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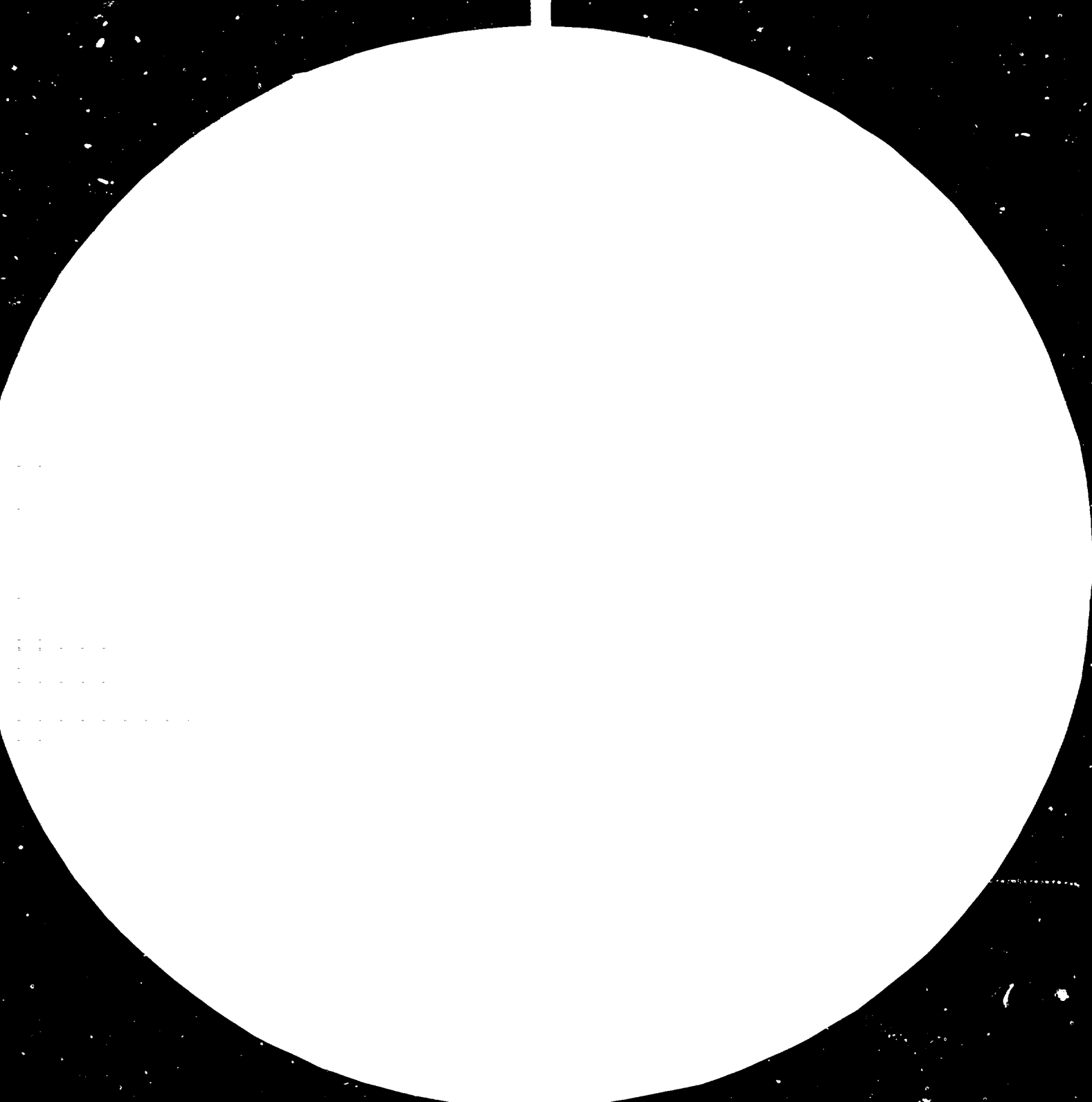
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on the Creation of a Technological Information
Exchange Network (TIEN)

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COUNTRY BRIEF: TRINIDAD AND TOBAGO²

prepared by

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1.- INDUSTRIAL DEVELOPMENT FINANCING ACTIVITIES

Trinidad and Tobago has traditionally been dependent on oil and export agriculture. However, the decline in agriculture and recognition of the need for economic transformation through the development of the non-oil sector created the need for the establishment of the institutional framework which could facilitate this new thrust in development. The banking sector being geared to financing trading activities, it became necessary to establish institutions which could provide term financing.

Consequently, in 1970 the Trinidad and Tobago development Finance Company Limited was formed as a joint venture between the Government of Trinidad and Tobago and the private sector with the Government holding the majority of the ownership. Trinidad and Tobago Development Finance Company Limited, a private limited liability company, was charged with the responsibility of not only financing, but also developing soundly managed, profit oriented industrial enterprises which could make a direct contribution to the economic growth of the country. The company's financing activity is directed mainly to medium - large size projects in the manufacturing, tourism, agro-industrial and industrial service sectors.

Trinidad and Tobago Development Finance Company Limited provides medium and long term loans for the acquisition of fixed assets such as the purchase of machinery and equipment and the construction of hotels and factory buildings. Loans normally have maturities ranging between five to fifteen years depending on the nature of the assets being financed and the company's expected cash flow.

Trinidad and Tobago Development Finance Company Limited's loan financing is intended to be complementary rather than competitive with the facilities offered by commercial banks and other financing institutions. As such, loans are not provided for working capital purposes.

Trinidad and Tobago Development Finance Company Limited has, however, seen it necessary to provide short term revolving credit facilities for the purchase of raw materials only, particularly in those industries whose trade is seasonal.

Trinidad and Tobago Development Finance Company Limited would also participate in the share capital of its client companies where requested or where considered necessary particularly in projects of a special social or economic importance. Normally, Trinidad and Tobago Development Finance Company Limited would hold not more than 25% ownership position except in special circumstances. The maximum share investment in a single enterprise is related to Trinidad and Tobago Development Finance Company Limited's own equity resources.

Trinidad and Tobago Development Finance Company Limited also provides guarantees in place of loans or in respect of temporary bank financing to bridge the gap between approval and disbursement. The majority of Trinidad and Tobago Development Finance Company Limited's clients are first line entrepreneurs without a track record or collateral sufficient to support the required bank financing thus resulting in costly delays in the implementation stage.

Where the financing requirement of a project is in excess of its limits, Trinidad and Tobago Development Finance Company Limited arranges joint financing packages with domestic as well as foreign financial institutions.

Small Business

Recognising the importance of the small business sector and its potential contribution to the economy, particularly in terms of employment and use of local raw materials, a special unit was formed in the Industrial Development Corporation (IDC) simultaneously with the formation of the DFC to provide financing to this sector.

The Small Business Unit provides concessionary financing with soft loans to key industries such as agro industry and construction. Loans are normally medium to long term.

To further assist small business, a Working Capital Fund was created in 1981 to provide revolving credit facilities for the purchase of raw materials and financing for contract jobs. The Fund also provides discounting facilities. This Fund is being administered by Trinidad and Tobago Development Finance Company Limited.

Capital Grants

The Government operates a capital grant programme through the Industrial Development Corporation to subsidise the capital cost of projects located in Tobago. The grant is not automatic to every enterprise setting up in Tobago and is only provided if certain conditions are met.

2.- CURRENT EXPERIENCES AND METHODOLOGY OF EVALUATION OF THE TECHNOLOGICAL CONTENTS OF INDUSTRIAL PROJECTS

Trinidad and Tobago is still highly dependent on technology supplied by advanced countries and because of the dissimilarity in economic, social and climatic conditions, the technology available from these countries is not always consistent with the economic and social development of the country. In evaluating the technological contents of industrial projects, therefore, the viability of the project as well as its effects on the economy, society and environment must be taken into account.

Size of Plant

A major consideration in the evaluation process is the size of plant in relation to the available market. The population of Trinidad and Tobago being only 1.2 million provides a limited domestic market.

Technologies in developed countries are usually based on mass production resulting in capacities in excess of those required by smaller countries like ourselves. In many cases, the conditions of technology transfer limit the ability of the project to expand into export markets which could justify the higher capacity. For example, licensing agreements more often define the marketing areas to which the project may be accessible thus narrowing the market prospects for the project.

The result is a high capital output, gross under-utilization of plant capacity with resulting uneconomic and uncompetitive production unit costs. Eventually, a white elephant is created.

Where attempts have been made to reduce costs through cheaper reconditioned equipment, the technology is often obsolete or the plant is subject to frequent breakdowns, higher maintenance costs, resulting in equally uneconomic production. In few cases, diversification is possible and enables better utilization of plant capacity.

Completeness of Technology Package

Bearing in mind that the entrepreneur lacks technical expertise, know-how and even exposure or knowledge of the process of technology, the evaluation must carefully assess the completeness of the technological package, i.e. the process, the suitability of equipment, the availability of raw material at reasonable prices, the availability of plans for development of skills both technical and managerial to undertake the project, performance guarantees and adequate back up service.

Choice of Process

The process employed must be the one which is within the technical ability of the available labour force allowing for some measure of training. The choice of process however depends on knowledge and availability of alternatives. It is difficult to obtain information on alternative processes as technology sources are not easily accessible. In some instances, information on processes are not available until contracts are concluded.

Equipment choices are more possible but even here technology contracts may eliminate any choices particularly where the supplier of the technology is also the supplier of the equipment. This situation could result in unnecessarily high costs.

Technical Assistance

Technical assistance available for the development, implementation and start up of projects is a vital consideration. If the required expertise is not available locally, then this expertise should be supplied from abroad. This condition applies not only to technical personnel but may also be applicable to management. Where local management is deficient, safeguards must be built into technology contracts to provide support services in the first year and possibly up to three years depending on the need. The success of a project in the final analysis depends on good management. Implicit in the provision of technical assistance must be training both locally and in plants abroad to develop and broaden the skill of nationals.

Appropriateness of Technology

The extent of technology transfer and the appropriateness of the technology are also important. The maximum use of local resources, i.e. labour, raw materials, must be the goal. The technology package should also be designed to reduce as far as possible continued dependence on the supplier in the long run.

In the early stages of industrial development in the country where technical skills were limited, screw-driver type operations were acceptable. As the skills of the people are developing, technology acquisition is being viewed in a different and a deeper penetration in the process is now looked at more favourably. In addition, there must be a reasonable balance between the extent of capital and labour employed. Rapid industrialisation of the country and an increase in incomes and wages occasioned by the oil fortunes in the 1970s are now making it more economical to employ capital intensive technologies compared with the more labour intensive technologies of earlier years.

Climatic Factors

An area that is often overlooked but is of considerable importance in evaluating technology is its suitability under our climatic conditions. Technology developed in advanced countries which are mainly in the cooler climates may not in its entirety be suitable to the hotter and more humid climates or may not yield the results expected in terms of performance and output. In some respects, this is also linked with the lower productivity of labour in the developing countries.

Adequacy of Utilities

Evaluation of the needs of the project in relation to existing utilities is also vital and could have important bearing on its location or even survival. For example, projects requiring large supplies of water or natural gas could only be located in areas where there is sufficient supply to meet the needs of the projects. Care should be taken to ensure that the presence of the project does not adversely affect supplies to other users in the area or country.

Bona Fide of Technology Supplier

Last, but by no means least, the bona fide's of the technology supplier must be established. The projects undertaken by the supplier, the areas in which they are located, and the successes, failures or problems must be reviewed. This is not an easy task and one which although important is not properly done largely because of the lack of information systems to provide the required information.

It is important that adequate performance guarantees are provided. Our experience however shows that even where guarantees are provided, the penalties for non-performance are far from satisfactory.

3.- INFORMATION REQUIRED FOR TECHNOLOGICAL EVALUATION OF THE PROJECTS SUBMITTED FOR FINANCING AND THE EXISTING GAPS FOR OBTAINING SUCH INFORMATION

Ideally, the following information should be provided for each project:

1. Proper definition of the project and market in order to identify the size of plant required.
2. The source of technology, the contracts or arrangements to be entered into as well as background information on the supplier of technology and references where possible.
3. Description of the process as well as alternative processes as far as can be obtained and their relative efficiency, suitability and adaptability to local conditions.

4. Details of machinery and equipment including capacity, technical specifications and cost. The applicant is required to submit three comparative quotations.
5. Plant layout and specification of type and size of building.
6. Supply of raw materials whether available locally or imported and adequacy of supply.
7. Availability of expertise whether local or foreign for undertaking project in the planning, construction, implementation and operating stages. If foreign, cost of foreign expertise.
8. Follow up, availability of spare parts, and access to continuing research and development.
9. Appropriateness of technology in relation to infra-structure, utilities and energy resources.
10. Guarantees as to quality, production, output from the supplier of technology.
11. Training facilities and extent to be done locally or in other countries.
12. Extent of commitment to the project by supplier of technology, ie investment, licensing agreements, export market share, etc. Where investment is proposed, the form of the investment is important.
13. Where the technology package includes used equipment, an evaluation of the value, condition, capability, life of the equipment is required. Cost of the used equipment versus efficiency when compared with that of new equipment is also considered.
14. Impact on environment, treatment of effluent, waste and pollutants.

Some gaps experienced in the technological evaluation of projects are:

1. Inaccessibility to information available from local development and research institutions such as previous studies, literature.
2. The general nature of information provided by foreign information sources and the long lead time in obtaining such information.
3. Lack of information on similar projects developed in other developing countries and their experiences.
4. Foreign equipment suppliers and consultants provide information inasmuch as their own interests are looked after.
5. No fixed methodology in locating technology and equipment. Suppliers' catalogs remain one of our main sources of information on equipment sources. However, they are by no means complete and exclude many suppliers with technology more suited to our needs.
6. Independent foreign or local consultants may be retained to evaluate technology, however, the sourcing of such expertise in specialised areas is sometimes difficult.

4. - BRIEF OUTLINE PROPOSAL FOR A TECHNOLOGICAL INFORMATION EXCHANGE NETWORK INCLUDING SUGGESTIONS FOR THE METHOD OF OPERATION.

1. The development finance institution should be geared to take advantage of such network. General guidelines should therefore be drawn up to enable the institutions to set up a data base for obtaining information that would assist in their technological evaluation. Such a framework would include:
 - (a) Main sources of information on technology transfer, ie specific agencies that can assist in this.
 - (b) Format for approaching these sources.
 - (c) Main international publications that can be of assistance.
 - (d) Overall guidelines for technology evaluation.
2. A central system is needed for classifying, recording, selecting and disseminating information on processes, technology available and the extent of the transfer of technology. The system should also provide for easy and quick access to comparative quotations on machinery and equipment. This must all be readily available on a continuing basis to the development finance institutions and should include a method for guiding institutions on the most suitable sources available in various areas of production.
3. The network must include a system for effectively matching the transfer of technology with the particular needs of the country. Finance institutions must therefore regularly supply information on resources, skills, etc., available so that the mechanism can bear in mind what are their priorities in terms of industrial development, which of the following is the country interested in:
 - (a) use of local resources
 - (b) development of new skills
 - (c) transfer of the necessary management skills
 - (d) improving the quality of life, etc.
4. Where possible, the network should also have information on local research and development institutions in developing countries that may be connected to development finance institutions. In that way, indirect assistance may be given to finance institutions through these R+D institutions. There could also be a network of information on a regional basis.
5. There is need finally for the transfer of persons also. There must be some core of experts available who can assist in whatever area is required by the institutions whether in specific assessments, training in the approach to evaluation, training in project development, etc.

5. OTHER SUGGESTIONS OR PROPOSALS TO COMPLY WITH AND SUPPORT THE NEEDS OF PROJECT EVALUATION AND TECHNOLOGY CHOICE, AND ON HOW IDFI'S COULD MOST EFFECTIVELY CONTRIBUTE TO STRENGTHENING THE TECHNOLOGICAL CAPABILITIES AND CAPACITIES IN THE COUNTRY.

1. The local DFCs need to play a greater role in the whole process of control of the transfer of technology since they are involved in financing many new projects. They should form part of a system that is set up to evaluate the purchase, and more ideally, the selection of technology. Such a body could possibly comprise the relevant ministry (Industry and Commerce), the Development Finance Institution, the Central Monetary Authority and local industrial research institutions.

Entrepreneurs should then be required to obtain approval for whatever transfer of technology they propose.

2. The DFCs could also play a greater role in linking the entrepreneur with local industrial research and technological institutions and national engineering firms and consultants thus assuring that better use is made of these facilities and better projects are developed. DFIs should be in a position also to offer soft loans or subsidiaries to entrepreneurs wishing to use the services of such institutions.
3. In fact, DFIs should also play a role in promoting projects developed by local research and development institutions, ie both in terms of finding potential investors and providing financial assistance. A committee could therefore be set up which would comprise the local industrial research institution, the Development Finance Institution and the relevant ministry, if necessary, to determine what research could be developed further and commercialised.

