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NATURE OF THE INFORMATION PROBLEM
IN AFRICAN INDUSTRIALIZATION

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Introduction

1. Industrialization requires, for developing countries, the adoption of an integrated approach for the allocation of resources, the identification of the various requisites and their harmonization to ensure the realization of the objective speedily, economically and effectively. In this process, the strength of the framework is only that of its weakest component. Therefore an efficient information system would play a crucial role in a scheme of accelerated industrial development.

2. Among other things, the availability, assimilation and adaptation of technology as well as the instruments of planning and development form an essential base for industrialization. The scope for enriching the latter by the knowledge and experience gained from world-wide efforts in this direction is not to be minimized.

3. For developing Africa whose 16 countries^{1/} outnumber others in the list of 25 countries identified as the 'Hard Core' of the least developed among the developing countries, these are positive elements for accomplishing accelerated industrial growth with effective utilization of available resources and without compromising on the quality aspect of industrialization.

4. The place and potential of industrial information in this programme and the implications of an information-inadequacy are some of the issues affecting industrialization which are touched upon in this paper.

Perspective

5. Industrial performance in Africa in the past was characterized, in the main, by an emphasis on extractive - as distinct from manufacturing - activities. These being geared to pre-determined external markets, their operations hardly depended upon an information-base or a constant channel of communication with the outside world other than that connected with particular expatriate interests. The remainder of the industrial contribution came from the traditional sector of handicrafts and cottage industries which stood in little need for utilizing systematic industrial information.

6. All this is changing because the expansion of Africa's predominant sector, agriculture, needs the simultaneous growth but in much larger dimensions of its industry sector. According to an ECA estimate^{2/}, to double agricultural output would require a twenty-five-fold increase in industrial

^{1/} Botswana, Burundi, Chad, Dahomey, Ethiopia, Guinea, Lesotho, Mali, Malawi, Niger, Rwanda, Somalia, Sudan, Uganda, Tanzania and Upper Volta.

^{2/} Industrial Growth in Africa - E/CN.14/INR/1 Rev. 1

output per caput in a complementary response. This thus indicates the magnitude of the task of African industrialization which poses a challenge for national, multinational and international policies and action.

The Place of Industrial Information

7. The African countries would need to intensify import-replacing and export-promoting programmes in order to accelerate and sustain their industrialization efforts. The broad and basic elements of action in support of the above have been outlined in Africa's Strategy for Development in the 1970s^{3/}. In particular, with regard to industry, the following courses of action have been emphasized:-

- Improving the competitiveness of natural products through research and development efforts designed to reduce production costs, to improve the quality or characteristics of such products and to find new uses
- Improved access to markets of the developed countries for primary commodities in their natural and processed form
- Stimulation and expansion of intra-African trade
- Evolution of research and technological developments
- Identification and promotion of industrial projects
- Technical guidance and support for the emergence of a modern small industries sector

8. Awareness of the possibilities of development and of the means of doing so is primarily and heavily dependent upon the availability of relevant and reliable information and the potential of the medium for processing the information for industrial reference and action.

9. Inasmuch as industrial development is a continuous process, it needs an information-base which also has perpetuality of existence. It follows that the base must be a system with well-defined functions and mechanisms to serve the needs of industrial programming and industrial project preparation to be able to cope with the following:

- Survey of resources
- Formulation of industrial plan-outlines and preparation of techno-economic studies

- Project identification and elaboration of feasibility studies
- Evolution of industrial development studies
- Investment promotion
- Institutional requisites for implementation and operation

10. These may be regarded to be relay stages and thus closely inter-connected. They are incapable of being carried out for the cumulative objective without a sound foundation of data.

Industrial Information

11. Like the purpose it is intended to serve, industrial information is a step by step process in that it involves:

- Identification of required information
- Location of its source and availability
- Collection and processing
- Dissemination and re-circulation

12. The wealth of unpublished material of significance to industry is also fast increasing. There is need for keeping abreast with these even if the prospects of their utilization are not imminent. So added to the problem of collection of information, is the need for filing, retrieval and updating.

13. Industrial information would improve in quality if it is rotated in the larger interests of international feed-back and in domestic interests of improvement of data. The extra dimension to it in the African context is the need for its orientation for satisfying overseas investors' needs. Consequently, the information system has to reflect a multiple approach, covering not only direct industrial information like process and inputs but also specialized information on investment climate, laws and regulations, etc.

14. Having set above the general background in which industrial information has to function in the scheme of African industrialization, one may consider the specific areas of action and the limitations thereof.

Nature of the Problem

Utilization of Resources

15. Reference has been made earlier to past concentration of foreign initiative in carefully chosen fields of mining activity. As a result, surveys of African resources have remained neglected or incomplete or inadequate. Basic information necessary for pronouncing on the feasibility of projects is lacking in several important fields like forestry, minerals etc., State initiative backed by international assistance of funds and expertise is now under way in many countries for organized survey work but the efforts are limited by the data position.

Industry Planning

16. Apart from the handicap mentioned above, industrial information at the disposal of the African countries is not generally tuned to their specific needs, primarily because of its origin and time-factor. The size of the market, for example, is a primary factor governing the formulation of industrial plans. Information required to build up a study for determining the prospects of the market is either absent or inadequate. Consequently, viable industrial investment opportunities are likely to be overlooked. The failure, in this circumstance, internal, of the information system to come up to the requirements for providing basic statistical data in a measure adequate for drawing up preliminary outline is a matter for concern. This^{4/} has been cited as one of the problem areas affecting industrial planning.

17. The second aspect of the matter is that where industrial planning relies on outside data, there is an inherent distortion in the sense that based as they are on outside concepts and handicapped by lack of local data, there are no means by which their practical applicability may be evaluated. The mechanisms for trimming or adapting them are also lacking.

18. Thirdly, the absence of a dynamic information system has come in the way of a clearer understanding abroad of the particular needs of African countries in respect of industry, its inputs and technology. Those who were happily unencumbered by this handicap were either international corporations or their affiliates with a background of operations in Africa but not necessarily in the required area of development. Consequently, there has been very little initiative abroad in the matter of specially designing plant in-puts of equipment and process for African conditions. The loss in terms of missed opportunities is therefore not confined to Africa.

^{4/} Summaries of the Industrial Development Plans of thirty countries (UNIDO/IPPD/11 p. 157)

19. While this represents the position in relation to plan formulation, it has also been observed that "carrying out a plan is painfully slow, halting and uncertain business in Africa. As a result, most plans suffer from serious inefficiency in implementation, from poor administration, and from lack of skills, experience and accurate data." ^{2/} (underscoring by ECA). There is little doubt that many of the countries in Africa are in need of assistance for improving their capabilities for precisely identifying the industrial goals and the specifics of industrial requirements via an improved information system.

20. Efficiency of industrial programming hinges as much on watch-dog functions as on the formulation of the outline. The shortcomings in this crucial area are reflected in the absence of effective systems for monitoring the progress and performance of the schemes right through and undertaking in time remedial measures so as to help maintain the momentum. This is a blind-spot in most of the developing countries and perhaps strikingly so in the case of Africa. This vulnerable area in industrial planning needs constant vigilance if it is not to upset the time-scheduling - which means increased project expenditure among other things - or a state of indifference and apathy and finally postponement sine die if not abandonment. It is well known that, as it is, the cost of erection and installation of industrial plants in Africa are several times higher than in the case of other developing countries. Africa can ill-afford to have this problem further magnified by an ad hoc approach in project implementation. Constant flow of relevant information is vital to improving the efficiency of project implementation. For this purpose, suitable mechanisms are required to maintain supervision and make appraisal of progress. If there is a common-place analogy for this, it is perhaps equivalent to the need for a temperature-chart on the patient after the administration of a particular course of treatment.

21. The need for such interim appraisals cannot be over-emphasized if it is remembered that the development of multinational industries^{6/} constitutes a major feature of African industrialization programme. A crucial contribution to all these has clearly to emerge from an information base.

Project Identification and Elaboration

22. The classic shortage of well-elaborated and 'bankable' project opportunities is a theme of constant reference in any explanation of the limited flow of capital to industry. While there are several reasons for this, including the lack of entrepreneurial interest - the major share of the responsibility

5/ Partners in Development (p. 271), Praeger Publishers, New York, 1969.

6/ 'Industrial Policies - Critical Areas of Action for Accelerated Industrial Development in Africa in the 1970s' (CMI/INR/SP/2)

is attributed to the general lack of information which is of the building block type necessary for mounting detailed feasibility studies. An added dimension to the problem is that even if the information exists somewhere, access to it is not easy or the content of the information does not make it adequate for the purpose on hand. Partly due to this state of affairs, the task of preparation of industrial feasibility studies in Africa becomes unnecessarily complicated. In the process, the assumptions and the criteria of the analyses perforce attract reviews for their continued validity. Apart from affecting the credibility of the proposals, imprecise data lead to inaccuracies in the estimates of allocation of resources, project costing and project viability. This is fraught with graver implications if the project envisages urgency of treatment for investment consideration.

23. Lest it should be construed that project identification is an area of neglect, it needs to be stated that besides inter-governmental organizations like ECA, ADB and EADB, national industrial development corporations and development finance institutions have taken up this work as part of their investment promotion activity. Some headway has been made in this direction. Unfortunately, identification and elaboration have remained two distinct phases without the connecting link of what may be described as purposive information. The machinery in most African countries is not fully geared to the exacting task of organizing indigenous techno-economic descriptions in detail and in a form which dove-tails the backward and the forward linkages of industrial inputs. The information-gap makes this an uphill task and slows the progress in project implementation. The reluctance of investors new to the region to pronounce on potential feasibility - apparently due to unfamiliarity with local conditions and handicapped by the absence of basic information relevant to the project - has been stressed^{1/}. This has been particularly noticeable in the conferences organized for promoting specific industrial projects in Africa. A well-organized information service as part of the information system can help correct this indifference and attract potential investors for the implementation of the projects.

Technology and Related Aspects

24. A striking feature of African industrial development has been the preponderant reliance on the manufacturing technology of expatriate preferences or on immediately available technologies without the opportunity for an appraisal of their long-term relevance or necessity or of alternatives. While this was unavoidable in the past, it is now propitious time for a pre-purchase exercise by having the choices first and making a selection thereafter to make the acquisition good, relevant and reasonably priced. Furthermore, it

^{1/} Africa's Strategy for Development in the 1970s (E/CN.14/493/Rev.3)
Hyphen remarks are author's personal comment.

has to be appropriate now to local resource endowments, limitations in national market, slow-maturing prospects for development of multinational markets and the in-built high-cost element in project installation and operation, not to speak of the profitable utilization of by-products and waste products of industrial production as a bonus feature designed to depress production costs and consequently enhance the competitive position.

25. The promotion and fostering of a dynamic small industries sector which is an accepted basic tenet of African industrialization, can best be undertaken on an adequately developed system of information, having regard to the fact that it is a sector responsive to a variety of choices of production, modernization and international interest.

26. The landscape is incomplete without development of a domestic technological base and industrial research. It should also be a clearing-house for receiving and processing information from various sources for attunement to national needs.

27. The acquisition of technology from advanced countries and the building-up of a scientific and technological capacity are, in fact, complementary operations. The internal system for this task has to be linked with the information network of the industrialized countries in the sense that the flow of information has to be two-directional on the principle of recycling to provide for adaptations. Very few countries in Africa have technologically equipped themselves or drawn up plans for undertaking these responsibilities.

Industrial Promotion

28. As with merchandise, promotion is a necessary instrument for publicising the project opportunities, push them for investment attention and create a demand for them thereby catalysing and accelerating industrial development. Its importance for Africa is all the greater because of the insufficient awareness within and outside Africa of Africa's industrial development potential.

29. The importance of this becomes clear also against the background of the limited involvement and participation of African entrepreneurs. The development of African enterprise, which is a necessary complement for foreign private sector, needs to be promoted actively. The principal causes for the non-existence or stagnation of the African enterprise sector include the absence of information services which would permit the African entrepreneur to list and evaluate the new possibilities of investment.

8/ 'Courses of Action for the Promotion and Development of African Enterprises' (CMI/INR/WP/2 - OAU/CMI/2)

30. The priority needs of the African enterprises have been identified^{9/} to include among other things, the following:

- Information on investment opportunities
- Information services on industrial equipment, raw material, technological processes, on possible sources of financing, available market etc.

31. Industrial promotion machinery will also need to be geared to making known the country's climate for investment. For this, reliable and timely information and guidance on how to go about the business of establishing industries and on specifics like national laws and incentives pertaining to industrial investments, infrastructure and inputs, project siting, etc., would need to be made to foreign investors. Among the negative elements in the investment climate is a communication-gap which is often nurtured by the scattering of ^{10/} relevant information in a multiplicity of policy statements or legislation.

32. An information system attuned to entrepreneur guidance can therefore be seen as a pre-requisite for African industrial development. That the service as it may presently be existing is severely limited for the magnitude of this task seems to be the crux of the problem.

Conclusion

33. The subject of information, its place and inadequacy with regard to African industrialization is a complex one. This paper is by no means an exhaustive coverage of its various aspects but certain critical areas have been pinpointed for attention. To the extent that industrial collaboration with other countries is desired for African industrialization and to the extent that foreign investors appear to be adopting a 'testing-ground' approach for determining their involvement in Africa's industrial development programmes, the paper refers to the need for so orienting the information system as to make the environments conducive to international participation in African industrialization. However, the problem areas listed in the paper are equally of interest independent of the question of stimulating foreign investment. For either purpose, it seems necessary that suitable industrial information institutions must be developed with clearly defined responsibilities. In order to be effective, they must also function in close co-operation with similar agencies in other countries by forging suitable links with them so that industrial information of relevance and quality is available to all who need it for the task of African industrialization. Certain tentative proposals for the development of an information machinery for African industrial requirements form the subject of a separate paper which is being presented for consideration at this Seminar.

^{9/} 'Courses of Action for the Promotion and Development of African Enterprises' (CM1/INR/WP/2 - OAU/CM1/2)

^{10/} 'The Foreign Investor's View of the Investment Climate in Developing Africa' (E/CN.14/INR/188)