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ELEMENTS OF STRATEGIES FOR THE CAPITAL GOODS INDUSTRY IN AFRICA

Report of an Expert Group Meeting for the
formulation of strategies and policies for the
development of the capital goods industry
in Africa

Vienna, Austria, 18-20 June 1985

Sectoral Working Paper Series

No. 30

Sectoral Studies Branch
Division for Industrial Studies

SECTORAL WORKING PAPERS

In the course of the work on major sectoral studies carried out by the UNIDO Division for Industrial Studies, several working papers are produced by the secretariat and by outside experts. Selected papers that are believed to be of interest to a wider audience are presented in the Sectoral Working Papers series. These papers are more exploratory and tentative than the sectoral studies. They are therefore subject to revision and modification before being incorporated into the sectoral studies.

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PREFACE

This document contains the Report of the Expert Group Meeting for the formulation of strategies and policies for the development of the capital goods industry in Africa, which was convened at UNIDO Headquarters at Vienna from 18-20 June 1985.

The main objective of this Expert Group Meeting was to make an assessment of the document entitled "The capital goods industry in Africa: A general review and elements for further analysis" (UNIDO/IS.502) and to suggest approaches for the formulation of strategies and action measures for the development of the capital goods industry in Africa.

The Expert Group Meeting made concrete conclusions and recommendations which will be considered for follow-up by UNIDO.

The results of the meeting will be incorporated in a final version of the UNIDO document UNIDO/IS.502, which will be issued in the Industrial Development Decade for Africa (IDDA) sales publication series.

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I. INTRODUCTION

1. The Expert Group Meeting for the formulation of strategies and policies for the development of the capital goods industry in Africa was convened at Vienna from 18-20 June 1985. The meeting was convened in conjunction with UNIDO's programme of sectoral studies, the Industrial Development Decade for Africa and the follow-up to the Second Consultation on the Capital Goods Industry which was held at Stockholm, Sweden, from 10-14 June 1985. The Expert Group Meeting was attended by 16 participants from 15 countries (see annex I).
2. Under its work programme for 1984, the Sectoral Studies Branch of UNIDO's Division for Industrial Studies carried out a survey on the situation of the capital goods industry in the African countries. This study, which was a desk study based on available material, was issued as No. 14 of the Sectoral Studies Series under the title "The capital goods industry in Africa: A general review and elements for further analysis" (UNIDO/IS.502).
3. In consultation with the Industrial Development Decade for Africa (IDDA) Secretariat, it is envisaged to issue a final version of this study in the IDDA sales publication series. However, it would be necessary to receive views and comments of African experts and to introduce a final chapter with specific recommendations on strategies and policies for the development of the capital goods industry in Africa, taking into account also the outcome of the Second Consultation on the Capital Goods Industry.
4. The capital goods sector has a particularly important role in accelerating the pace of industrial development and economic growth in African countries. This was recognized also in the "Lagos plan of action for the economic development of Africa, 1980-2000" which was approved by the Heads of States and Government of the Organization of African Unity in April 1980.
5. From the point of view of the capital goods sector, the publication of "A programme for the industrial development decade for Africa"^{1/} is important

^{1/} A programme for the industrial development decade for Africa (UNIDO, ID/287).

since it elaborates on the notion of basic industries introduced in the Lagos Plan. Noting that "it is virtually impracticable for any country to develop all priority industries simultaneously", the Programme calls on "each country or group of countries (to) select so-called core industries", among them the engineering-based, including the capital goods sector.

6. The above-mentioned report prepared by the Sectoral Studies Branch, surveys the situation of the capital goods sector in Africa. The paper begins with a discussion of two economic models that deal with the role of the capital goods sector in accumulation and in the provision of consumption goods. This brief discussion sets the stage for the subsequent examination of the sector in African countries. Following an overview of the more general issues, attention focusses on a discussion of recent African initiatives which recognize the importance of the capital goods sector. The report continues by comparing industrialization and development of this sector in Africa with the rest of the developing world. An analysis is then undertaken of the latest statistical data including those on trade, production employment and number of establishments in the capital goods sector in Africa.

7. The statistical analysis is complemented by a survey of three case studies on the capital goods sector in Tanzania, Ghana and Zimbabwe. The study discusses the major constraints on the growth of the capital goods sector in Africa and presents some African strategies for building up the sector.

8. This document can be seen as a contribution for the IDDA, as well as a follow-up of UNIDO IV resolution number 8, and especially that under paragraphs 9(b) and 9(1).^{2/} This resolution stressed the importance of formulating industrial strategies policies and plans with particular emphasis on the development of core industries, in Africa.

^{2/} Report of the Fourth General Conference of the United Nations Industrial Development Organization (ID/CONF.5/46).

9. The Expert Group Meeting had therefore the following objectives:

(a) The immediate objective was an assessment of the document entitled: "The capital goods industry in Africa: A general review and elements for further analysis" (UNIDO/IS.502) in order to prepare a final version.

(b) To give advice to the secretariat on the approach to an additional part of the above-mentioned study, dealing with finalizing the formulation of strategies and action measures for the development of the capital goods industry in Africa.

II. CONCLUSIONS AND RECOMMENDATIONS

10. The expert group meeting recommended that, based on the discussions summarized in paragraphs 22 to 44 below, the UNIDO secretariat should treat the following subjects in the final version of the study, to the appropriate extent.

(a) The problem of the entry into the capital goods industry in Africa in general and the upgrading of this sector in those countries, which already have reached some degree of development in this sector.

(b) The technological content of the capital goods production and the possibilities for upgrading the sector through strengthening the indigenous capabilities in the maintenance and repair activities.

(c) International co-operation framework among African countries for achieving scale economies.

11. The formulation of strategies for the development of the capital goods industry in Africa should be based on an analysis of inter alia the following elements, identified in the discussions:

(a) Different degrees of development of the industrial structure of African countries.

(b) Main points concerning user and supplier industries^{3/} including an adequate analysis of:

The market size;

Questions of scale - with particular emphasis on the role of small and medium scale enterprises;

Use of local resources and availability of raw material and intermediate products;

Linkages between different sectors in the production process;

Time dimension in establishing the capital goods industry;

^{3/} See paragraph 35 below.

Strengthening of technological capacities;
Skill constraints;
Standardization of components.

(c) The need to make political authorities aware of priorities attaching to the capital goods sector, among others:

Cost-benefit of regional and sub-regional co-operation;
Policy instruments;
The importance of harnessing entrepreneurship;
Research and development capabilities.

(d) Issues relating to domestic and international financing as well as adequate project preparation;

12. The strategy options for the development of the capital goods industry should address three different points:

(a) Targets for the kind of products to be produced, their markets (internal-external) and the planning requirements with due concern to intersectoral linkages.

(b) The institutional framework necessary to support and reinforce the national production capability.

(c) National development policies to be adopted in conjunction with foreign trade, financing and investment, industry, agriculture and transportation.

Further recommendations for follow-up work to the study

13. It was unanimously recommended that follow-up activities be organized in order to further the momentum, begun at this meeting, for developing the capital goods sector in African countries. The participants recommended that UNIDO should explore the possibilities to launch such activities. It was further recommended that governments ensure that adequate priorities are given

to projects relating to the development of the capital goods sector and that corresponding requests for assistance should be made in order to facilitate international co-operation efforts in the area of capital goods.

14. More specifically it was suggested that a number of African countries be identified in order to take part in a pilot programme aimed at the formulation of strategies and policies for the development of the capital goods sector, and identifying specific projects for implementation in these countries. It was recommended that - if feasible - assistance be provided by UNIDO all the way through from the identification of countries through the preparation and implementation of projects.

III. ORGANIZATION OF THE MEETING

Opening of the meeting

15. The meeting was opened by the Head of the Sectoral Studies Branch, Division for Industrial Studies, of UNIDO, who explained the origin and scope of the Expert Group Meeting. He indicated that the purpose of the meeting was to advise UNIDO on the formulation of policies and strategies to be incorporated in the document prepared by the Sectoral Studies Branch on the capital goods industry in Africa and to improve the present version. He further explained that this document was prepared under the work programme on sectoral studies and as part of the background documents for the Consultation Meeting on Capital Goods which was held in Stockholm. He stressed the importance of the preparation of strategies and policies for this document. He pointed out the role of the study as a contribution to the IDDA and as a follow-up to the Consultation Meeting.

16. The meeting was also addressed by the Chief, Co-ordination Unit for the Industrial Development Decade for Africa, who explained the importance of this meeting, as well as the role of UNIDO in strengthening the industrialization of the African countries. He pointed out the importance of the follow-up of the Consultation Meeting on Capital Goods for the African countries, because of the important role of the capital goods industry in the industrialization process. He also referred to the linkage between agriculture and industry, and the necessity to develop national capabilities for the production of simple agricultural equipment and implements. He emphasized the responsibility to be assumed by the countries themselves in order to promote self-reliance and to strengthen the national institutions tied to the capital goods sector.

17. A representative of the Negotiations Branch explained the origin of the consultation system and especially referred to the consultations in the capital goods industry. He presented some facts about the African capital goods industry as identified by the different surveys and studies prepared by UNIDO. He also mentioned the importance of the issue related to the entry

into the capital goods as discussed in the Second Consultation Meeting, and the possibilities to use various methodologies - as discussed at Stockholm - for the establishment of the capital goods industry in the African countries.

Election of officers

18. Dr. G.E. Mariki, Director for Industrial Development, National Development Corporation, United Republic of Tanzania was elected Chairman. Mr. Kadjo N'Guessan, Sous-Directeur des Industries non-agricoles, Ministère de l'Industrie, Ivory Coast, was elected Vice Chairman.

Adoption of the agenda

19. The following agenda was adopted:

1. Opening of the meeting
2. Election of officers
3. Adoption of the agenda and organization of the work
4. Presentation of the documents by the UNIDO Secretariat
5. Discussions and exchange of experiences and information among the African participants
6. Drawing up of conclusions and recommendations of the Expert Group Meeting
7. Other business.

Documentation

20. The documents issued for the meeting are listed in annex II.

Adoption of the report

21. The report was adopted by the meeting on 20 June 1985.

IV. SUMMARY OF DISCUSSIONS

Introduction

22. The expert group meeting, having examined the document UNIDO/IS.502, requested that, where appropriate, the points made in the discussion, as summarized in paragraphs 23 to 44 below be incorporated in the final version of this document. A number of conclusions and recommendations that would be relevant for a final chapter of the study, treating the subject of strategies and policies for the development of the capital goods industry was formulated. The UNIDO secretariat was advised to take these conclusions and recommendations into account when preparing chapter 5 of the final document, wherever feasible.

Main points raised by the participants

23. The question was raised whether it is in fact necessary for the local capital goods sector to be developed to achieve the objective of raising output and living standards. The predominant view was that it is indeed necessary for African countries to develop an indigenous capital goods sector in one form or another. Account was taken of the importance of the sector in modifying and adapting machinery to suit local circumstances.

24. Many participants felt that, while the export of capital goods should be encouraged as much as possible, it is nonetheless likely that such exports will be limited for some time to come as a result of the constraints.

25. It was widely agreed that there is an urgent need for further detailed study of the capital goods sector of individual African countries. These studies ought to include detailed analyses at the firm level.

26. Many participants expressed the view that in planning the capital goods sector it is essential to take dynamic factors into account. This was related to the need for an analysis of dynamic, as opposed to the conventional static, comparative advantage.

27. A discussion took place on the advantages and difficulties of regional and sub-regional co-operation in the development of the capital goods sector. While participants acknowledged the potential benefits of such regional and sub-regional co-operation, many pointed to the difficulties that had occurred in a number of specific cases. It was felt that a careful analysis is required of the costs and benefits of developing the local capital goods sector through regional and sub-regional co-operation with an eye to the necessity for efficient production. It was noted that organizational and other costs can be high in facilitating regional and sub-regional arrangements. On the other hand, it was also pointed out that institutional and organizational innovations, such as the establishment of regional multinational enterprises, could pave the way for successful regional and sub-regional ventures.

28. In the light of the experience of other more industrialized developing countries, such as Brazil and the Republic of Korea as well as the earlier post Second World War experience of Japan, the view was expressed that in some circumstances the protection and promotion of infant capital goods production might be justifiable. It was, however, noted that care must be exercised in selecting producers and industries for infant industry protection in view of the implicit cost that may be imposed on users of the capital goods.

29. Some participants stressed, as noted in the UNIDO study, that in some cases even benefits had followed in the capital goods sector as a result of foreign exchange shortages while there will of course be some negative impacts. It was observed that innovative and adaptive activities had in some cases occurred in the capital goods sector as producers attempted to adjust to the absence of imported machinery, components and spare parts. It was felt that on occasion these activities had established learning processes which could be drawn on and strengthened for the future development of the capital goods sector.

30. The lack of availability of up-to-date and detailed statistics was widely felt to be a severe constraint imposed upon policy-makers working on this and other sectors. It was felt that an urgent priority should be given to improving the data base for African countries and that UNIDO might be in a position to offer assistance in this connection.

31. Most participants emphasized the need to develop and strengthen indigenous technological capabilities in the capital goods sector. This in turn requires further detailed studies of the determinants of such capabilities in order to identify appropriate policies.

32. Several participants stressed that care should be taken in developing the capital goods sector to take advantage of the process of specialization in order to obtain the benefits of increased learning and economies of scale.

33. It was felt that attempts should be made to identify priorities for further research in the capital goods sector as an important input into the policy process.

34. While it is possible to talk in general terms about the planning of the capital goods sector, in working out the concrete details account must be taken of the specific circumstances of each country. It was stressed that different African countries are at different stages of development and that account must accordingly be taken of the various degrees of development of the country's industrial structure.

35. Relating to diagram 1 on page 13 of the report, it was underlined that account must be taken of both the user as well as the supplier industries in developing the capital goods sector.

(a) User industries:

(i) It was stressed that a prerequisite for the development of particular capital goods production is an appropriately sized market. Here the point was made that population size is not an adequate proxy for market size and that account must be taken of effective demand in terms of purchasing power.

(ii) It was noted that, while the issue of economies of scale is of vital importance in view of the efficiency implications, very little detailed information is available for particular kinds of capital

goods regarding minimum efficient scales. It was felt that a priority area for future research lies in estimating these scale economies.

(iii) While under some circumstances the regional and sub-regional integration of markets might provide a solution to the market constraints, a number of participants pointed out that in some cases such integration had worked less than satisfactorily. Accordingly, it was recommended that close attention be paid to the institutional and organizational costs of regional and sub-regional integration in assessing whether these arrangements are feasible.

(iv) It was underlined, furthermore, that the requirements of users must be given an important priority in developing capital goods production. Accordingly it must be borne in mind that in some circumstances the use of policy instruments, such as protection, may impose implicit costs on users which are socially unjustifiable.

(b) Supplier industries:

(i) Many participants said that, where feasible, attempts should be made to use domestic and regional resources as inputs in developing the capital goods sector. A case in point is iron and steel. However, it was also noted that in some cases cost considerations will preclude the use of local resources and require other alternatives to be resorted to.

(ii) In turn this suggests the development of what might be referred to as a vector approach to the development of the capital goods sector. Highlighting the importance of linkages between different stages of the production process the vector approach moves from basic raw materials, such as the production of iron and steel, to the development of other industries necessary for the production of capital goods, such as components supply, forging, heat treatment, etc., to the development of capital goods production itself, and finally, to the user industries. While the vector approach

emphasizes the benefits to be derived from the establishment of backward and forward linkages, care must be taken at each stage of the development process to ensure that production over time meets efficiency criteria.

(iii) This correspondingly raises the question of the correct sequencing in establishing the capital goods sector. The time dimension here is of central significance.

(iv) A further factor to take into account is the existing technological capabilities in the country and ways of strengthening these capabilities. This raises the large issues of technology and related questions of skill availability and skill formation. Here it was noted that skill constraints are greater in some countries than in others and it was also pointed out that in some countries existing skills might be inappropriately allocated (e.g., trained engineers working in managerial and administrative positions thereby not using the skills and experience which they had acquired.)

36. A number of participants pointed out that in some instances local political authorities need to be made more aware of the priorities attaching to the capital goods sector. A greater understanding on the part of these authorities of the potential benefits to be derived from the development of a local capital goods sector is likely to result in quicker and more effective policy-making.

37. Several participants said that advantage should be taken of the possible benefits offered by small and medium-sized enterprises. While in some circumstances economies of scale and related factors might necessitate the establishment of large sized enterprises, in other cases enterprises of small and medium size might be economically viable. The latter enterprises frequently offer further benefits, such as economizing on foreign exchange and skills through the use of more appropriate technologies.

38. A constraint on the development of the capital goods sector which requires emphasis is the lack of standardization of components. While to some extent this problem might be effectively tackled at a regional or Africa-wide level, in other instances the problem will have international ramifications thus perhaps requiring attention at an international level.

39. A further constraint on the policy-making procedure emphasized by a number of participants was the lack of availability of industrial information. It was agreed that this problem requires urgent attention and that attempts to develop mechanisms for exchange of industrial information should be encouraged.

40. The unavailability of raw materials and intermediate products was noted as an important constraint for the development of the capital goods industry in several countries.

41. The issue of protection was discussed at length by participants. The general feeling was that in many instances a period of temporary protection for infant capital goods industries will be justified. However, it was concluded that extreme care must be exercised in introducing protection. The reason is that infant industries do not necessarily grow up with the passage of time and, to the extent that the price and quality of locally-produced capital goods continue over time to lag behind international best-practice, costs will accordingly be imposed on users.

42. It was stressed that a vital element in the attempt to promote the capital goods sector is the harnessing of entrepreneurship. While commercial entrepreneurs are in relatively abundant supply in many African countries, this is less the case with industrial entrepreneurs. It was also noted that in some cases state entrepreneurship might be the most appropriate, and perhaps even the only, way of facilitating the growth of this sector.

43. Participants felt that careful attention must be paid to the issue of financing. Here the important distinction was drawn between domestic and international sources of finance since different issues are raised by each of

these sources. In some cases, it was noted, the issue of funding hinged on the adequate preparation of feasibility studies. It was agreed that here the assistance of UNIDO, requested by member governments, might be valuable.

44. Many participants said that priority should be given to research and the development of technological capabilities for the capital goods sector. Particular attention should be paid to the question of design of capital goods.

Annex I

List of participants

Benin

Mr. Michel Dassi, Directeur, Central de l'Industrie, Ministère des Finances et de l'Economie, Cotonou

Burundi

Mr. Isaie Ntirizoshira, Conseiller, Direction Générale de l'Energie, Département des Projets, Bujumbura

Cameroon

Mr. Samuel Neumsi, Chargé d'Etudes, Ministère du Commerce et de l'Industrie, Yaoundé

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Mr. Albert Yombaeamo, Directeur de l'Energie, Secrétariat d'Etat à l'Energie, B.P. 880, Bangui

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Dr. Kaku Kyiamah, First Vice President of the Ghana Institution of Engineers, Accra

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Kingdom

Annex II

List of documents

1. Information documents

- a) Aide-mémoire for the meeting.
- b) Provisional agenda.

2. Discussion document

UNIDO, The capital goods industry in Africa: A general review and elements for further analysis (UNIDO/IS.502).

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Elements of strategies for the capital goods industry in Africa

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| (1) Was the analysis sound? | <input type="checkbox"/> | <input type="checkbox"/> |
| (2) Was the information provided new? | <input type="checkbox"/> | <input type="checkbox"/> |
| (3) Did you agree with the conclusions? | <input type="checkbox"/> | <input type="checkbox"/> |
| (4) Did you find the recommendations sound? | <input type="checkbox"/> | <input type="checkbox"/> |
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