation among disciplines, investment sources, the public and private sectors, management and labour, and the various elements of its research and information networks. The potential for cooperation will be enhanced by the industry's efforts to distribute its investment and earnings equitably over countries. This accomplishment will require a continuous resolve on the part of the industry to commit its vast know-how and internal resources to international development."

The study is published by Oxford University Press at £7.00 (cloth) and £2.95 (paper). □

INTERMEDIATE TECHNOLOGY

The nearly new shop approach

The developing countries' needs for simple, cheap and effective technology may be met by specially-designed "intermediate" techniques. Another approach—obvious when you think of it—is to recycle surplus equipment from the throw-away societies of the industrialized countries, equipment which, although in perfect condition, is no longer used merely because it has been outmoded by the latest refinements.

One organization that has very successfully pursued and developed this

idea is ECHO(1), a medical charity set up in England 12 years ago to supply equipment to mission hospitals in the Third World.

ECHO has long outgrown its original function and now has a vast and comprehensive stock of equipment, either new, unused or factory reconditioned, to meet virtually every need of a modern hospital from safety pins to X-ray units. It supplies this to non-profit organizations sometimes for as little as a quarter of the relative commercial value (e.g. an X-ray unit costing anything between £5000 and £20000 can be supplied reconditioned to "as new"

standard, with guarantee, for as little as £2000).

ECHO's administrative director, William Davies, stressed that there was no question of palming off second-hand goods on poor countries because they have been dumped by the rich countries. Nor, despite its address in Robin Hood Lane, does ECHO steal from the rich to give to the poor. It is a business operation. "We know of course that there is no short-term or easy solution to the overwhelming medical needs of many developing countries and that the evolution of basic technology, capable of eventual manufacture by the recipient country, must be a valuable contribution towards eventual self-reliance. Medical needs are, however, more emotive than basic technology proposals in other areas and a balance must always be kept between providing basic technology and yet allowing the very best advances in medical science to be made available", Mr Davies said.

ECHO not only supplies surplus and reconditioned equipment but also keeps prices down by bulk buying—drug prices have soared in recent years—and by developing intermediate medical technology, such as the operating table pictured here, suited to the needs of the developing countries. In 1976, acting in close cooperation with the World Health Organization, ECHO evolved and costed equipment kits for rural health centres and village clinics. The organization can now equip a five department rural health centre for under £2000 and a village clinic for under £400, including export packing (ECHO set up its own packing and shipping agency in 1974).

ECHO's ability to make money go further and act fast—often within hours—is also of particular value in disaster relief operations, when it can



The "Saxon" portable operating table developed by ECHO for rural health centres. A conventional hydraulic table would cost about 15 times more and require much more skilled maintenance. An example of how a charity can influence industry to produce appropriate technology

(1) ECHO: Equipment to Charity Hospitals Overseas. Address: The Joint Mission Hospital Equipment Board Ltd. 5, Robin Hood Lane, Sutton, Surrey, England.



A corner of ECHO'S "nearly new shop"
—everything from safety pins to X-ray
machines

double or treble the purchasing power of a specific aid grant.

Acting as a streamlined business organization and central supply agency, "ECHO might appear to be a contradiction of the decentralizing ideals of intermediate technology", Mr Davies commented. But this approach is necessary in catering for the desperate health needs of areas lacking even the simplest medical equipment. There is no "alternative technology" when the right drugs mean the difference between life and death. But ECHO's value-for-money supplies are only a stop-gap until the developing countries can build up their own health services. "We recognise a continuing responsibility to assist in the evolution of medical technologies appropriate to need", Mr Davies said.

The idea could surely be applied in other fields than medical supplies. Customers in "nearly new" shops are choosy, but they usually find excellent bargains. □

B.T.

The Biopot

by Krisno NIMPUNO(*)

A decent dry lavatory that really works

The shortcomings of the present sewage systems in East Africa are too obvious to be ignored. All the systems used in urban areas are expensive. The flushing system wastes very precious water in large quantities. The pollution caused by the water-borne systems is considerable. Therefore we simply feel that water-borne sewage systems are unsuitable. With all this in mind we have tried to devise a system which combines the best attractive aspects of the various systems illustrated in this article. The results of our efforts is the Biopot which we hope to be sufficiently flexible and effective to give an adequate answer to the most urgent urban and rural needs.

The Biopot is a closed system, does not contaminate the groundwater, the soil or the air and avoids the need for transporting offensive material. There are two stages of bio-chemical treatment involved: firstly an aerobic decomposition, secondly an anaerobic process which eliminates dangerous micro-organisms. Finally a chemical treatment takes place. As the main treatment is a composting process the additional advantage is that the bulk of the household garbage can be received and treated as well. The Biopot will thus yield very concentrated, rich manure. All the organic material can be used and instead of being a costly liability it becomes a valuable commodity. The system can be applied to existing neighbourhoods and the standard can vary according to the funds available.

The Biopot is a basically dry system. Although limited amounts of water may be used for flushing; there is no need for large quantities of water for the purpose of transporting the excreta. Little dilution of the raw sewage takes place and the volume which has to be treated is therefore significantly less. The system should be safe and cheap in operation. As long as the toilet is in use, ample oxygen is available inside the compartment. This ensures a rapid breakdown of the excreta in the same way as organic material in the open decomposes and changes into soil. The wastes will be broken down by micro-organisms in an aerobic process. The availability of alkaline material is important to neutralize the

urine acids and for this reason it is necessary for ashes to be thrown into the vault daily. Paper and other household wastes will supply the cellulose which serves as a fuel in the decomposition process. When the vault is closed, a further decomposition will take place and complete the process. This involves anaerobic micro-organisms and it will be started by filling the pit with fresh green leaves. The temperature will now rise rapidly and remain at over 60°C for a prolonged period.

The sustained high temperature destroys all pathogenes, and the large organic molecules of the excreta successively break down into simple stable combinations, like nitrates and sulphates. It is essential that sufficient fluids are available in the deposited mass to reach such a level of humidity that the chemical process can be sustained. But it is of equal importance that excess fluids are drained away and that there is no standing water. The biochemical process takes several months and finally when the temperature has again reached normal level a homogenous compost remains. This material is now a completely inoffensive, odourless and dry black soil and it makes an excellent manure, rich in nitrogen and potassium.

Having built the Biopot, a filter is then put into it. The uppermost layer of the filter consists of leaves and coarse sand and aims at trapping the solid particles in the fluids. The next layer consists of calcium carbonate, for instance a combination of crushed limestone and ashes. This layer will neutralize the acids and the passing fluids will become alkaline. The third layer consists of coarse sand and charcoal and will trap the remaining organisms and particles. The filter rests on a perforated stone slab which is a permanent part of the construction. The neutralized fluid will have lost its smell after passing through the bottom plate into the soakage from where most will evaporate. At the end of the cycle the top part is removed and mixed with the other material and becomes part of the manure.

The toilet house itself can be of any type of structure. It consists of one closet which is mounted over two vaults. Only one vault is used at a time, the other vault is closed by an airtight cover. The vault in operation has a flush bowl or a drop pipe with an automatic seal, and has such dimensions that it will take a family of six people nine to twelve months to fill it.

The toilet has a conventional squatting plate. It is possible to flush the bowl with a very limited amount of water. It is therefore easy to keep the

(*) Formerly at the Ministry of National Education, Dar es Salaam.

toilet clean and as the squatting plate is recessed, the floor can be kept dry. The flat floor drains towards the centre where one of the vault openings has a recessed squatting bowl with a seal, the other opening is closed by a slab almost level with the floor.

The seal or valve prevents odorous gases from entering into the room and eliminates the danger of flies and other insects entering into the space beneath but it still allows the easy disposal of paper, ashes and other wastes.

The fluids that pass through the disposable alkaline filter become completely harmless and finally seep into the last stage of the system. This stage will differ under various circumstances.

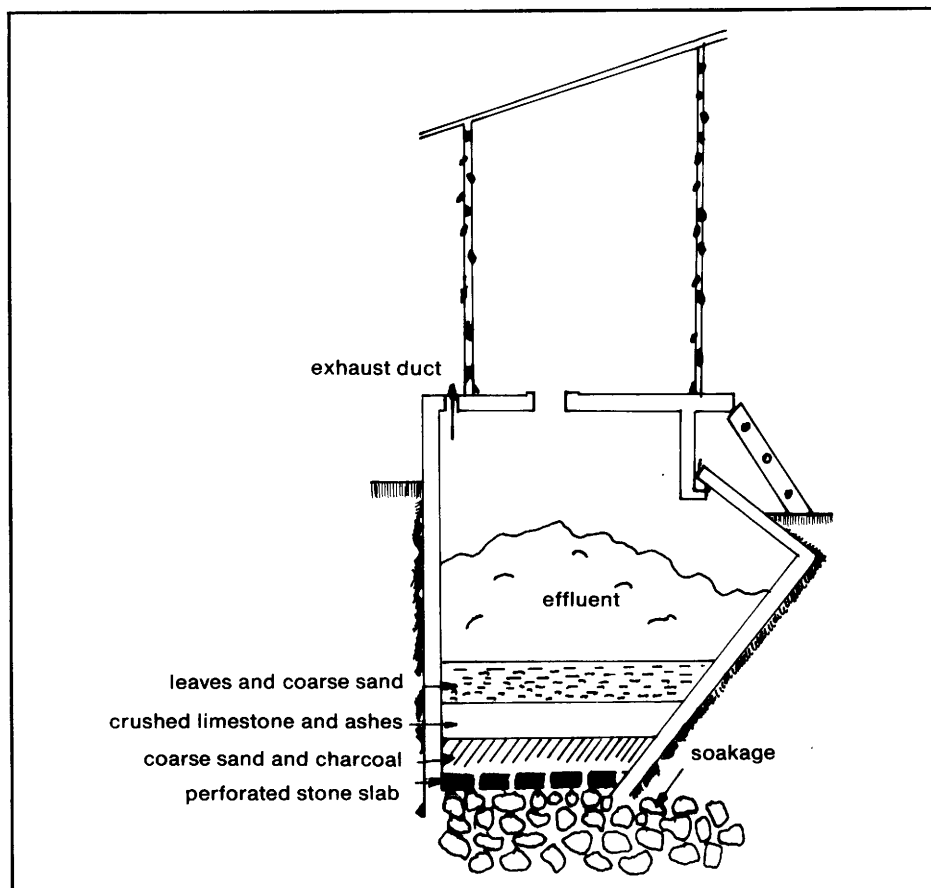
In areas with a low water table it can consist of a soakage trench. Then the infiltration takes place through a limestone and sand bed. If there is a very high water table another solution should be chosen. The fluids are collected in a tank which can be emptied if necessary.

The ventilation for the evaporation of the excess liquids from the tank or the soakage is promoted by the exhaust duct which is led through the fermentation oven, sucking in the colder air from outside into the tank. When the vault has been filled, it is closed hermetically. The fluids now drain slowly from the deposited mass and an anaerobic decomposition takes place, composting the material. After six months a cover in the vault can be opened and the then dry manure can be removed and a new cycle starts.

The choice of building material is primarily a question of costs and availability. In its simplest form it can approach a pit latrine. The superstructure may even be as simple as a screen of straw or branches. The vault can be constructed of sun dried mud blocks lined with a lime plaster. The seal can be omitted and a lid can cover the opening. All this can be done as self-help under supervision and the cost would be very small. If more money is available, the vault can be made of concrete blocks. The top slab and the vault cover can be made of concrete, and the water seal and squatting plate may be made of metal for instance, enamelled or galvanized and plastic treated iron. It is also possible to install a flusher but the quantity of flushing water should be limited to three to five litres at a time.

The significant differences compared with other systems are the following:

- All excreta remain in the toilet inaccessible to insects and animals;



Biopot. Complete decomposition and pasteurisation through high temperature composting. Chemical filter controls humidity even in humid tropical climate. Yields valuable manure

- No handling of offensive material takes place and no water for transport is required. It is a self-contained system which can even solve the sewage problems in existing residential areas, urban as well as rural;

- The decomposition is complete and all pathogenes and larvae are destroyed, due to the high temperature. Fluids which have infiltrated into the earth or evaporated are likewise harmless and odourless;

- The alkaline filter neutralizes the acids rendering the system environmentally safe;

- As all other organic wastes can be deposited into the vault the problem of waste disposal is solved simultaneously. Only glass, tins and other indestructible material have to be carted away;

- The dry manure forms a valuable material which will help to make the system pay for itself;

- The system is cheap and its standard of construction can be adapted to the budget and standard of the rest of the building;

- Even if the filter is not properly handled the system is quite safe: the fluids entering the soakage will be more neutralized and harmless than the overflow water from septic tanks or aqua privies;

- If the seal is defective the toilet will still give less smell and insect problems than other latrines because the vault is kept dry and the contents will no longer be acidic.

It is important that the users be made aware of the nature of the system and that proper instructions are given. Field experience must be gathered to develop a reliable routine for the wider introduction and adoption of the system.

The Biopot system has been chosen for a residential area in Dodoma, Tanzania. It is also planned to build a series in some villages in the same region. These projects will offer the first major testing areas and are intended to yield the information and experience needed for wider application. It will doubtless be necessary to conduct extensive tests in order to gain the experience necessary to determine suitable materials and construction details.

A great number of variations could be developed to suit different conditions in the country. If the Biopot fulfils its promises, new town planning possibilities will be available. (1) □

(1) Reprinted from "Appropriate Technology", vol. 3 no. 4.

Books:

"Africa's industrial wager"

by Jean-Paul GARDINIER

Interest in a country or a continent and its population very much depends on its present or future economic potential. Today, an increasing number of economic and sociological studies are being written about Africa and the ACP countries in general and they are no longer just subjects for ethnologists.

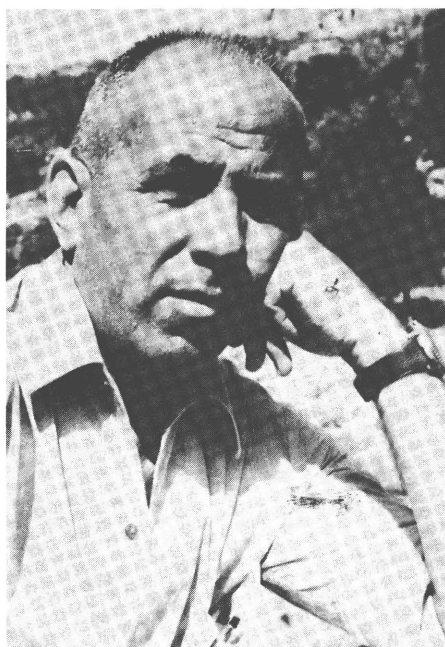
A major work on economic development in Africa has recently appeared. Called "Le pari industriel de l'Afrique" (Africa's industrial wager)(1), it covers three main themes: the conditions of industrial development in Africa, what ought to have been done to bring about genuine industrialization in Africa and a new definition of industrial cooperation.

As Jean-Paul Gardinier(2), the author, sees it, the political leaders have not really understood the phenomenon of industrialization. They have come up against a kind of fait accompli. That is to say, they have tried to industrialize without first analyzing, determining and defining the geographical, and above all, technical conditions of industrial development, which has misled them into thinking that the installation of ready-for-use factories is enough to bring about industrialization and development. But, Mr Gardinier says, this type of factory does not enable the countries concerned to industrialize, let alone develop, properly.

"Turnkey" factories do not constitute a transfer of technology

But why is the purchase of such factories doomed to failure? Because, Mr Gardinier says, technical infrastructure, i.e. "industrial competence", is missing. "Too many developing countries make the regrettable mistake (deliberately perpetuated in many quarters) of thinking that the building of factories alone is the answer to their problems of industrialization." A country may have 10 or even 100 factories without being industrialized. Until it has a human industrial fabric and teams of industrial leaders of its own, it will not be industrialized. It will only appear to be.

Almost half the ready-for-use factories built in the Third World are



Jean-Paul Gardinier

not being used and the rest only work to 50% of capacity. Almost all of them run at a loss.

These are poor results. They are a real cause for concern when set alongside the targets for industrialization that the Third World fixed at Lima. Why are they so bad?

A factory can only be ordered and run by an industrial firm with sound experience. A government which receives indifferent advice from experts with no real responsibility and which orders a ready-to-use factory is running considerable risks. It is confusing factory and firm. A factory is no more a firm than a set of saucepans and a stove is a restaurant. A factory is a tool which a firm uses.

Too many of the developing country governments expect the builder to be the industrialist as well. But "we cannot supply the piano and Mozart at the same time", as the head of a big French firm put it. In Mr Gardinier's words, "African leaders sign contracts worth millions of dollars just on the basis of reports from a couple of experts they met once or twice and may well never see again." And, he continues, "there is no point in apply-

ing to a supplier if one has no idea of how to buy and run the equipment in question. Negotiations with suppliers practically amount to stand-up fights in many cases. It is the buyer's engineers and technicians who should assess the equipment... and suppliers often have to alter their plans and adapt their machinery to fit the technical demands of the buyer." However, quite the opposite happens in Africa, where it is the buyer who bows to the conditions of the supplier. The latter takes no account of the structural and intellectual environment of the African countries and this is why so many ready-for-use factories are technical and financial failures (the bills are often much larger than the original quotations). Mr Gardinier gives the example of a fertilizer factory in Cameroon.

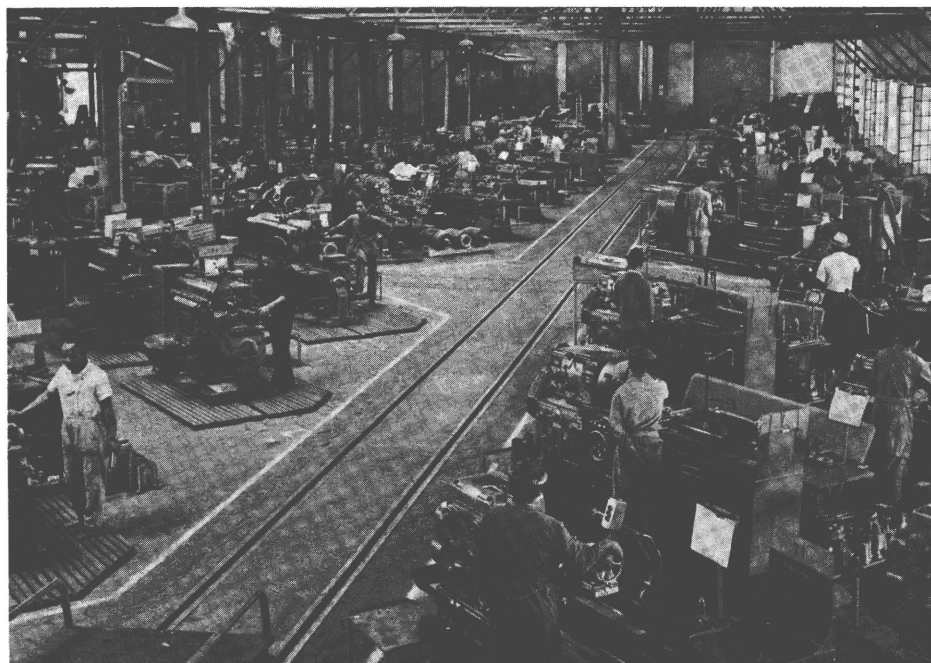
Firms based on cooperation are the answer

The French industrialist considers that the only answer to the problem is to be found "in countries where industrial competence exists", i.e. particularly in the industrialized countries of Europe and America and in Japan. In order to achieve this prerequisite, Mr Gardinier suggests that the developing countries, especially the ACP states, adopt a solution involving "association with an industrial partner from Europe to create viable industrial firms in the ACP, where the industrial operator's experience provide the competence and the firm becomes one based on cooperation."

This idea of "cooperating" firms is the third major aspect of the book. Mr Gardinier develops the idea of a new definition of industrial cooperation which should take the same form as cooperation in education or medicine. That is to say it should involve genuine participation and a genuine transfer of technology. This type of industrial cooperation would stop the African countries from confusing factory and firms, because "the notion of capital, which used to be fundamental, is now

(1) Editions France-Empire, 68 rue Jean-Jacques Rousseau — 75001 Paris — 343 pages — 1977.

(2) French industrialist & representative on the Advisory Committee of the CID.



The "cooperating" firm, unlike the ready-to-use factory, aims at transferring not only the right technology but also the structure of personal relations necessary to any industry

tending to become secondary. However, it keeps its value in small and medium-sized businesses where majority holdings are the means of wielding power. In big business, the dispersion of capital puts this power into the hands of a group of leaders which co-opts its own members.

The idea of industrial equipment involves the factory being only a tool and a means of production. It is at this level that we find the confusion, that exists in so many developing countries between factory and firm.

Marketing, however, is a fundamental concept. Producers do not produce for the fun of it. They do it to sell.

A firm must be viable and profit is an indication of how viable it is, so heads of firms must aim to make a profit. But profit is now seen less and less as a reward for the risk of investing capital and its justification today is that it provides a firm's employees with fair pay and job security. Finally, modern firms are increasingly dependent on the idea of solidarity. There is internal solidarity among all the members of the team, regardless of their individual tasks. The director is united with the storeman and the engineer with the workers, which means that both consideration and participation are called for. Then, there is external solidarity with the firm's human environment. It embraces the suppliers of raw materials, services and equipment, who have every interest in seeing their client prosper. It embraces the customers

who be properly served and who will only have confidence in those who are capable and therefore prosperous. It embraces other firms which know that the bad name of one reflects on them all. And it embraces the public authorities who make rules so that the firm can develop in harmony with the real interest of the nation to which it belongs..."

The Lomé Convention, particularly the section on industrial cooperation, is a promising start which Mr Gardinier hopes will be built upon and improved in Lomé II.

Mr Gardinier's book is an interesting contribution to the discussion of the importance of industrialization in Africa and on the need for an overall policy for this industrialization. For, at the present time, there is no real "Industrial wager in Africa". There is only a strong desire for factories per se (see *Courier* no 47, "in perspective"). □ A.L.



Industrialization needs solid foundations just like a house

Environment

“Although we know why some pollution occurs, we are powerless at the moment to do anything about it”

Mostafa Tolba, UNEP Executive Director

During a tour of 10 European capitals in March, Mostafa Kamal Tolba, head of the UN Environment Programme, met leading ACP and EEC figures in Brussels to discuss environmental aspects of development, and called for environment protection measures under the next EEC-ACP pact.

Mr Tolba is Egyptian, an internationally-known microbiologist and former minister. The *Courier* met him at a discussion in ACP House chaired by James O'Neil Lewis, ambassador of Trinidad & Tobago, and attended by ACP Secretary-General Tiéloué Konaté.



Mostafa Tolba

The cost/benefit argument

The benefits of clean air and clean water are not enough to convince either developing or industrialized countries to invest in environmental protection. Mr Tolba feels that cost/benefit analyses should be produced to demonstrate the point of such investments. Over the next 12 or 18 months, he hopes, thanks to his European tour, to receive studies of specific cases backed up by figures to prove that the protection of the environment may be of benefit to the investor in the long and medium term.

The limited financial resources of the developing countries make it difficult for them to include the cost of the environment factor in their development projects. But if this factor is neglected, in 5-10 years time any negative effects the project may have had will have to be corrected. Mr Tolba gave the example of the Gezira irrigation project in the Sudan. "Agricultural production went up, but now 60% of the population concerned has malaria, 70% bilharzia and more than 50% have both, and the fight against the diseases

which this gigantic irrigation project caused will involve considerable investments in the health sector." Mr Konaté mentioned a similar occurrence with an irrigated rice project where river blindness and malaria had increased as the scheme progressed. But lessons can be learned from these mistakes: the Sudan, for example, will be convening a meeting of environmental experts to discuss the effects of the building of the 300 km Jonglei Canal.

Towards a law on the environment

As things stand, the developing countries have no laws to protect their natural and human resources against practices or technology harmful to the environment. The need to construct such a legal basis emerged clearly in

Mr Tolba's discussion with the ACP representatives. A number of problem cases were brought up:

— The representative of Papua New Guinea described the effects of a change in climate following nuclear testing in his part of the world. Fallout had caused a frost which destroyed agricultural production in part of his country and forced the government to provide aid for the affected population. Could the link between cause and effect be established? And if so, what compensation could they expect?

— Ambassador Lewis brought up the case of petrochemical industries operating in Trinidad and Tobago, using polluting technologies and processes quite unlike those they use in, for example, the US.

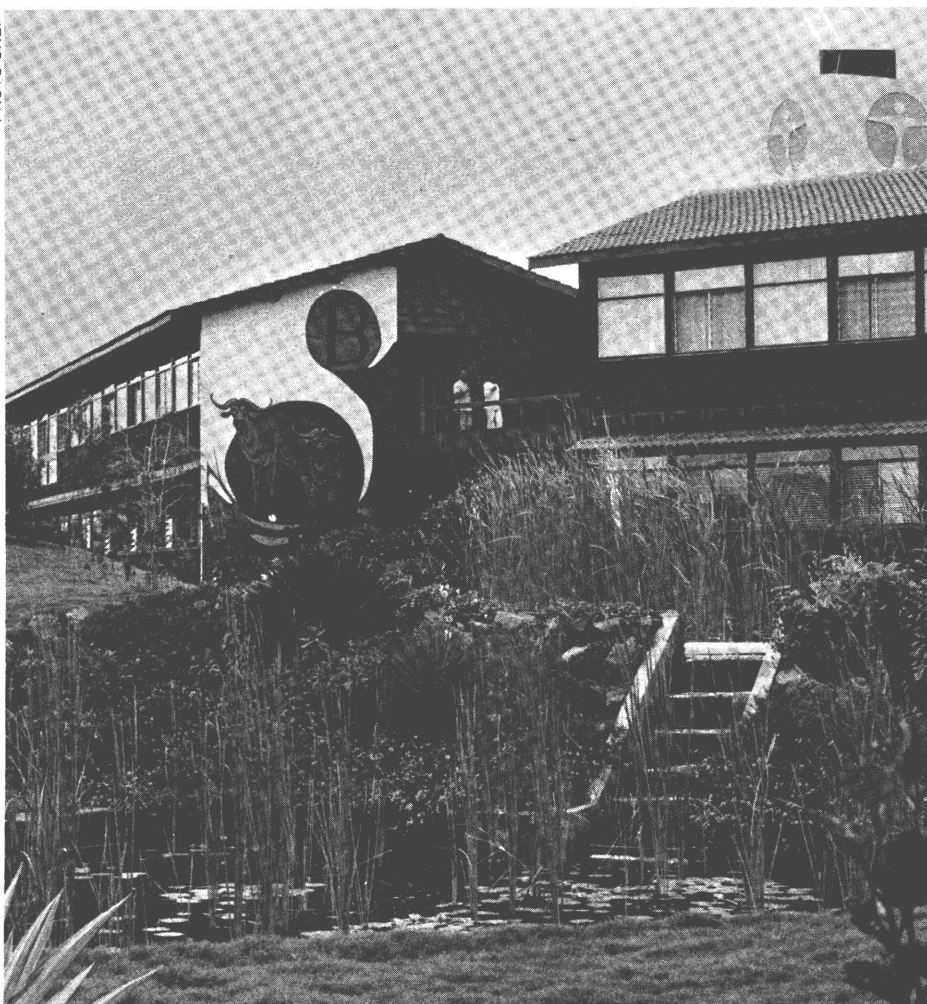
— Mr Tolba drew attention to the fact that products containing additives which were prohibited in most of the industrialized world were still being exported to or produced in the developing countries.

The legal problems of environmental protection are being studied by an intergovernmental group which will lay down principles and guidelines for a law on the environment. "Although we know why some pollution occurs—I am referring here to the nuclear accident in Canada—we are powerless at the moment to do anything about it", Mr Tolba added.

Access to information

Mr Tolba suggests that decisions which harm the environment tend to be taken in ignorance rather than ill faith. UNEP has set up an international reference system, an environmental data bank, to remedy this. It began operating in January 1977 and, since early 1978, the 81 (including 18 ACP and 8 EEC) countries involved have had access to more than 6000 sources of recorded information.

The developing countries are making increasing use of the data bank and displaying increasing interest in protecting their environment. Mr Tolba stressed that the 39 developing countries (out of a total of 58) on the governing council of UNEP were extremely active in seeking to implement practical schemes.



Part of UNEP's temporary headquarters in the Nairobi suburb Gigiri (Kenya)

Nevertheless, it can be difficult to make choices in this field. For example, an anti-malaria campaign which used DDT caused other diseases in the process. However, the data bank means that decisions can now be taken in fuller knowledge of the facts.

Assessing the effects on the environment

In Mr Tolba's view, preparation for any development project must involve assessing the probable effects on the environment. "When fixing its development priorities, a developing country should be aware of the possible consequences on the environment... And every country and donor organization is morally obliged to define the possible environmental risks of a development programme", he said.

The report on multilateral aid and the environment, produced by the International Institute for the Environment and

Development, directed by Barbara Ward in London, says the EDF fails to take account of the environment when assessing projects. This comparative study, covering such things as the procedures of bodies like the World Bank and the UNDP, does not deny that the EDF is aware of the overall problem of the environment, even though it does not go far into the environmental impact of individual projects.

Mr Tolba stressed that some sources of aid, the World Bank for example, had specific clauses on the environment in their rulings on project assessment.

"The UN Environment Programme will follow with interest the development of the negotiations for the next ACP-EEC Convention to see that neither side forgets the environment, which the present Lomé Convention fails to mention", Mr Tolba added. Mr Lewis concluded; "we will pay greater attention to this problem". □ R.D.B.

Financial aid to hold back the desert

Mr Tolba was Secretary-General of the Nairobi Conference on Desertification in September 1977(1) and now has the task of ensuring that the plan of action for the anti-desertification campaign is put into practice. But translating the recommendations of this useful and carefully prepared conference into practical projects is going to be expensive. "Simply halting desertification, without reclaiming any of the land already lost, means a sustained effort, since some \$400 million will be required every year until the year 2000", Mr Tolba pointed out in Brussels.

Much of this financing will come from the developing countries themselves, but the largest contribution will have to come from the international community. "The industrialized countries were unenthusiastic about an idea, which the UN General Assembly approved, to open a special account and a report has been requested for the board of UNEP in May."

Mr Tolba feels that the most positive development is the approval by a consensus in the General Assembly of the idea of an advisory group of donor countries/organizations and recipient countries which are the victims of desertification. This group, which is meeting for the first time on 2 May, will decide on the financing of a number of subregional projects (involving 15 countries) which the Conference recognized as feasible and recommended for implementation.

"I hope that some of these projects will be approved for implementation and financed and that machinery of the kind I defended at the Conference can be developed to ensure that the various recommendations culminate in specific projects", Mr Tolba said. □

(1) See *Courier* dossier no 47, January-February 1978.

ETHIOPIA

EDF 4 training grants

by T. WAFFELAERT(*)

Five million birr(1) from the EDF indicative programme of aid for Ethiopia have been earmarked for training. A first multiannual study grant and training course programme for 3800000 birr has been drawn up and approved. Its main characteristic is its close relationship with the development projects in the indicative programme. Table 1 shows the relation between funds allocated to development projects and to training. Table 2 shows the number of students and their different places of training. Note how many courses are followed in the ACP countries themselves. Table 3 gives an idea of the type of training required in the light of the different sectors of activity and level of training as well as the average length of the various types of course. It is worth noting the importance given to technical and professional training.

The EDF programme meets a need which many financing bodies ignore. Experience acquired during vocational training is very useful as far as development projects are concerned and it is often more important to train middle management than higher management staff.

In addition to the training covered by these three tables, mention should also be made of the possibility of short-term training sessions at seminars in Europe and the ACP countries, and of the provision of teachers.

The first training programme for Ethiopia is a markedly practical one. It meets the needs of the various development projects, concentrating on the technical sector, and is primarily concerned with basic training, middle management staff and vocational training. □

(*) Agriculture advisor at the EEC delegation in Ethiopia.

(1) 1 EUA = 2.5 birr.

TABLE 1
Type of training, by sectors

Level	Lower	Middle	Professional	Higher
Number of students	2 632	1 248	516	33
Agriculture	Farm training	Technical	Practical training	Specialization
Economic and social infrastructure				
Rural water supply	—	—	—	Specialization
Education	—	Professional	—	—
Mining, energy	—	—	Experience	Specialization
Urban development	—	Technical	—	—
Civil aviation	—	—	Experience	—
Telecommunications	—	—	Experience	—
Postal services	—	—	Practical training	—
Women's associations	Women's education	—	—	—
Average length of course	1-2 months	1-2 years	1-6 months	2-4 years

TABLE 2
Number of students

Level	Lower	Middle	Professional	Higher	Total
Place of training:					
Country of origin	2 632	1 230	446	—	4 308
Other ACP country	—	16	19	—	35
Europe	—	2	51	33	86
Total	2 632	1 248	516	33	4 429

TABLE 3
Comparison of indicative aid programme
and multiannual training programme

Sector	Indicative aid programme (1976)		Multiannual training programme (1976-1980)	
Agriculture	45 %		28 %	
• Coffee		12 %		5 %
• Other crops		33 %		23 %
Economic and social infrastructure	51 %		56 %	
• Rural water supply		12 %		10 %
• Education		4 %		25 %
• Mines, energy (geothermal)		2 %		7 %
• Urban development		4 %		14 %
• Miscellaneous		29 %		—
Other sectors	4 %		16 %	

Arid zone farmers

(Continued from page 44)

sequent dressings, at intervals of three years, being as low as 1/4-1/2 tonne per hectare. The ex-works cost of such a plant would be of the order of £ 30000 (12 million F CFA). But some elements of the plant are suitable for local manufacture.

It is probably unnecessary to argue closely the economic benefits to be obtained. If suitable local sources of lignite exist, then it would seem to be worthwhile conducting a trial. The lignite process may offer its most signi-

ficant advantage in arid or semi-arid soils which were formerly fertile. In these areas the application of the full recommended applications of NPK of the lignite produced the best results. Indications are that in fertile areas, lignite plus reduced application of NPK can produce the same crop yield as full application of NPK and no lignite. The reason seems to be that the lignite ensures that all of the fertiliser is available for the plant's nourishment whereas without lignite some two-thirds of the NPK is either leached away or locked up in the soil. Thus if local sources of suitable lignite exist whilst NPK has to be imported then this

approach could reduce foreign exchange costs.

Conclusion

Any country interested in this process is invited to get in touch with the Centre for Industrial Development. (The Centre emphasises that the information provided in this article is from proprietary sources and that it cannot accept any responsibility for the efficacy of the approach in any particular circumstances.) □ M.O'H.

MALI

Sun power for agriculture



The first two solar pumps financed by the European Community as part of its aid to non-governmental organizations, installed in the San region of Mali six months ago, are proving highly successful.

The Community provided 57660 EUA (half the total cost of the operation). The pumps, designed and manufactured by Guinard (France), are used to supply water for villagers and their cattle. Both use solar energy which is directly converted into electric energy by photovoltaic cells on panels 15 m² in area, giving peak power of 900 watts.

The first pump (40 m³ per day; 18 m head of water; 6" borehole) is at Koni and produces water to irrigate, steep and wash da, as well as for domestic purposes.

The second pump (25 m³ per day; 30 m head of water; 4" borehole) is in the village of Nabasso. It easily meets the needs of the villagers and 3000 head of cattle.

Fast work

One of the most interesting aspects of the pumps is the speed with which they were made and installed. It took six weeks in the first case and 84 hours in the second, this latter time including transport from the factory to the site.

Today, Mali Aqua Viva, which is in charge of the operation, is proud to have tamed the sun and helped popularize this new form of energy which may mark the beginning of a new era for Africa. □ P. LEQUEUX

The solar panels in the background provide electricity to pump drinking water for these cattle

LESOTHO

An experiment in marketing handicrafts

by Benny DEMBITZER(*)

In Europe and most of the developed world there is a common impression that, because they live in economic poverty, most inhabitants of the Third World also live in cultural and social poverty. This is obviously wrong. We only have to spend a moment thinking about the ancient Chinese, Indian and Arab civilizations to remind ourselves that we are latecomers.

Artistic creation is a reflection of the innate richness of most societies and one of the main representations of this is the production of handicrafts. For purely geographical reasons, there is little historical evidence of an architectural nature in most developing countries; the

weather simply destroys everything which is more than 100 years old. Yet people reveal their heritage in the quality and workmanship of the everyday, utility items they make.

But most producers, by definition, are individualists. They have never looked at handicrafts as a means of providing themselves with a livelihood. They are dispersed and under-capitalized. It is only in the last five years that some governments have seen that there is a great potential in the development of handicraft production to employ people at very low cost. The

(*) General manager of FRIDA (Fund for Research and Investment for the Development of Africa Ltd.).

Spinning mohair



local market being very limited, the obvious market is export. This pattern is common to most developing countries, and it may be useful to look at an experiment in marketing handicrafts in Lesotho.

Lesotho is very small, heavily populated with limited natural resources and its main employment is provided by the mining industry of South Africa. Its raw materials are clay, wool, mohair and grass. Weaving is a tradition in most societies and, no doubt for a number of centuries, Basotho women have woven garments in wool and mohair for their own use. Only some 10 years ago, however, was the first workshop introduced in Lesotho to weave tapestry using the main local product, mohair, to produce items for export (for the foreign tourist visiting Lesotho as well as the ultimate customer many thousands of miles away).

The problem of standardization

Several ingredients are needed for successful production; articles must be of a certain size, the finish must be good, the design must be acceptable, there must be some level of continuity of production and so on. This is where the market usually lets the producer down. For a person in charge of buying for a small boutique or a large department store, or even an individual buyer, who doesn't like a certain item, will not by and large take the time to say why, or to suggest improvements. Most industrialized producers have developed techniques of market research, sophisticated design adaptation, market testing, etc. They will not promote a certain item until they have investigated market demand. This level of sophistication is not available to, in this case, the women of Lesotho. The normal commercial world does not provide feedback to the producers and, therefore, producers are more likely to carry on producing items for which the demand is limited. In Lesotho an independent development agency, FRIDA (registered as a charity in the UK) supplies the missing links between customers, producers and the government.

Karen Nelson, FRIDA's representative in Lesotho, helped to set up a tapestry weaving workshop at Teyateyaneng three years ago. She writes: "When I first came to Lesotho I was dismayed by the obvious influence of foreign design, including Scandinavian, Per-



Mohair tapestry from the Teyateyaneng workshop (Lesotho)—a pity we can't show the colours, which include grey, blue, orange, grey-green, brown and cream

Making a song and dance about it

Music, singing and dancing was encouraged in the workshop and it has produced movement and flow in the tapestries. A definite style has emerged which is unique and one that portrays what this group of women see and do around them. The weaving technique has become more refined over the years and, at the moment, this small workshop cannot keep up with demand. The tapestries are sold in the United States and Europe where importers have found that they sell well, even though they are very expensive. They are sold as works of art."

To help with the export marketing of Lesotho handicrafts of all kinds, the Lesotho National Development Corporation and FRIDA established, in February 1978, Kingdom of Lesotho Handicrafts (Pty) Ltd. The new company will try to develop markets for Lesotho handicrafts in Europe, North America and other parts of Africa.

The marketing of Lesotho handicraft—tapestries, rugs, knitted and crocheted garments, fabrics, pottery, jewellery, basketry and beadwork—has started in a small way in the UK, France, West Germany and Spain and will gradually expand to other European countries, the USA and Canada. Some of the products are made in quantities that can be channelled through the wholesale trade but many are not of particular interest to large commercial organizations and are only suitable for handling direct through retail shops. Guaranteed retail outlets are very important for products that cannot carry a high margin of profit and are not produced in great volume. It is often difficult to use the normal commercial channels to import handicrafts because of the relatively small scale of production and the fact that products are not sufficiently standardized to allow them to be featured in commercial catalogues.

Research and test marketing is being carried out to find markets for Lesotho handicrafts and information is being fed back to the original producers on questions of design, packaging and other points which affect the saleability of the product.

This is a continuous process and, undoubtedly, it will be quite some time before all the workshops find the best product on which to concentrate their efforts, but we feel that we have made an encouraging start. □ B.D.

sian and Navaho Indian. I wondered why I saw so little traditional and local design in such a remarkable and colourful country. However, I soon learnt that many of the crafts I saw, particularly the mohair weaving, had been introduced by foreign expertise. I set about the task of helping to create a tapestry workshop that would produce tapestries with a local design. Tapestries are not indigenous in Lesotho, but there is a long history of grass weaving, a large supply of mohair and a wealth of design motif inscribed in the Basotho houses. There is also a rich folklore and a very colourful way of life. So we felt that we had all the necessary ingredients.

"We interviewed mostly young women, who appeared bright and eag-

er to experiment, and we were careful to instil in them the feeling that they were craftsmen and artists and not production labourers. We began by teaching simple kelim weaving techniques using geometric designs which the weavers had brought from their homes and which were usually symbolic. In Lesotho most people have an animal associated with their family (for instance, the Royal Family is associated with the crocodile) and we asked each woman to weave freely her interpretation of her family animal. We next asked her to weave her home and from there went step by step, introducing the family, the garden, animals, churches, etc. We were careful not to design for the women but to help them to bring out their own visual interpretations and designs.

Europe and the World Without. Oxfam Public Affairs Unit, Parnell House, 25 Wilton Road, London SW1 — 48 pages — 1978

The Community countries, which created wealth to an unprecedented extent in the 19th century, should be the first today to try to establish a fairer distribution of wealth among the nations and to relate their own aspirations to what the planet can reasonably offer.

This is one of the central arguments of this report (translated from the English by the EEC Commission) on the EEC's policy and programmes and their effect on world development. The report is intended for the EEC governments and for the Commission in Brussels. It puts forward a number of specific proposals to help improve the role of the Community in the world.

More than for any other industrial countries, the future of Europe is linked to the future of the developed world, says the report. From many points of view, their development is inseparable from Europe's. The EEC therefore has special reason and a duty to give an example to the rest of the world by promoting the necessary reforms for ordered, international co-operation.

An EEC worker cannot continue to earn an average of 40 times more per day than a man or a woman in India, the report says. Unconventional methods of economic development must be explored. There is increasing awareness that absolute faith in economic growth increases rather than decreases the ills of Western societies. An alternative therefore has to be found.

The Community must lose no time in trying to agree on a global development strategy which takes account, in all fields, of national and Community policy towards the Third World. Furthermore, there will have to be a drastic increase in direct transfers of resources before the Community's commitment to meeting the fundamental needs of humanity is anywhere near equal to the enormous task.

There is considerable criticism of the Nine for their persistent refusal to increase food aid. This makes them, of all the major donors, the only ones to have refused to answer the appeal of the World Food Conference in 1974. Their increasing concessions to the developing countries via GSP are, on the other hand, considered a positive contribution.

The report also mentions the economic inequality which, like that between industrialized and developing

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countries, exists within the European Community, where enlargement threatens future development. The Nine have great need of common policies in industry and employment and they need a common strategy for their external and economic affairs. An energetic employment programme should not just be geared to immediate problems. It should also ask just what sort of economic future we want to build and what type of employment we need and can maintain.

Famines et dominations en Afrique Noire (Hunger and domination in black Africa) by Hervé Derriennic. (Editions L'Harmattan)

A former development worker in West Africa and one of the founders of the Rennes centre for information on development and the liberation of peoples, Hervé Derriennic shows himself dissatisfied with the concept of information about the Sahel. This book introduces a historical and political dimension in the study of the famine in the Sahel and takes Niger as a case study. Recalling the condition of the peasants under the former regime, the analytical thesis chosen by the author consists of a critical historical investigation of the permanent structural causes of the famine. In doing so he describes the main characteristics of this modern phenomenon and raises pertinent and fundamental questions for the future.

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Guide to Education and Training Resources in the Developing Countries of the Commonwealth a selection

of post-secondary institutions and courses. — Prepared by the Education and Training Division, Commonwealth Fund for Technical Cooperation — Published by the Commonwealth Secretariat, Marlborough House, Pall Mall, London, SW1 Y 5HX — £ 4 — 1977

The guide is a revised and expanded version of the Directory of Education and Training Resources published in 1974. The new edition gives details of over 600 institutions and programmes offering courses of training at the post-secondary level relevant to development. It covers 34 developing countries in the Commonwealth as well as international and regional institutions.

There are three sections; one listing institutions offering courses which require less than full university entry standards, the second covering all universities in Commonwealth developing countries, and the third dealing with other institutions giving degree level, postgraduate, or research training. The information used in the second section has been provided by the Association of Commonwealth Universities, which has also advised on the presentation of material as a whole. For other sections the data was obtained by correspondence with the institutions concerned.

Apart from descriptions of courses offered and of entry standards required, brief details are also given of the general facilities at each institution, of the numbers of students, whether residential accommodation is available, and of the dates of terms.

The guide is selective in that it concentrates on areas of training that are requested by developing countries in order to accelerate economic and social development. Thus it covers scientific and technological subjects; economics and social development; medical and health service training; administrative, business and management studies; teacher training; transport and communications; and training related to the development of natural resources.

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