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OPERATIONS AND FINANCING OF NEW REGIONAL INSTITUTIONS FOR PROMOTING INDUSTRIAL DEVELOPMENT IN AFRICA

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I. Introduction

1. The second meeting of the Follow-up Committee on Industrialization in Africa, held at Addis Ababa on 11 and 12 August 1975, recommended the establishment of selected regional operational instruments for the promotion of collective action as an instrument for speeding up the process of industrialization in African countries. It further called upon ECA and UNIDO to prepare the financial estimates for such institutional machinery for consideration by the third Conference of African Ministers of Industry at its meeting at Nairobi from 17 to 22 December 1975.

2. This report outlines the objectives, function and costs of the regional operational instruments which are to promote the implementation of the Lima Declaration. Herebelow are a summary of the financial estimates. The attention of Governments is also drawn to the specific points requiring follow-up action by them.

II. The role of regional operational instruments in the promotion of collective action

(a) Status of industrialization in Africa

3. During the first three years of the Second United Nations Development Decade, African countries as a group failed to achieve the minimum target of 8 per cent annual rate of growth set by the International Development Strategy. Only 18 countries were able to exceed this minimum target. Industrial performance was particularly disappointing in the least developed countries but the economies of African countries as a whole were adversely affected by inflation and recession in the industrialized countries and by rising costs of energy supply. The region's level of industrial output is currently estimated to be in the order of $US 6,000 million which makes for about 0.6 per cent of world industrial production. Output is unevenly distributed within the region and the industrial structure that has emerged is characterized by high costs of investment and production and by excess capacity.

4. Given the small size of national markets and the low purchasing power of African people, the manufacturing establishments that countries were able to create were largely oriented to the production of a narrow range of consumer goods such as beverages, tobacco, shoes, textiles, etc. Africa's capacity to process natural resources domestically is still very low. Currently, the region's production of pig-iron is only in the order of less than 600,000 tons; of pulp wood 350,000 tons; of sawn wood just over 2.3 million tons; of wood panels 862,000 cubic metres; and of copper concentrates 1.5 million tons.

5. The import-substitution strategy pursued has led to an overdependence on the industrialized countries for the supply of capital, technology and intermediate inputs. The preoccupation with this strategy has limited the prospects of achieving an efficient industrial structure. Little attention, if any, has been paid to making the best use of regional co-operation opportunities for extending the size of markets and thus for speeding up the process of industrialization.

6. Regional projects could become effective operational instruments for promoting collective action and for laying a sound foundation for achieving regional co-operation objectives.

Summary of financial estimates and follow-up action

Thousand US dollars

Project title	1977-1981 Financial estimates Total	UNDP contributions	Government contributions	Proposed action by Governments
A. African Centre for Industrial Consulting Engineering and Management Services	3 777	3 777	-	1. Support for project 2. Decision on location 3. Financial contributions for phase II
B. Centre for the Design, Adaptation and Transfer of Industrial Technology	1 890	1 890	-	"
C. African Centre for Iron and Steel Industry	6 079	3 079	3 000	1. Financing preliminary phase consultations 2. Decision on location 3. Full financing responsibilities at the end of phase I
D. Centre for the Development of Petrochemical Industry in West African Countries	..	3 590	..	"
E. Regional Pesticide Development Programme	2 186	1 516	670	"
F. Regional Industrial Plant Construction and Engineering Centre	1 295	1 295	-	"
G. Solar Energy Testing and Development Centre	..	1 320	..	"
H. Multinational industrial co-operation in the African region	1 130	1 130	-	"

(b) The need and justification for regional projects

7. The growing concern of the developing countries in general and African countries in particular over the slow pace of industrialization has led to an intensification of public discussions in recent years on industrialization issues. The discussions conducted in the framework of the biennial Conferences of African Ministers of Industry have helped better to define the policies, programmes and instruments required to foster collective action. The development of a coherent and consistent programme of action at the regional level has enabled African countries to negotiate successfully their specific requirements at international forums.

8. The Lima Declaration and Plan of Action on Industrial Development and Co-operation has spelt out the basic principles and instruments for promoting the industrialization of the developing countries. The international community has accepted the principle of pursuing the achievement of a quantitative target for raising the share of the developing countries in world industrial production to 25 per cent by the year 2000 from its present level of 7 per cent. To achieve this target, it will be necessary to implement a major programme to develop export and multinational industries. On the supply side, efforts will need to be devoted to mobilizing the capital and human resources required to launch a major industrialization programme.

9. The third ECA Conference of Ministers also defined the priority areas of action that need to be pursued for the implementation of the New International Economic Order. In resolution 256(XII), it called for the intensification of efforts aimed at creating national, subregional and regional centres for the provision of assistance in industrial technology, investment promotion, pre-investment studies and management consultancy. The second meeting of the Follow-up Committee on Industrialization in Africa defined the priority areas of action and identified the regional programmes and instruments of action to implement the Lima Declaration. It called upon Governments to assume the major responsibility for mobilizing the necessary funds to create selected regional institutions. At the same time multilateral aid could play a highly catalytic role.

10. In particular, UNDP inputs can play an important part in fostering collective action in pursuance of the recommendations of the Lima Declaration, the biennial Conferences of African Ministers of Industry, the third ECA Conference of Ministers and the second meeting of the Follow-up Committee on Industrialization in Africa. These, it should be stressed, are consistent one with the other. Technical assistance at the multinational and regional levels would, by concentrating resources on a few major intercountry projects, effectively supplement and reinforce efforts at the country level; provide continuity of the technical assistance effort over a reasonable period of time; and avoid duplication of small-scale, high-cost projects. The value of intercountry programming in the field of industry becomes even more evident from the nature of the close relationships between national, regional and international industrial development policies.

(c) Objectives of intercountry programming

11. The objective of technical co-operation in the field of industry have been defined by the biennial Conferences of African Ministers of Industry and the Second General Conference of UNIDO. These have drawn up priority areas of action in technical co-operation. The Follow-up Committee on Industrialization in Africa and

the third ECA Conference of Ministers have gone further in identifying specific programmes, projects and schemes aimed at implementing the recommendations of the regional and international conferences. The objectives of intercountry programming could be summed up as follows:

(a) promotion of industrial integration schemes and projects;
(b) development of commodity-utilizing export industries;
(c) strengthening and expansion of training programmes and projects for managers, technologists and operatives;
(d) creation and strengthening of industrial development institutions for industrial and technological research, investment promotion and industrial information;
(e) preinvestment studies including the identification, preparation and evaluation of industrial projects; and
(f) development of domestic capabilities for adapting, designing and innovating on industrial technology.

12. To achieve the above objectives, the institutional and manpower capabilities of African countries must be developed. Intercountry projects could effectively become the leverage points for the promotion and development of collective action and thus for laying a sound foundation for speeding up the process of industrialization in Africa. In particular they could make significant and strategic contributions towards the achievement of the dual strategy adopted by the second meeting of the Follow-up Committee on Industrialization in Africa, namely the promotion and implementation of large-scale export industries and of large-scale multinational industries. For this purpose, selected regional institutions and programmes would need to be implemented.

III. Institution building - financial estimates

13. On the basis of the recommendations of the Follow-up Committee on Industrialization in Africa, an inter-agency consultation meeting comprising ECA, UNIDO and UNDP was held at Addis Ababa between 13 and 15 August 1975 which reached a consensus on the promotion and implementation of a package of regional projects. Although not exhaustive, the agreed list of projects presents an inter-related set of proposals whose implementation is expected to have a perceptible impact and multiplier effect on African industrialization. Each of the projects proposed is summarized below for the consideration of the Conference.

14. The points on which the Conference should take decisions relate mainly to the consideration and approval of the financial estimates of each of the regional projects proposed by the Follow-up Committee to enable Governments to pledge their contributions. It is also expected that the Conference will endorse the projects and urge Governments to indicate their individual and specific project documents. It would also be desirable to devote attention to the question of the location of regional institutions and, in this connexion, interested Governments may wish to indicate the hosting facilities they are prepared to offer to the institutions which they would wish to be located in their countries.

A. African Centre for Industrial Consulting Engineering and Management Services

(a) Origin and nature of the proposal

15. The critical stages of project development are: (a) general industrial sector surveys, (b) industrial branch studies, (c) market research, (d) project identification, (e) prefeasibility study, (f) feasibility study and (g) investment decision. Project promotion and implementation can generally be successfully pursued if there exist systematic procedures and machinery for making "accept or reject" decisions at each of the above-mentioned stages of project preparation. It is customary for technical assistance co-operation to be directed to the first three of the above activities with the result that some of these have been institutionalized either in national industrial development centres or in the framework of the activities of groupings established for economic co-operation.

16. Prefeasibility and feasibility studies are as a rule carried out by commissioning consultants. Investment follow-up action suffers from the discontinuity of efforts. Further, the practice of employing short-term consultants frequently gives rise to divergent technical opinions. In the circumstances, preinvestment activities are not generating a satisfactory flow of bankable projects. A possible remedial measure would be to establish consultancy teams with the responsibility for bringing project proposals to the point at which they would interest sources of investment financing.

17. The need for according high priority to preinvestment technical co-operation activities was recommended in the Lima Declaration and Plan of Action on Industrial Development and Co-operation;1/ the second Conference of African Ministers of Industry;2/ and the third ECA Conference of Ministers at its session at Nairobi in February1975.3/

18. There is further the related question of developing managerial capabilities to operate efficiently constantly growing private- and public-sector enterprises. Largely motivated by the desire to Africanize the management of the various industries and reflecting the desire of different Governments to limit the extent and duration of reliance on expatriates, the first and second Conferences of African Ministers of Industry stressed the pressing need for developing self-reliance and called upon Governments to provide an effective programme for the development of national managers.

19. Cognizant of the recommendation referred to above and concerned at the lack of bankable projects, the Follow-up Committee on Industrialization in Africa at its second meeting at Addis Ababa in August 1975 specifically called for the establishment of an African Centre for Industrial Consulting Engineering and Management Services in order to provide the means for generating bankable projects and providing management consultancy services to enterprises on the request of Governments.

1/ Paragraph 58(b) of the Lima Declaration and Plan of Action on Industrial Development and Co-operation.

2/ Declaration on Industrialization in Africa: Principles and Guidelines for Co-operation and Development.

3/ Commission Resolution 256(XII), paragraph (n) of the third ECA Conference of Ministers.

20. It is proposed that during a first phase spanning a five-year period, the project will be financed by UNDP. During this phase, Governments will not be expected to contribute towards the cost of running the Centre. At the conclusion of the five-year UNDP-financed period, it is envisaged that the Centre will be wholly financed and operated by participating Governments by means of fees levied for services rendered.

21. It is envisaged that the Centre will work in close co-operation with the Joint ECA/UNIDO Industry Division which will provide some of the highly specialized industrial experts required. At a later stage in the development of the Centre, it may be deemed desirable to integrate the functions of the two existing advisory groups, namely the ECA/FAO Forest Industries Advisory Group and the ECA/FAO Food and Agro-Industries Development Advisory Group with those of the Centre. In addition, the Centre will have close working relations with national, subregional, regional and international institutions such as:

National industrial development corporations
National industrial development banks
National and multinational industrial study and promotion centres
Economic communities
Subregional development banks (EADB, etc.)
United Nations Multinational Interdisciplinary Development Advisory Teams
Regional development banks (ADB, etc.)
Industry Co-operative Programme (FAO)
United Nations agencies (FAO, UNIDO, etc.)
International development banks (World Bank, SIFIDA, Arab Bank for African Development, etc.)

The Centre will co-operate with these institutions in identification and appraisal missions and act as a specialized industrial consultant to them.

(b) Objectives of the project

22. The project is designed to strengthen and back up the national capability of African countries for specific industrial project development. In addition, having regard to the need for large-scale industries, the Centre will act as a stimulus for multinational co-operation leading to the establishment of specific industries serving markets with transcend national frontiers.

23. The long-range objectives of the project are:

(i) to generate a constantly increasing flow of bankable national and multinational industrial projects; and

(ii) to promote the development of domestic capabilities for project development activities and the management of enterprises.

24. The immediate objectives of the project are:

(i) to provide highly specialized industrial expert services to ECA member States at all stages of the identification, preparation, formulation and evaluation of specific industrial projects in the following sectors: chemicals and fertilizers, agricultural machinery and implements, building materials, textiles and light engineering, foundry and packaging industries;

(ii) to supplement and complement national expertise for the formulation and evaluation of specific industrial projects by providing at short notice the services of highly specialized industrial experts working in the Centre, which are not and cannot be made available at the national level because of the lack of financial and personnel resources;

(iii) to assist member States at their request in the selection of consultants for carrying out prefeasibility and feasibility studies, to prepare draft terms of reference for such studies and to brief and supervise the consultants;

(iv) to develop an active and effective management consultancy service that can assist African countries directly in improving the management of industrial enterprises;

(v) to promote the development and strengthening of national management institutions.

(c) Description of project activities

25. The Centre is to start on a modest scale and be developed over the duration period of the project. Its activities will essentially focus on the following sectors: chemicals and fertilizers, agricultural machinery and implements, textiles, building materials, light engineering and packaging industries. When fully operational, its services could be extended to cover basic metals, petrochemicals, electronics, transport equipment and machinery and the automotive industries. These, however, are not included in the current phase of the project.

26. A major activity of the Centre, in addition to those listed in the preceding paragraph, will be the development of an African foundry programme. Most countries are assigning high priority to and making a special effort in the development of their foundry industry. UNIDO has provided assistance to a number of countries in the establishment and/or development of iron, steel or non-ferrous metal foundries including Egypt, Ghana, Ivory Coast, Mali, Rwanda, Senegal, Somalia, Sudan, Swaziland, Togo, Tunisia, Upper Volta and Zambia. The Centre is to provide assistance to African countries in assessing the development potential of this industry, improving the operations of existing foundries, planning future development and stimulating and facilitating negotiations of bankable national and multinational projects.

27. Specifically, the Centre will have the following functions:

(i) Provision of assistance and advisory services to Governments, industrial development institutions and economic groupings in all phases of pre-investment activities. The experts will undertake surveys of markets, raw materials and technologies; identify and evaluate potential industrial projects and bring project studies to a stage where they would interest serious potential investors (domestic and external);

(ii) Provision of assistance in the creation and/or strengthening of management development institutions or programmes;

(iii) Provision of management consultancy and advisory services including the dissemination of information concerning new techniques for dealing with management problems;

(iv) Assistance will be provided in strengthening and/or developing effective systems and machinery for project development and in preparing and promoting suitable training programmes and projects personnel for project at the national leve;

(v) Participation in industrial appraisal missions at the request of Governments, intergovernmental organizations, aid donors and international institutions;

(vi) Assistance in the drawing up of terms of reference for feasibility studies to be undertaken by consultants and provision of advice in the selection of such consultants.

(d) Project document

(i) UNDP contributions

28. The contributions of UNDP during phase I are estimated to be as follows:

Thousand US dollars

		Total		1977		1978		1979		1980		1981	
		m/m	$US	m/m	$US	m/m	$US	m/m	$US	m/m	$US	m/m	$US
10	Project personnel												
11	Experts												
11-01	Project manager	60	180	12	36	12	36	12	36	12	36	12	36
11-02	Project evaluator	36	108	-	-	-	-	12	36	12	36	12	36
11-03	Statistical assistant	60	75	12	15	12	15	12	15	12	15	12	15
11-04	Research assistant	60	75	12	15	12	15	12	15	12	15	12	15
11-05	Management consultant	60	180	12	36	12	36	12	36	12	36	12	36
11-06	Short-term management consultants	72	216	12	36	12	36	24	72	12	36	12	36
11-07	Chemical engineer	60	180	12	36	12	36	12	36	12	36	12	36
11-08	Chemical engineer	36	108	-	-	-	-	12	36	12	36	12	36
11-09	Mechanical engineer	60	180	12	36	12	36	12	36	12	36	12	36
11-10	Mechanical engineer	60	180	12	36	12	36	12	36	12	36	12	36
11-11	Textile technologist	60	180	12	36	12	36	12	36	12	36	12	36
11-12	Textile economist	60	180	12	36	12	36	12	36	12	36	12	36
11-13	Textile technologist	36	108	-	-	-	-	12	36	12	36	12	36
11-14	Cement technologist	60	180	12	36	12	36	12	36	12	36	12	36
11-15	Clay technologist	36	108	-	-	-	-	12	36	12	36	12	36
11-16	Glass technologist	60	180	12	36	12	36	12	36	12	36	12	36
11-17	Refractories and ceramics expert	36	108	-	-	-	-	12	36	12	36	12	36
11-18	Mechanical engineer	60	180	12	36	12	36	12	36	12	36	12	36
11-19	Mechanical engineer	36	108	-	-	-	-	12	36	12	36	12	36
11-20	Metallurgist	36	108	-	-	-	-	12	36	12	36	12	36
11-21	Electrical engineer	60	180	12	36	12	36	12	36	12	36	12	36
11-22	Iron and steel expert	60	180	12	36	12	36	12	36	12	36	12	36
11-23	Iron and steel expert	60	180	12	36	12	36	12	36	12	36	12	36
11-24	Short-term consultant	15	45	3	9	3	9	3	9	3	9	3	9
15	Support personnel												
15-01	Secretarial/clerical services	120	50	24	10	24	10	24	10	24	10	24	10
19	Component total	1 359	3 557	219	553	219	553	315	841	303	805	303	805
30	Training component												
31	Training workshops		90		-		-		30		30		30
39	Component total		90		-		-		30		30		30
40	Equipment component												
42	Non-expendable equipment		30		25				5				
49	Component total		30		25				5				
50	Subcontractual services												
51	Specialized consultants		100		20		20		20		20		20
59	Component total		100		20		20		20		20		20
99	Grand total	1 359	3 777	219	598	219	573	315	896	303	855	303	855

(ii) Government contributions

29. No Government contributions are envisaged during phase I.

B. Centre for the Design, Adaptation and Transfer of Industrial Technology

(a) Origin and justification of proposal

30. In their industrialization efforts, African countries depend largely on foreign technologies. These technologies were the results of intensive and painstaking research carried out over a span of several decades. They are therefore not always suitable to African requirements since they do not conform to prevailing factor proportions.

31. The adaptation of foreign technologies for local application is only one approach of the industrialization efforts in Africa. More important is the development of local technologies in the local environment. This was recognized at the first and second Conferences of Ministers of Industry, held at Addis Ababa in May 1971 and at Cairo in December 1973 respectively. The Ministers consequently stressed the creation of regional and subregional institutions for industrial research and standardization, training of research managers and operative skills and technological development. The development of policies regulating foreign investments, all oriented towards the innovation of local technologies, particularly towards the low-cost technologies suitable for labour-abundant economies, was also emphasized. The full text of their recommendations is included in the Addis Ababa Declaration of Industrial Development in Africa in the 1970s and the Cairo Declaration on Industrialization in Africa: Principles and Guidelines for Co-operation and Development (UNIDO/OFD.11).

32. The discussions on industrial technology have been focused not only on the appropriateness of technological choices but also on the terms and conditions of their transfer. African countries have been at a disadvantage in both the transfer and the choice of technology. The cost of transfer has been high and the choice has resulted in industries which have not provided employment opportunities to the extent desired. There is an urgent need for programme and policy formulation that would enable African countries to make appropriate technological choice in terms of their national economic objectives and through collective effort to reduce the transfer cost of industrial technology. There is thus a need to develop and strengthen the institutional capacity of individual countries for the design and adaptation of industrial technology and there is also a need to carry out operational research with a view to adapting available industrial technologies to the requirements of African countries.

33. UNIDO and ECA have been studying various ways and means of implementing the above-mentioned recommendations. As a start, a Joint ECA/UNIDO Industry Division has been established within the ECA secretariat. The primary function of this Joint Division is to assist African countries in the development of their general industrial policies and strategies and other aspects of industrial development. Through the work of the Division, the need for African countries to be assisted in the development of their technological capacities in order effectively to implement their industrial policies and programmes has been re-emphasized. Recently, a small unit was established within ECA in co-operation with the Intermediate Technology Development Group for the purpose of collecting, analyzing and disseminating small-scale, low-cost industrial technology.

34. To enable African countries develop domestic capabilities in the design and adaptation of technology and in promoting a less costly and more equitable transfer of technology, it is proposed to establish a "Centre for the Design, Adaptation and Transfer of Industrial Technology".

35. The activities of the Centre will be closely co-ordinated with those of the Joint ECA/UNIDO Industry Division at Addis Ababa. The Division will be responsible for the development of the Centre which is expected to start its activities on a modest scale. These will be expanded during the five years of the project to include a wider scope of activities in the appropriate choice and transfer of industrial technology.

36. The organizations and institutions selected for the development of specific industrial areas or activities will also be expected to provide the necessary institutional framework required for the effective implementation of the specific programme for which it has been selected.

37. It is proposed that the operations of the Centre should be financed by UNDP during its initial five-year phase. Governments are expected to assume responsibility for financin the operations of the Centre at the end of the five-year UNDP-financed period.

(b) Objectives of the project

38. The long-range objective of the project is to improve African capacity in the design, adaptation and transfer of industrial technology.

39. The immediate objectives of the project are:

(i) To develop and strengthen domestic capabilities in the design and adaptation of industrial technology by means of developing competence in industrial technology appraisal, in design engineering, in project management and in technological choice;

(ii) To establish a network of worldwide contacts to make the best use of available knowledge and to analyse and disseminate such information;

(iii) To promote the establishment of a network nucleus for specialized centres for the adaptation and assimilation of industrial technology so as to enable each country to benefit from successful experiences within the region;

(iv) To develop and strengthen national industrial research organizations and centres for technological development;

(v) To promote collective action in regard to the costs and terms and conditions for the transfer of industrial technology and to improve African negotiating capabilities;

(vi) To promote programmes and policies to facilitate the appropriate choice of industrial technology.

(c) Description of project activities

40. The activities of the Centre will be developed over time. A beginning will be made with the establishment of a programme directed to the articulation of the policies and programmes required to develop domestic capabilities in the design, adaptation and transfer of technology. To this end, the activities will include the provision of advisory services in the establishment and strengthening of national industrial research programmes and engineering design centres. A network of worldwide contacts will be established to facilitate the collection and dissemination of information on industrial technology and

to undertake surveys and conduct analyses of existing procedures, terms and conditions for the transfer of industrial technology. The Centre will act as a forum for consultations aimed at promoting collective action to strengthen the negotiating position of African countries in the acquisition and use of industrial technology.

41. The following are to be the peak-action activities:

(i) The development of national capabilities for designing and adapting industrial technology with particular reference to the following subsectoral know-how and competence:

- designing engineering competence
- project management competence
- competence to adapt imported technologies
- capabilities to generate, on the basis of the adaptation and assimilation of imported technology, indigenous technology in the form of improved design of products and manufacturing processes and the development of new products and manufacturing processes;

(ii) Promotion of the establishment of specialized technology units concerned with the transfer and choice of technology in individual African countries;

(iii) Collection and dissemination of technological and commercial information and, for this purpose, the establishment of a network of contacts among private, public and international agencies for institutions known to be engaged in related and other activities;

(iv) The undertaking, on a pilot basis of such research and enquiries as are necessary to establish a comprehensive programme covering the choice, transfer and adaptation of technologies relevant to African countries;

(v) The development of a programme of pilot demonstration manufacturing units with emphasis on technology transfer;

(vi) Provision of advisory services aimed at improving the activity and effectiveness of existing industrial research institutes in African countries.

(d) Project budget

(i) UNDP contributions

42. The contributions of UNDP are estimated as follows:

Thousand US dollars

		Total		1977		1978		1979		1980		1981	
		m/m	$US	m/m	$US	m/m	$US	m/m	$US	m/m	$US	m/m	$US
10	Project personnel												
11	Experts												
11-01	Project manager	60	180	12	36	12	36	12	36	12	36	12	36
11-02	Industrial economist	60	180	12	36	12	36	12	36	12	36	12	36
11-03	Technologist	60	180	12	36	12	36	12	36	12	36	12	36
11-04	Technologist	60	180	12	36	12	36	12	36	12	36	12	36
11-05	Technologist	60	180	12	36	12	36	12	36	12	36	12	36
11-06	Expert in licensing	60	180	12	36	12	36	12	36	12	36	12	36
11-07	Expert in patent laws	60	180	12	36	12	36	12	36	12	36	12	36
11-08	Research assistants	120	150	24	30	24	30	24	30	24	30	24	30
15	Support personnel												
15-01	Secretarial/clerical services	120	100	48	20	48	20	48	20	48	20	48	20
19	Component total	660	1 510	156	302	156	302	156	302	156	302	156	302
20	Subcontractual services												
21	Specialized consultants		200		40		40		40		40		40
29	Component total		200		40		40		40		40		40
30	Training component												
31	Training workshops		100		20		20		20		20		20
39	Component total		100		20		20		20		20		20
40	Equipment component												
42	Non-expendable equipment		30		30		-		-		-		-
49	Component total		30		30		-		-		-		
50	Miscellaneous												
52	Reporting costs		25		5		5		5		5		5
53	Sundry		25		5		5		5		5		5
59	Component total		50		10		10		10		10		10
99	Grand total	660	1 890	156	402	156	372	156	372	156	372	156	372

(ii) Government contributions

43. No Government contributions are envisaged during phase I.

C. African Centre for Iron and Steel Industry

(a) Origin and nature of proposal

44. During the last decade, the developing countries as a whole have increased their share of world production and consumption of steel, but significant increases in production and consumption have been limited to a few countries. At the same time, the developing countries are giving increasing attention and priority to policies for the development of iron and steel industries in order to meet the needs of the home market and also to enable the export of processed materials instead of run-of-the-mine high-grade ores.

45. The Lima Declaration and Plan of Action on Industrial Development and Co-operation contains a specific recommendation for action related to metallurgical industries. For instance: "In order to facilitate the establishment of a New International Economic Order and the achievements of the targets set forth in the Declaration on that subject, a system of consultations should be established in the UNIDO" (ID/B/155 Add.1, paragraph 26). Furthermore, it was stated in the Declaration that "Developing countries should devote particular attention to the development of basic industries, such as steel" (paragraph 52). The Plan of Action indicated that the developing countries' national industrialization policies should lay emphasis on the establishment of basic industries such as steel, etc., aiming at meeting the needs of both internal and external markets.

46. The recent development in the world iron and steel industry clearly indicate an unprecedented trend towards redeployment of the industry in developing areas endowed with natural resources, site facilities and low-cost labour. At present the raw steel production in African countries stands at a very low level - an estimated 1 million tons in 1975 (South Africa excluded). This represents as low as 0.1 per cent of total world steel production and an average of about 3 kg per capita. This is a situation which cannot and should not be tolerated any further if the standard of living of African countries is to be improved. Urgent action is necessary to co-ordinate the development of the steel industry in the region.

47. The significance of the metallurgical industry in general and of the iron and steel industry in particular for economic development is paramount since they produce the most essential material of construction at a relatively low cost. The products of the iron and steel industry in the form of plate, sheet, bars, rods, wire, tubing, rail, etc. are essential for the production of industrial equipment, civil construction, consumer goods, transportation and agriculture. Most of the steel needed for industrial development cannot and should not be imported indefinitely from the developed countries, but should be produced locally, especially in those countries where promising natural resources and conditions exist and where national planning for economic development is sufficiently developed. It is also recognized4/ that the establishment of technological institutions (for engineering services and for applied research and development work) in developing countries is essential for the overall development of the metallurgical industries.

48. A large number of African countries have assigned high priority to the development of their metallurgical industry. However, because of a lack of institutional support, the aspirations of these countries may face serious obstacles. Other countries need

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assistance and depend on co-operation from developed and developing countries for setting up national plans for iron and steel production. It is, therefore, necessary to establish in one of the African countries an African Centre for Iron and Steel Development which would assist the Governments and appropriate organizations, enterprises and institutions in their efforts to establish and/or develop their iron and steel industries. This proposal was strongly endorsed by the Follow-up Committee on Industrialization in Africa at its second meeting at Addis Ababa in August 1975.

(b) Objectives of the project

49. The objectives of the project are as follows:

Basic information "clearing house"

(i) Collection, analysis and dissemination of information relative to the development of the iron and steel industries;

(ii) The information will cover: raw materials (ores, fuels and fluxes), semi-products and by-products and metallurgical products;

(iii) The Centre will also collect, analyse and disseminate data and information on metallurgical plants and ventures in African countries; specific investment and operating costs (basic or typical); and selected new technologies of interest to African countries.

Forum for discussions and conclusions

Preparation of studies and organization of meetings for an exchange of ideas on:

(i) recent technological trends and their impact on the iron and steel industry of African countries;

(ii) factors determining optimum plant size and location;

(iii) opportunities for joint ventures and co-operation between developing and developed countries and among developing countries themselves;

(iv) sources and modes of financing metallurgical projects;

(v) medium- and long-term projections for iron and steel industry development, steel consumption, production and trade of African countries;

(vi) possibilities for local production of capital goods for the metallurgical industry;

(vii) requirements in terms of personnel and training;

(viii) application of modern maintenance systems;

(ix) equipment and investment for pollution control;

(x) exchange of experience in joint ventures for metallurgical ores exploration, beneficiation and trade, establishment of metallurgical plants, etc.

Provision of technical consultancy services

(i) survey and testing local raw materials, applied research and studies on extractive metallurgy, metal transformation and finishing;

(ii) evaluation of industrial projects and provision of extension consultancy services on request;

(iii) provision of "trouble shooting" services;

(iv) setting up quality control standards and testing procedures for iron and steel plant operations and materials.

Promotion of negotiations, agreements and practical arrangements

(i) joint investment and exploitation of raw materials (in developing or developed countries) with a view to ensuring supplies to developing African countries' plants;

(ii) co-operative "double ventures" for optimizing supply of raw materials and access to markets. For example, bilateral agreements between country A, having abundant hydrocarbons, and country B, having abundant and high quality iron ore reserves, for the establishment of two plants, one in country A and one in country B;

(iii) establishment of programmes for training and exchange of visits to plants and organizations;

(iv) solutions of technical and economic problems of specific interest to African countries;

(v) establishment of specialized service companies or organizations through international or multilateral co-operation.

(c) Description of the project

50. It is proposed that the African Centre for Iron and Steel Development will comprise the following divisions to perform the above-mentioned functions:

(i) Division of iron and steel planning, studies and services

(ii) Division of metallurgical technology

(iii) Division of information and promotion

(iv) Division of administration and general services.

Preliminary phase

51. As the establishment of the Centre will require an amount of $3 million as the Government counterpart contribution, in addition to the UNDP inputs of the order of $3.22 million, it will be necessary to implement a preliminary phase of the project. The activities involved will consist of field missions to African countries to exchange

views on the establishment of the Centre; to convene intergovernmental consultation meetings; to draw up the terms of reference of the Centre; and to reach agreement on its location. These activities will be undertaken jointly by ECA and UNIDO and to this end, the Joint ECA/UNIDO Industry Division should be enabled during the preliminary phase of the project to carry out the promotional activities required.

Establishment of the Centre

52. Phase II of the project will consist of the establishment and operation of the Centre. The programme of the Centre will be carried out through a team of high-level internationally recruited experts, preferably African nationals, headed by a project manager. Ultimately, African staff will take over all the tasks and activities of the Centre and will carry them out independently.

53. The activities of the Centre will be financed by the member countries and partly by UNDP during the initial five-year period of the project. The services provided at the request of the different African Governments and/or companies for the preparation of studies, testing, provision of information, etc. will be payable to the Centre. Later on, with the development of the capabilities of the staff of the Centre all activities may be carried out under contracting agreements between the Centre and the recipient Government or compnay. Thus the Centre will be transformed into a self-sufficient organization. All member Governments will be called to contribute the funds necessary for the construction of the centre and its operation during the initial period of approximately five years.

54. The target dates for implementation of the project are as follows:

1976 Preparation of project document (after receiving the support of the required number of African countries)

1976 Approval of project by all parties

1977 Establishment of the Centre; appointment of the project manager and a few key experts; preparation of detailed plan of work; start of Centre operations;

1981 Termination of United Nations assistance.

Total	3 000	680	705	555	555	505
Salaries	2 000	200	300	500	500	500
Materials and furniture	500	200	200	50	50	

(d) Project budget

(i) UNDP contributions

55. The contributions of UNDP are estimated as follows:

Thousand US dollars

		Total		Preliminary Phase 1976		1977		1978		1979		1980		1981	
		m/m	$US	m/m	$US	m/m	$US	m/m	$US	m/m	$US	m/m	$US	m/m	$US
10	Project personnel														
11	Experts														
11-01	Metallurgists	24	72	24	72										
11-02	Project manager	60	180	-	-	12	36	12	36	12	36	12	36	12	36
11-03	Expert in information and promotion	60	180	-	-	12	36	12	36	12	36	12	36	12	36
11-04	Expert in metallurgical planning, studies and services	60	180	-	-	12	36	12	36	12	36	12	36	12	36
11-05	Expert in metallurgical technology	60	180	-	-	12	36	12	36	12	36	12	36	12	36
11-06	Short-term consultants	24	72	-	-	12	36	12	36	-	-	-	-	-	-
11-07	Research assistants	192	240	-	-	24	30	24	30	48	60	48	60	48	60
13	Support personnel	240	160	48	32	48	32	48	32	48	32	48	32	48	32
19	Component total	720	1 264	72	104	132	242	132	242	144	236	144	236	144	236
20	Subcontractual services														
21	Specialized consultants		460		-		80		80		100		100		100
29	Component total		460				80		90		100		100		100
30	Training component														
31	Training		650		-		100		100		150		150		150
32	Intergovernmental consultations		15		15		-		-		-		-		-
39	Component total		665		15		100		100		150		150		150
40	Equipment component														
41	Laboratory equipment		500		-		100		100		100		100		100
42	Reproduction equipment		50		-		50		-		-		-		-
43	Vehicles		25		-		25		-		-		-		-
44	Books and materials		20		-		4		4		4		4		4
49	Component total		595		-		179		104		104		104		104
50	Miscellaneous		50		-		10		10		10		10		10
52	Reporting costs		45		20		5		5		5		5		5
59	Component total		95		20		15		15		15		15		15
99	Grand total	720	3 079	72	139	132	616	132	541	144	605	144	605	144	605

(ii) Government contributions

56. The contributions of Governments are as follows:

Thousand US dollars

	Total	1977	1978	1979	1980	1981
Land and utilities	100	80	5	5	5	5

D. Centre for the Development of the Petrochemical Industry in West African Countries

(a) Origin and nature of project

57. The proposed regional project relates to the development of the petrochemical industry in West and Central African countries, specifically in Cameroon, Dahomey Ghana, Ivory Coast, Liberia, Nigeria, Senegal and Togo. These countries which have at present a total capacity for crude oil processing of 27.5 million tons per year including an additional installed capacity of catalytic reforming of 1.4 million tons per year, are considered to have a good basis for building up at regional level their potential skill for developing further during the next decade the production of first generation petrochemical products and intermediates.

58. In accordance with the conclusions and recommendations of the Investment Promotion Meeting for Chemical Industry, held at Bucharest, from 2 to 6 December 1974, the establishment of a Regional Centre for the Development of Petrochemical Industry in the West African Region will help to promote the upgrading of local skills required at all stages in the implementation of petrochemical projects in these countries, starting with the project formulation, elaboration of feasibility and pre-investment studies through the design and detailed engineering works, construction and launching of the plant.

59. The location of the Centre will be decided on the basis of a preliminary study to be carried out by a group consultants who, taking into consideration the specific conditions in each of the eight West and Central African countries, will propose the country which is most suitable for hosting the Centre. The counterpart personnel of UNIDO field staff, including the project manager and experts and technicians representing all the developing countries interested in the project, will act at the same time as liaison officers of the Governments. From this point of view, it is proposed that the project manager, a UNIDO consultant, should have a group of eight local experts/ consultants, each of them representing one country of the region, who will act on behalf of their Government agencies in the development of the project.

(b) Objectives of the project

60. The long-range objectives of the project are to facilitate the transfer of know-how and upgrade the skill of local technical staff in evaluating petrochemical processes, utilization of local raw materials in the design, construction, operation and maintenance of oil petrochemical refineries and petrochemical plants.

61. The immediate objectives of the project are:

(i) Evaluation of techno-economic conditions in the region for the production of first generation and petrochemical intermediates.

(ii) Upgrading the skills of local technical staff in the evaluation of petrochemical processes, elaboration of tender specifications, evaluation of tenders for "turn-key" plants, selection of sites, supervision of erection and launching of petrochemical plants, operation and maintenance of plants.

(iii) On the spot training for local technical personnel in quality control and test methods for raw materials, petrochemical intermediates and end-products.

(iv) Establishment of small demonstration plants and laboratory equipment for demonstration purposes with special emphasis on processing and use of plastics in agriculture.

(v) In-plant training, locally and abroad for local technical personnel.

(c) Description of project activities

62. The Centre is proposed to serve as a key reference project for other countries. It is also hoped that the work of the Centre will lead to possible joint petrochemical projects involving the participation of serveral countries from the region. The specific activities include:

(i) Advice and assistance in:

- crude oil refining and manufacture of petrochemical feedstocks
- design of petrochemical plants and evaluation of petrochemical processes
- polymers and manufacture of synthetic resins
- synthetic fibres
- maintenance of petrochemical plants
- plastics processing and plastics utilization
- quality control of petrochemical feedstocks and end-products;

(ii) Preparation of market and feasibility studies regarding the development of the petrochemical industry in the subregion with the participation of local technical staff;

(iii) Training.

(d) Project budget

(i) UNDP contributions

63. The contributions of UNDP are estimated as follows:

		Total		1977		1978		1979	
		m/m	$US	m/m	$US	m/m	$US	m/m	$US
10	Project personnel								
11	Experts								
11-01	Project manager	36	108	12	36	12	36	12	36
11-02	Expert in crude-oil refining and petrochemicals feedstocks	24	72	-	-	12	36	12	36
11-03	Expert in design and evaluation of petrochemical process	24	72	-	-	12	36	12	36
11-04	Expert in polymers and synthetic resins	24	72	-	-	12	36	12	36
11-05	Expert in synthetic fibres	24	72	-	-	12	36	12	36
11-06	Expert in maintenance of petrochemical plants	24	72	-	-	12	36	12	36
11-07	Expert in plastics processing and utilization	180	540	60	180	60	180	60	180
11-08	Expert in quality control	12	36	12	36	-	-	-	-
11-09	Industrial economists	24	72	12	36	12	36	-	-
11-10	Consultants	48	144	16	36	16	48	16	48
19	Component total	420	1 260	112	336	160	480	148	444
20	Subcontracts		250		50		100		100
30	Training		160		60		50		50
39	Component total		410		110		150		150
40	Equipment								
42	Non-expendable equipment		1 912		956		956		-
49	Component total		1 912		956		956		-
50	Miscellaneous								
52	Reporting costs		5		1		2		3
53	Sundry		3		1		1		1
59	Component total		8		2		3		4
99	Grand total	420	3 590	112	1 404	160	1 589	148	598

(ii) Government contributions

64. The details of Government contributions are to be specified later.

E. Regional Pesticide Development Programme

(a) Origin and nature of proposal

65. The introduction of new high yielding crop varieties and the extensive use of fertilizers has led to an unprecedented increase in agricultural productivity. The benefit of these developments may be lost if the resultant high yields are not protected against natural enemies. It is estimated that 15 to 30 per cent of grain crops are lost each year as a result of pests. This is a particularly important aspect of the crop production in developing countries where agriculture often has to bear the cost of industrialization and supply industry with raw materials. Moreover, in some countries agricultural exports provide the bulk of the foreign exchange needed to import the capital goods required in the process of industrialization, in others the struggle continues simply to attain self-sufficiency in providing adequate nourshment for the population.

66. The most effective and instant protection against ravaging pests can be achieved by pesticides. Although the history of modern pesticides is relatively short, there is a rather large number of in use products today as insecticides, fungicides, herbicides, nematicides, rodenticides, etc. A serious consideration for developing countries is that essentially all pesticide manufacture is limited to industrialized countries and thus requirements have to be covered by imports from distant places. Fortunately the final pesticide products is being increasingly prepared in developing countries. There is an excellent potential for using locally available raw materials and inputs for expanding formulation and some other steps in the manufacture of pesticides in many developing countries. Often the complete reliance on industrial countries for the basic ingredients is due to lack of sizable local markets and adequate facilities for the adaptation of appropriate technologies in developing countries.

67. The recent past has proven that traditional major international exporting companies cannot increase their output enough to keep up with the fast global growth of the demand for pesticides. In some developing countries this demand has doubled each year during the last four years and has been much above the average growth of the global demand in most developing countries. The shortage in supplies affected first of all the developing countries in the most serious way. Similarly the price increases, often up to 200 per cent, were worst felt by developing countries where the purchasing system normally includes a middle-agent. In view of the above and of the vital importance of reasonably priced and adequate pesticides supplies, the developing countries should make serious efforts to lessen their dependence on foreign imports. Further the Second General Conference of UNIDO held at Lima affirmed in the Declaration and Plan of Action that by the year 2000 at least 25 per cent of manufacturing capacity should be transferred to developing countries.

68. The World Food Conference also recognized the deficiencies of the present supply system and, by resolution X, called on FAO to convene, in co-operation with UNIDO, UNDP and WHO, and ad hoc Government consultation on the pesticide supply and demand. These consultations took place at Rome from 7 to 11 April 1975 and resulted in the adoption of resolution M dealing with the development of the pesticide industries in developing countries. According to this resolution, United Nations agencies should provide technical and financial assistance to encourage developing countries, where appropriate, to establish manufacturing units for (technical) pesticide active materials, if possible, on the basis of regional co-operation. It also called for the setting up of pesticide formulation units in as many developing countries as feasible.

In order to facilitate the orderly and co-ordinated development of the above-mentioned industries, the consultation considered a periodical and continuing survey of the regional pesticid demand and supply situation imperative. The need for the development of agro-related industries, pesticides included, on a priority basis in developing countries, was also singled out for particular attention in the Lima Declaration.

69. Efforts to establish pesticide production and formulation industries in developing countries are usually hampered by a number of factors such as the lack of reliable market information, limited national markets for most individual pesticides, the complexity of some production technologies and the lack of testing facilities for the evaluation of local raw materials. The countries of this subregion are no exception.

70. The establishment of a regional pesticide development programme could alleviate, if not eliminate, these substantive constraints. The programme would undertake to carry out periodical market surveys, testing of local raw materials for pesticide formulation, develop new pesticide formulations particularly suitable for the regions conditions and needs, advise on co-operative manufacture of pesticide, active ingredients and the appropriate technologies to be adapted, disseminate up-to-date scientific and techno-economic information to member Governments and their appropriate institutions and play an important role in the regional consultation on the pesticide sector recommended by the Lima Conference.

71. The co-operating agency for the project is the Ministry of Industry of the selected country. All questions concerning Government contributions during the implementation of the project and after its completion are to be solved by the Board of Governors representing all Governments participating in the project. This Board is to be set up by the starting date of the project.

72. It is expected that after a five-year term, the Pesticide Development Programme will be operated by national experts of the countries involved. It is therefore highly important to select counterparts bearing in mind from the very beginning their future functions and responsibilities in the Programme. Governments are to annually contribute to the budget of the Programme on a regular basis. The Programme may need additional intergovernmental finance from time to time after the completion of the project, so that processing equipment may be up dated periodically.

(b) Objective of the project

73. The long-range objectives of the project are:

(i) to strengthen and support the expansion and improvement of the pesticide industry and to facilitate the adaptation of appropriate and most economic production technologies;

(ii) to make possible the use of local raw materials and other resources on a much larger scale in the pesticide sector.

74. The immediate objectives of the project are to provide facilities and a properly equipped organization for discharging the following main responsibilities via-à-vis the participating countries:

(i) Survey the pesticide supply and demand situation in the countries concerned so that gaps between the two can be detected at an early date and high cost emergency acquisition of pesticide eliminated or kept at minimum and identify raw materials and fillers for formulations and the most suitable pesticides;

(ii) Plan, co-ordinate and promote the pesticide industry in the countries concerned;

(iii) Advise the countries involved and ECA on the feasibility of setting up new plants, the required infrastructures and investment and the proper distribution and marketing of the products;

(iv) Assess and test local raw materials which may be suitable for pesticide formulation;

(v) Develop formulations specifically suitable for member countries or the region at the request of participating Governments or on its own initiative;

(vi) Adapt imported technology in both the production and the formulation of pesticides to suit conditions of the countries concerned or of the region;

(vii) Evaluate proposals to set up pesticide production or formulation plants;

(viii) Assess equipment suppliers;

(ix) Prepare proposals for the standardization and quality control at the plant or supplier level;

(x) Set up an information and documentation service and disseminate information on technology and markets;

(xi) Provide guidance and training to personnel in the production and formulation of pesticides;

(xii) Assist in organizing regional Government consultations on a co-ordinated sectoral development effort;

(xiii) Safeguard the environment from the use of pesticides and monitor harmful effects and residues.

(c) Description of project activities

75. The starting date of the project is 1977. The project activities and their specific duration are as follows:

Project activities	Location	Proposed duration
- UNIDO headquarters staff mission to finalize the project document	Countries to be selected later	3 weeks
- Preparation of plans and specifications for building	UNIDO plus host country	5 months
- Equipment specification for pilot formulation plant	UNIDO or host country	2 months
- Equipment specification for technology and testing laboratories	UNIDO	2 months
- Civil engineering work, construction of building and delivery of equipment	Host country	12 months
- Installation of equipment	Host country	6 months
- Appointment of project manager	Host country	on awarding subcontracts
- Recruitment of experts	Host country	Completion of the construction and building and beginning of delivery of equipment
- Training of local staff and work programme	Host country	End of installation of equipment
- Mid-term review	Host country	Two and a half year after beginning
- Final review of project and recommendations for future activities	Host country	Four and a half years after beginning
- UNIDO staff review mission	Host country	Two weeks each year
- Final report by project manager	Host country and UNIDO	Five years from beginning

(d) Project budget

(i) UNDP contributions

76. The contributions of UNDP are estimated as follows:

Thousand US dollars

		Total		1977		1978		1979		1980		1981	
		m/m	$US	m/m	$US	m/m	$US	m/m	$US	m/m	$US	m/m	$US
10	Project personnel												
11	Experts												
11-01	Project manager	60	180	12	36	12	36	12	36	12	36	12	36
11-02	Mechanical engineers	4	12	4	12	-	-		-	-	-	-	-
11-03	Economist	24	72	12	36	12	36	-	-	-	-	-	-
11-04	Chemical engineers	42	126	6	18	12	36	12	36	12	36	12	36
11-05	Pesticides expert	28	90	-	-	6	18	12	36	12	36	-	-
11-06	Analytical chemist	36	108	-	-	-	-	12	36	12	36	12	36
11-07	Marketing expert	24	72	-	-	12	36	12	36	-	-	-	-
11-08	Investment promotion expert	24	72	-	-	-	-	-	-	12	36	12	36
11-09	Training expert	12	36	-	-	-	-	12	36	-	-	-	-
11-10	Standardization expert	6	18	-	-	-	-	6	18	-	-	-	-
11-11	Short-term consultants	24	72	12	36	12	36	-	-	-	-	-	-
15-01	Subcontractual services	-	150	-	30	-	30	-	30	-	30	-	30
16-01	Staff mission	4	12	2	6	2	6	-	-	-	-	-	-
19	Component total	288	1 020	48	174	68	234	78	264	60	210	48	174
30	Training												
32	Fellowships		75.6		25.6		25		25		25		25
39	Component total		75.6		25.6		25		25		25		25
40	Equipment												
41	Expendable equipment		50		25		25		-		-		-
42	Non-expendable equipment		360		180		180		-		-		-
49	Component total		410		205		205		-		-		-
50	Miscellaneous		5		-		5		-		-		-
52	Reporting costs		5.4		1		1.4		1		1		1
53	Sundry												
59	Component total		10.4		1		6.4		1		1		1
99	Grand total	288	1 516	48	405.6	68	470.4	78	290	60	236	48	200

(ii) Government contributions

77. The contributions of Government are estimated as follows:

Thousand US dollars

	Total	1977	1978	1979	1980	1981
Land and buildings	200	100	100	-	-	-
Salaries counterparts	200	40	40	40	40	40
Materials	100	20	20	20	20	20
Local labour	120	20	25	25	25	25
Operational charges	50	10	10	10	10	10
Total	670	190	190	95	95	95

F. Regional Industrial Plant Construction and Engineering Centre

(a) Origin and nature of proposal

78. Almost all African countries have already embarked on their economic and industrial development. In their efforts, they face a multitude of problems and shortcomings in the phases of plant design and construction to the extent that construction of industrial plants and complexes has fallen short of expectations with the consequence of lengthy delays and over-run of cost. This has proved detrimental to the economy of these countries and their development, bearing in mind their present per capita income and scarcity of essential resources.

79. It is of the utmost importance to assist the African countries particularly in this endeavour and to strengthen their capacity in coping with the ever-increasing demand and complexity of industrial plant design and construction. This assistance is central to the implementation of the Lima Declaration which states that the share of developing countries in world industrial production should become at least 25 per cent by the year 2000. In order to achieve this target, two actions have been considered: redeployment of certain industries existing in developed countries and the creation of new industries (production capacity) in developing countries. The Lima Declaration has therefore brought the implementation and construction of industrial plants to the forefront and assistance to African countries in this field has therefore been accorded highest priority. A major step towards enhancing the effectiveness of UNDP assistance in this respect is to provide it on an institutionalized basis. Accordingly, a Regional Industrial Plant Design and Construction Centre is proposed.

80. Ministries and Departments of Industry of African countries will act as the co-operating agencies for their respective Governments. Co-operation between the Centre and other institutions in the countries concerned is envisaged. Programmes of co-operation will be introduced with relevant departments, industrial enterprises, construction and building materials institutions, design and engineering research institutions and contractors. The Centre will also be operated in close co-operation with institutes of technology and management in the African region and elsewhere.

(b) Objectives of the project

81. The project aims at establishing and running a centre for the design and construction of industrial plants and facilities with the aim following long-range objectives:

(i) Promoting and supporting the design and construction of industrial plants and facilities and applying appropriate criteria for ensuring that the plants and facilities are constructed economically and that they are technically viable;

(ii) Improving the construction of industrial plants and facilities by reducing costs and delays through the up-grading of construction techniques and methods for implementation and by applying appropriate organization methods and more effective management so that timely construction, higher efficiency and economy as well as better quality can result. This will have an important impact on industrial development and the economy of the African countries.

Special attention will be given to developing national capability to carry out these tasks.

82. The immediate objectives of the project are:

(i) Investigating problems facing the design and construction of industrial plants which may lead to inappropriate design as well as construction delays and over-run of costs; recommending measures to alleviate these problems which will be undertaken at the regional, national, sectoral and project levels;

(ii) Identifying project ideas, preparing project feasibility studies based on the demand for end-products and appraisal of their viability, taking into account the requirements of the region, the country and the sector concerned;

(iii) Preparing detailed studies and plans for the design and construction of industrial plants; in this respect, the designs have to take into account the social needs of the personnel who will staff the plants once they are operational and upgrade the services and facilities needed in order to ensure effective operating conditions; at the same time, while construction designs should satisfy the requirements of the specific industrial plants, they have to observe environmental protection regulations and allow for the country's environmental limitations, such as climate, available skills and local construction materials; assisting in the preparation of tender specifications;

(iv) Improving the planning, scheduling, monitoring and supervision of the implementation and construction of industrial plants through the application of pertinent effective management techniques adapted to the conditions prevailing in the region and the establishment of appropriate progress reporting systems;

(v) Assessing the performance of local contractors and advising on measures to be undertaken for their upgrading;

(vi) Investigating viable designs, lay-outs and construction methods for industrial plants based on the requirements of these plants as well as their environment. Establishing an information service for collecting, analyzing and disseminating this information to the various participating organizations in the construction of industrial plants (these organizations include planning agencies, ministeries of industry, industrial development corporations, development corporations, development banks, public and private industrial enterprises and other service firms);

(vii) Upgrading the construction quality of industrial plants and facilities through the establishment of quality standards and the application of adequate quality control procedures;

(viii) Preparing and organizing seminars, working groups and training workshops in the technical and managerial aspects of the initiation and construction of industrial plants.

(c) Description of project activities

83. The specific activities to be carried out under the project are:

(i) Preparatory assistance for six months will be in the form of two three-expert teams; one will visit a representative sample of least developed African countries and the other a representative sample of the rest of the African countries;

(ii) Investigating problems facing the design and construction of industrial plants and facilities which may lead to inappropriate design as well as construction delays and over-run of cost; recommending measures to alleviate these problems which could be undertaken at the regional, national, sectoral and project levels;

(iii) Identifying project ideas, preparing project feasibility studies based on the demand for end-products and appraisal of their viability, taking into account the requirements of the region, the country and the sector concerned;

(iv) Preparing detailed studies and plans for the design and construction of industrial plants;

(v) Improving the planning, scheduling, monitoring and supervision of the implementation and construction of industrial plants through the application of pertinent effective management techniques which are adapted to the conditions prevailing in the region and the establishment of appropriate progress reporting systems;

(vi) Assessing the performance of local contractors and advising on measures to be undertaken for their upgrading;

(vii) Investigating viable designs, layouts and construction techniques for industrial plants and facilities most common to the African countries; establishing an information service for collecting, analyzing and disseminating this information to those responsible for the initiation and construction of industrial plants and facilities in the African countries;

(viii) Upgrading the construction quality of industrial plants and facilities through the establishment of quality standards and the application of adequate quality control procedures;

(ix) Preparing and organizing seminars, working groups and training workshops in the technical and managerial aspects of the design and construction of industrial plants and facilities.

(d) Project budget

(i) UNDP contributions

84. The contributions of UNDP are estimated as follows:

Thousand US dollars

		Total		1976		1977		1978		1979		1980	
		m/m	$US	m/m	$US	m/m	$US	m/m	$US	m/m	$US	m/m	$US
10	Project personnel												
11	Experts												
11-01	Project manager	48	144			12	36	12	36	12	36	12	36
11-02	Industrial engineer	48	144			12	36	12	36	12	36	12	36
11-03	Mechanical engineer	48	144			12	36	12	36	12	36	12	36
11-04	Construction engineer	48	144			12	36	12	36	12	36	12	36
11-05	Subcontracting	12	300	12	300	-	-	-	-	-	-	-	-
11-06	Short-term consultants	60	180			15	45	15	45	15	45	15	45
16-12	Staff visits		8				2		2		2		2
19	Component total	264	1 064	12	300	63	191	63	191	63	191	63	191
30	Training												
32	Fellowships	88	120	12		22	30	22	30	22	30	22	30
39	Component total	88	120	12		22	30	22	30	22	30	22	30
40	Equipment												
41	Expendable equipment		30		-		25		5		-		-
42	Non-expendable equipment		70		-		50		20		-		-
49	Component total		100		-		75		25		-		-
50	Miscellaneous												
51	Operation and maintenance of equipment		5		-		0.5		1		1.5		2
52	Reporting costs		3		-		0.4		0.6		0.8		1.2
53	Sundry		3		-		0.4		0.6		0.8		1.2
59	Component total		11		-		1.3		2.2		3.1		4.4
99	Grand total	352	1 295	24	300	85	297.3	85	248	85	224	85	225

(ii) Government contributions

85. Government contributions are not envisaged in this phase of the project.

G. Solar Energy Testing and Development Centre

(a) Origin and nature of the proposal

86. Recent increases of prices of fuel have put the developing countries in a somewhat more difficult situation where they now have to allocate increased sums from their scarce foreign currencies to purchase fuel abroad. Moreover increased industrial production and constantly increasing living standards call for more energy, thus putting additional stress upon those who plan and are responsible for development. In this regard, the developing countries are relatively more interested than the developed countries in tapping and utilizing all possible kinds and sources of energy. In the countries of the Sahelian zone this is the case of solar energy which in the first place could be used for pumping water and desalination.

87. It has been obvious for many years that the main constraint to socio-economic development in some of the least developed countries in the world is simply the dearth of their water resources. No agriculture development has been possible in the absence of water and consequently the socio-economic structure has remained rudimentary and fragile. It is not difficult to conclude that, without water, those countries will have no chance to achieve the socio-economic advancement to which they all aspire. The recent and continuing adversities in the Sahelian zone of Africa tragically illustrate the dilema of those water-short countries. There are only two means by which the water resources of those countries might be enhanced. One is tapping existing ground water and the other is the desalination of sea water where appropriate. Both those possibilities require energy which, unfortunately, is not available to most of the afflicted countries. Their only hope for increasing their water supplies appears, therefore, to hinge on the development of new technology based on harnessing the only source of energy available to them, i.e. solar energy.

88. The proposed Centre should be attached to an already existing research, manufacturing or scientific institution, to avoid starting this project from scratch. An existing building could also be used for the purpose of this project; an initial group of qualified local personnel and some existing equipment would greatly facilitate the launching of this project which, because of its urgent character and the great potential it offers should not be delayed for too long. The project should also be located conveniently from the point of view of geography and climate and should be fully supported by the Governments of the Sahelian zone and by other Governments interested in using solar energy.

89. Based on the results achieved and on the experience gained by this project, the Centre will further develop its work employing the talents available in the countries of the zone and in other interested countries, both developing and industrialized. Such a concept may be extended to other regions of Africa as well as to other regions of the world. The production of equipment, if successful, could be initiated in various countries. It is in relation to this production task that further assistance may be needed.

(b) Objectives of the project

90. The long-term objectives of this project are:

(i) To provide useful and relatively inexpensive equipment which would provide energy particularly in the rural areas. This equipment is intended to utilize solar energy for the purposes of pumping available underground water; desalination; refrigeration; heating; etc.;

(ii) To create an awareness among the countries of Africa of the need for and the usefulness of such equipment whose application could promote techno-economic and social development;

(iii) To mobilize local resources and create a base for the speedy transfer of technological developments in solar equipment into practical use; and

(iv) To alleviate the chronic shortage of energy and water thus improving the living standard of the local population.

91. The immediate objectives of this project are:

(i) To test the equipment now available in the developing and developed countries, under the climatic conditions existing in the countries of the Sahelian zone;

(ii) To identify the equipment which could be used in the immediate future;

(iii) To suggest types of promising equipment which should be tested and further investigated;

(iv) To recommend, where necessary, design modifications for equipment intended for immediate application and use;

(v) To make prototypes of redesigned parts and of components which could be manufactured locally; and

(vi) To study the possibility of local production of solar equipment taking into consideration the available technical personnel and economic base.

(c) Description of project activities

Pre-project activity, January - April 1976 (three months)

92. A team of three experts including specialists from the Sahelian zone will locate a facility at which the Centre could be situated. The team will elaborate the technical, financial and institutional aspects pertaining to the establishment of such a Centre. It should outline the programme and scope of work for the initial phase of the project.

Facility study, April - June 1976 (three months)

93. During this period a consulting firm will make a detailed proposal concerning the facility and the necessary construction and/or adaptation work; elaborate a list of equipment and installations that needs to be purchased for testing, redesign and

pilot manufacturing; suggest the type and quantity of equipment to be tested; and make all other technical and related proposals pertaining to the establishment of the Centre.

Initial phase of work (June - December 1976)

94. During this phase the Centre will be equipped and tests initiated of at least those types of solar equipment which do not call for extended installation. Contracts with all known manufactures of solar equipment will be established in order to choose the most promising types of solar equipment.

Main phase of the project (1976 - 1980)

95. During this phase a series of tests with the selected types of equipment will be conducted, the results collected and analyzed and recommendations made. The recommendations will deal with the types of equipment approved for immediate use; the types of modifications and redesign needed; the suitability for local production; etc. Industries in the countries of the zone are expected to co-operate constantly and be kept up-to-date about developments in order to be able to initiate immediate production of equipment approved by the Centre for local manufacture.

(d) Project budget

(i) UNDP contributions

96. The contributions of UNDP are estimated as follows:

Thousand US dollars

		Total		1976		1977		1978		1979		1980	
		m/m	$US	m/m	$US	m/m	$US	m/m	$US	m/m	$US	m/m	$US
11	Experts												
11-01	Project manager	48	144	-	-	12	36	12	36	12	36	12	36
11-02	Design engineer	48	144	-	-	12	36	12	36	12	36	12	36
11-03	Production engineer	48	144	-	-	12	36	12	36	12	36	12	36
11-04	Master mechanics	96	288	-	-	24	72	24	72	24	72	24	72
15-01	Short-term consultants	-	48	-	48	-	-	-	-	-	-	-	-
16-02	Preliminary mission	9	42	9	42	-	-	-	-	-	-	-	-
19	Component total	249	810	9	990	60	180	60	180	60	180	60	180
30	Training												
32	Fellowships		25		-		10		10		5		-
39	Component total		25		-		10		10		5		-
40	Equipment												
41	Non-expendable equipment		420		-		100		100		100		120
42	Expendable equipment		50		-		25		25		-		-
49	Component total		470		-		125		125		100		120
50	Miscellaneous												
52	Reporting costs		15		-		3		4		4		4
59	Component total		15				3		4		4		4
99	Grand total	249	1 320	9	990	60	318	60	319	60	269	60	304

(ii) Government contributions

97. The participating Governments are expected to provide land, buildings, raw materials and working capital including counterparts. These will be specified at a later stage.

H. Multinational industrial co-operation in the African region

(a) Origin and nature of proposal

98. Efforts in the past to bring countries together in order to promote and implement multinational industries have not made much headway for several reasons. Such attempts included industrial co-ordination missions followed by subregional economic co-operation meetings based on sectoral studies identifying industrial opportunities and on expert meetings. The need for co-operation is now being increasingly felt. The East African Community (EAC) and the Central African Customs and Economic Union (UDEAC) are illustrative of the type of joint programming and implementation mechanisms being attempted in this direction. Such attempts should benefit from specialized external institutional assistance and services. There is therefore crucial opportunity for the United Nations system to be instrumental in the development of stronger programmes of regional and subregional industrial co-operation. Assistance in promoting the harmonious development of integrated and diversified industries with strong economic linkages in Africa is needed all the more now as unrelated and unco-ordinated industrial establishments sensitive to economies of scale could lead to duplication of efforts and waste of scarce resources. It should be pointed out that a number of such industries are now based on inputs (raw materials and/or intermediates) imported from outside the continent, while many of the inputs are either available or can be made available within the region on the basis of integrated efforts and co-operation arrangements.

99. The importance of an integrated and multinational approach to African industrial development has been stressed in several formal policy statements of African Governments. Resolution 218(X) adopted by the ECA Conference of Ministers at Tunis, February 1971, embodying Africa's Strategy for Development in the 1970s states:

> "... a formula needs to be established for industrial harmonization, to determine the allocation of specific industries, the sharing of benefits from multinational industries and ownership and control of such industries and non-African participation where necessary .... The Economic Commission for for Africa should help African States to take the necessary steps to consolidate their intergovernmental groupings by increasing the number of multinational development enterprises and establishing further groupings where necessary."

100. The Addis Ababa Declaration on Industrial Development in Africa in the 1970s adopted by the ECA/OAU Conference of Ministers of Industry in May 1971 endorses and widens the scope of the above by further urging "concerted action that will lead to a fundamental reformulation of international economic relationships and to the creation of new forms of international industrial co-operation that will promote equitable sharing of benefits". More recently, Resolution 244(XI) adopted by the ECA Conference of Ministers at Accra in February 1973 called for "action for the setting up of African multinational industries in order to achieve ... economies of scale through joint national and multinational industries based on enlarged markets."

101. It is evident that, while countries in the various subregions have taken a first step towards a closer economic co-operation at the subregional level, the formulation and elaboration of specific operational measures for co-operation has remained generally unfulfilled. Unless special assistance aimed at promoting inter-African joint actions for project development is mounted with and through the efforts of the United Nations Africa's strategy for industrial development in the 1970s will lack impetus and progress.

102. For these reasons and recognizing the urgency for getting intra-African co-operation in the field of industry under way quickly, the second Conference of African Ministers of Industry, held at Cairo from 18 to 23 December 1973 recommended the adoption of:

> "the intra-African multinational enterprise approach as an appropriate instrument for fostering industrial co-operation, particularly for creating multinational industries and eliminating the market limitations imposed on certain projects"

and called upon African Governments to initiate consultations on multinational projects.

103. Further, the Lima Declaration and Plan of Action referred to the need to:

(i) Examine ways and means of increasing the share of the developing countries in world industrial output;

(ii) Recommend policies and procedures to member Governments to facilitate co-operation among nations in matters relating to industrial development for the benefit of the developing countries;

(iii) Serve as a co-ordinating mechanism to provide overall integrated and continuing attention for the successful co-ordination and follow-up of policies concerning industrial production, industrial co-operation among developing countries and other related matters by all the agencies of the United Nations family;

(iv) Review major problems and policy issues affecting the world industrial situation and the steps being proposed to resolve them by Governments, UNIDO, the regional economic commissions, etc.

104. This project aims at facilitating these consultation meetings and pursuing efforts leading to the earliest implementation of multinational industries already identified. The project, as envisaged, will be of the nature of a specialized service activity catering to all countries of the region and organized jointly by ECA and UNIDO with the assistance of other international organizations.

105. The project will be conducted by a team of experts who will undertake pre-investment studies on selected industrial sectors on the basis of groupings of countries willing to establish projects suitable for industrial regional co-operation. It will also prepare supporting documentation regarding industrial possibilities utilizing available data for multinational action; organize intergovernmental consultations and group negotiations; assist in the drawing up of implementation measures and in the development of effective multinational mechanisms for project programming and execution; and in organizing investment-decision actions by establishing contacts with potential investors. The team will work in close co-ordination with the planning and executing agencies of the Governments and established regional institutions. It will be under the direction of a project manager, responsible for the management of the project, who will co-ordinate the team's activities in close co-operation with the Joint ECA/UNIDO Industry Division of the Economic Commission for Africa, where the project will be located in its initial phase.

(b) Objectives of the project

106. The long-range objectives are: To assist in promoting the development and implementation of rational, diversified and co-ordinated multinational industrial projects in Africa through the creation of special intercountry framework, services agreements and integrated markets.

107. The immediate objectives of the project are:

(i) To prepare, after examining the willingness of the countries to co-operate and on the basis of existing studies and studies to be conducted, available programme data, explanatory documentation on specific project possibilities and a plan for joint action by African Governments concerned for the development of these industries;

(ii) To assist the countries willing to join together in a co-operative endeavour in the formulation of policy measures that will contribute to industrial development along the lines suggested;

(iii) To follow-up agreements by promoting developmental actions, including investment promotion, by locating interested investors (local and/or foreign) who, after reaching agreement with the group of countries concerned, should take the responsibility for implementation starting from the preparation of a proper feasibility study up to the erection and operation of the industrial plant.

(c) Description of project activities

108. Although the preparations and approaches needed may vary from one industrial sector to another and may depend on situations prevailing at the time, the following steps may be considered generally applicable to all specific industries:

(i) Preparation of documents compiling information of multinational industry studies, existing country industries and projects under construction and planned and proposals made by international organizations such as ECA, UNIDO and FAO regarding the industrial sector in question;

(ii) Consideration of the willingness of the countries regarding the setting up of industries on an intercountry basis and establishment of a list of those willing to co-operate;

(iii) Preparation of studies on specific sectors which may prove necessary as a result of the activities described above based on the following lines:

- Assessment of the potential for industrialization of the countries in each grouping, taking into account the size of markets, availability of raw materials, production costs, economies of scale and other relevant factors;

- Elaboration of concrete proposals for the formulation of industrial programmes and projects based on the co-ordination of investment, production and trade policies among some or all countries of the area covered, with the specific object of triggering industrial-investment decisions;

(iv) Consideration of the above studies at intergovernmental consultation meetings;

(v) Assistance in the establishing of the requisite intercountry machinery for project programming and implementation.

109. Based on the regional groupings to be considered, the following industrial studies are proposed for consideration: engineering, fertilizers and pesticides, textiles, pulp and paper, iron and steel, pharmaceuticals, basic metals, and petrochemicals.

110. With a few exceptions where basic studies are already available, each industrial study will require the services of full-time and/or short-term expert for the preparatory and action-plan formulation stage. The experts will visit selected countries, collect relevant project studies and related information, discuss the proposals with the Governments mobilize their co-operation and prepare the basic documents for industrial harmonization. The documentation would fall under three headings: the first would be a compilation of information on projects and related existing industrial establishments and institutional arrangements. The second section would identify and elaborate new industrial opportunities not envisaged by member countries themselves. The third would be project summaries of specific multinational industrial projects for the consideration of the intergovernmental consultation meetings.

111. Follow-up assistance may take any of the following forms: preparing feasibility studies and tender documents; evaluating and appraising feasibility studies and tender documents; assisting in training personnel; assisting in strengthening and developing alternative institutions and mechanisms for promoting multinational industrial projects; assisting in promoting investment.

(d) Descriptions of Government inputs

(i) Pre-requisites

- Compilation of or providing access to up-to-date statistics and project studies on the subproject and related industries (in existence and planned);
- Position of raw materials;
- Additional industrial capacity planned or desired to be set up;
- Industrial licensing legislation;
- Information on the intercountry consultative arrangements in existence or planned, etc.

(ii) Assignment of national staff

Assignments are envisaged except for ad hoc assistance from national and regional planning agencies during the visit of the team for field investigations.

(iii) Government-provided buildings, supplies and equipment

- Buildings: Nil
- Supplies and equipment: Nil

(e) Project budget

(i) UNDP contributions

112. The contributions of UNDP are estimated to be as follows:

Thousand US dollars

		Total		1977		1978		1979		1980		1981	
		m/m	$US	m/m	$US	m/m	$US	m/m	$US	m/m	$US	m/m	$US
11	Experts												
11-01	Project manager	60	180	12	36	12	36	12	36	12	36	12	36
11-02	Industrial engineer	48	144	12	36	12	36	12	36	12	36	-	-
11-03	Industrial economist	36	108	12	36	12	36	12	36	-	-	-	-
15	Short-term consultants		414	-	94		80	-	80	-	80	-	80
19	Component total	144	846	36	202	36	188	36	188	24	152	12	116
30	Training												
32	Inter-governmental consultations		250		50		50		50		50		50
39	Component total		250		50		50		50		50		50
50	Miscellaneous												
52	Reporting costs		34		10		6		6		6		6
59	Component total		34		10		6		6		6		6
99	Grand total	144	1 130	36	262	36	244	36	244	24	208	12	172

(ii) Government contributions

113. Governments are expected to provide hosting facilities as required which cannot at this stage be specified in financial terms.