OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.

DISCLAIMER

FAIR USE POLICY

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

17310

EXPERT GROUP MEETING ON CONSULTING SERVICES IN DEVELOPING COUNTRIES IN THE FIELD OF BUILDING MATERIALS AND CONSTRUCTION INDUSTRY

17310

CONSULTING/ENGINEERING AND INDUSTRIAL DEVELOPMENT

DR MAHFOUD BOUHACENE - ARAB ENGINEERING COMPANY

(UNIDO EXPERT GROUP MEETING ON INDUSTRIAL CONSULTING
HAVANA-CUBA-10/14 NOV 1986)

INTRODUCTION

After more than two decades and considerable efforts and resources channelled towards the industrial development, it appears clearly that the policies and strategies followed during the 60s and 70s have not generated the expected balanced and self-reliant economic development for most of the developing countries.

During the sixties, the foreign investments policies have been based on attractive advantages and incentives to foreign companies. The transfer of resources from developing to developed countries was in most cases so high that it led to a major international confrontation through the affirmation of the principle of national sovereignty over natural resources and the nationalisations of foreign companies. During the seventies, most of the developing countries adopted policies of valorisation of their natural resources and engaged themselves in large investment programmes. The concept of technology transfer has been forged during that period and for that purpose.

In both cases (either direct foreign investment or ownership of investments and technology transfer) the industrial plant in developing countries could not be operated and maintained without an "umbilical cord", linking the plant to the industrial environment of foreign companies supplying all kind of resources (consulting services, equipment, erection, assistance to operation and maintenance, spare parts, feed stock, etc). Both ways have led at various extents to the extraversion of industrial sectors and to the marginalization of domestic infrastructures. The past experiences of industrialisation have convinced that no coherent and self-reliant policy can omit the generation and development of a dense industrial environment, including the national scientific and technological infrastructure, local engineering/consulting and design services, equipment fabrication and construction capabilities.

Among the various inputs to industrial development, engineering and consulting resources play a central role by integrating the various aspects of the industrial environment. Their strategic function has been clearly identified within the numerous and sometimes very bright studies reserved to the matter.

Reiterated resolutions at the national and international level have stressed the importance to define and implement practical actions to develop local engineering/consulting capabilities.

Despite the widely spread recognition and awareness of the importance of the subject, one cannot say that there is a convergent movement leading to practical and visible measures which could produce a noticeable development of consulting/engineering capabilities in the developing countries. The situation is even worsening if we consider that even the modest consulting/engineering capabilities created with scarce resources and serious sacrifices instead of developing are in many cases regressing. This is not surprising if one considers that the practical measures and the resources reserved to the subject as such have been very modest.

My contribution to this expert group meeting will address 3 questions:

1) What are the content and the current state of the consulting/engineering profession in developing countries?

2) Is the development of consulting/engineering services in developing countries feasible or is it a "goal beyond reach"?

3) What are measures that could foster the emergence and the development of the consulting/engineering profession at the national and international level?

Plan of action.

1. THE CONSULTANCY DIMENSION AND THE CURRENT STATE OF THE PROFESSION IN DEVELOPING COUNTRIES

3 major aspects of the consultancy profession will be analysed: the content of the consultancy services, the need for the use of local consultants, and the difficulties encountered by consultants in developing countries.

1.1 Spectrum of services related to project generation and consulting/engineering capabilities.

In the strict meaning of the term, consultancy services are mostly related to project generation and the demonstration of the feasibility of an economic project.

These services are presented in the following diagram:

CONSULTING SERVICES

SERVICES

- Selection of Product
- Study of Raw Material Availability
- Selection of Plant Location
- Planning of Production System
- Selection of Process
- Study of Preliminary Investment Cost
- Study of Market and Product Price
- Master Planning

- Master Research
- Survey and Selection of Plant Location
- Study of Raw Materials and Plant Utilities
- Optimization of Production System
- Study of Investment Cost
- Financial Study and Economic Evaluation
- Environmental Assessment
- Planning of Plant Management
- Planning of Staff Training
- Time Schedule

- Bid Preparation
- Pre-qualification of Contractors
- Tender Execution
- Bid Analysis and Evaluation

In fact, the consultancy services cannot be limited to preliminary and feasibility studies, and contractor selection. They are required during the whole investment phase. After the plant start-up they contribute to operate and maintain the plant, its management and efficiency. Consultancy services are also required for plant optimisation, production improvement, extension of existing facilities generating new additional investments, thus feeding a continuous process of self-sustained development and growth. To illustrate this succession of phases over the investment life is presented as a continuous cycle divided into six major phases (see exhibit 1).

Phase 1	Project generation (planning and feasibility analysis)
Phase 2	Project execution (engineering, procurement, construction and commissioning)
Phase 3	Organisation and systems (design and implementation)
Phase 4	Project management
Phase 5	Human resources development
Phase 6	Operation and operation planning.

This presentation illustrates the idea that the plant start-up is not an end in itself and that the future owner shall be in a position to manage, operate and maintain the plant and above all to assure its continuous improvement and development. This way of presenting the industrial development cycle suggests the necessity to open the technological package and calls for the necessity to develop the owner's project management capabilities (it is an important part of the management consultancy firms). The owner's organisation must be prepared to master the cycle of management and development and to procure itself the external consulting services, whenever required.

This division may appear, to some extent, arbitrary, but it has the merit of acknowledging the complexity of the process, and segmenting it into manageable parts. On the one hand, it illustrates the logical progression of tasks leading to an efficient plant operation, and to the implementation of future improvements. On the other hand, it identifies the complex spectrum of consultancy services during the investment life.

EXHIBIT 1

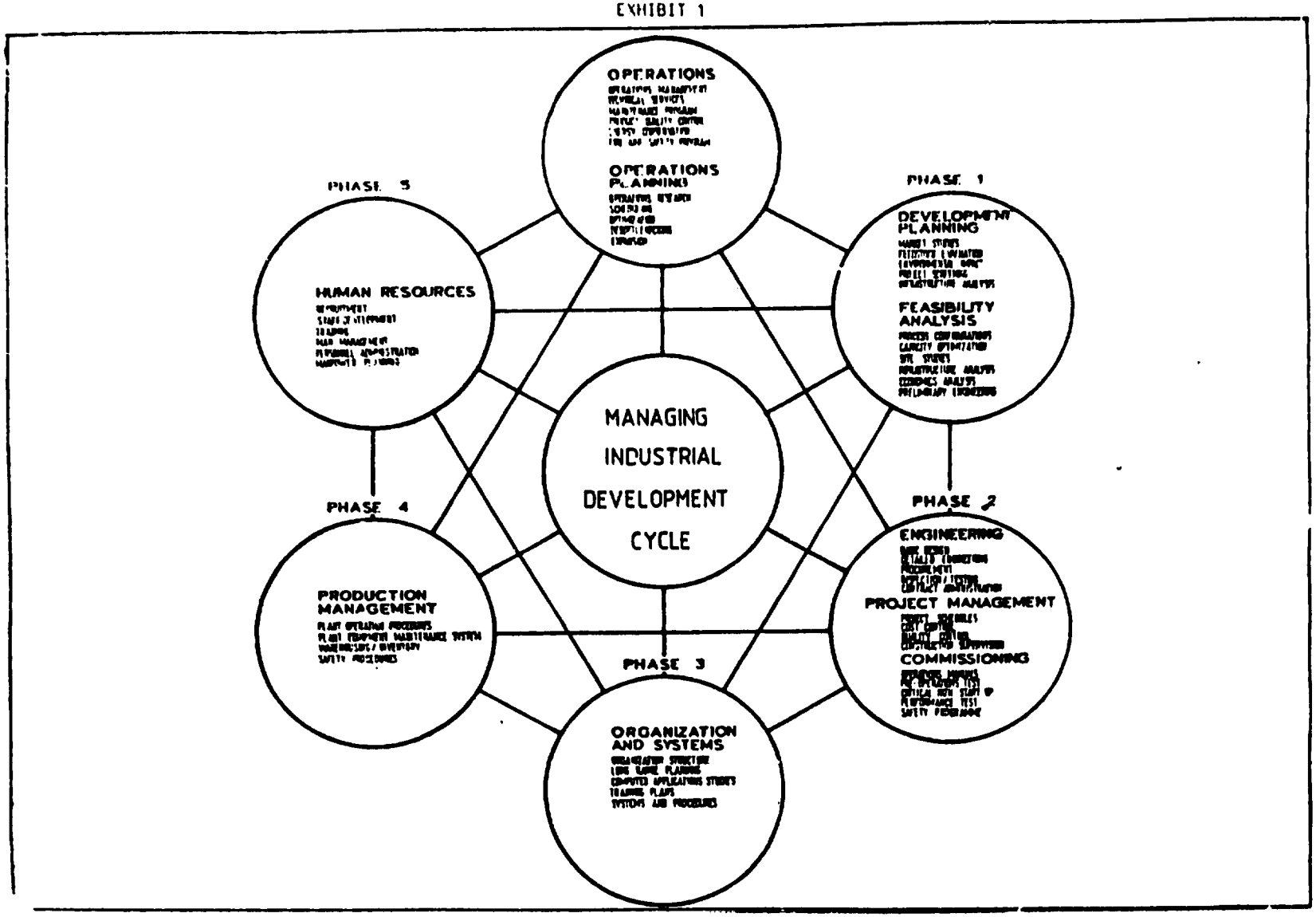
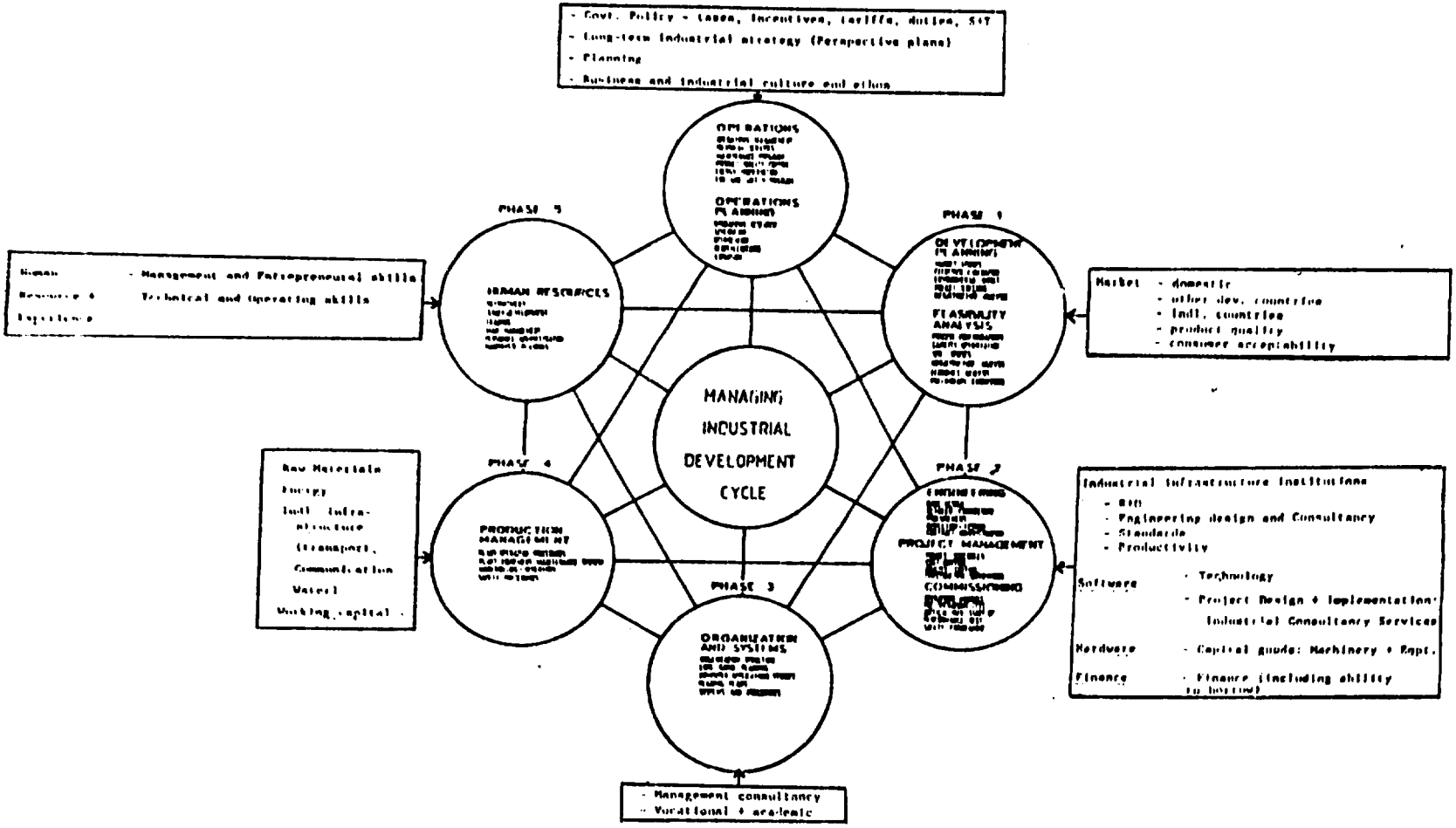

OPERATIONS
OPERATIONS PLANNING
PHASE 1
DEVELOPMENT PLANNING
FEASIBILITY ANALYSIS
PHASE 2
ENGINEERING
PROJECT MANAGEMENT
COMMISSIONING
PHASE 3
ORGANIZATION AND SYSTEMS
PHASE 4
PRODUCTION MANAGEMENT
PHASE 5
HUMAN RESOURCES
MANAGING INDUSTRIAL DEVELOPMENT CYCLE

EXHIBIT 2


- Govt. Policy - taxes, incentives, tariffs, duties, SIT
- Long-term industrial strategy (Perspective plans)
- Planning
- Business and industrial culture and ethos
OPERATIONS
OPERATIONS PLANNING
PHASE 5
HUMAN RESOURCES
PHASE 1
DEVELOPMENT PLANNING
FEASIBILITY ANALYSIS
MANAGING INDUSTRIAL DEVELOPMENT CYCLE
PHASE 4
PRODUCTION MANAGEMENT
PHASE 2
PROJECT MANAGEMENT
COMMISSIONING
PHASE 3
ORGANIZATION AND SYSTEMS
Human Resource & Experience - Management and Entrepreneurial skills
- Technical and operating skills
Raw Materials
Energy
Indl. Infra-structure (transport, Communication Water)
Working capital
Market - domestic
- other dev. countries
- Indl. countries
- product quality
- consumer acceptability
Industrial infrastructure institutions
- Bill
- Engineering design and Consultancy
- Standards
- Productivity
Software - Technology
- Project Design & Implementation
Industrial Consultancy Services
Hardware - Capital goods: Machinery & Equpt.
Finance - Finance (including ability to borrow)
- Management consultancy
- Vocational & academic

Before plant start-up, these services are related to the conceptualization and formulation of a project, its implementation through inputs of technology, consulting engineering and design, capital equipment, trained human resources, and financing. At the operating stage, it requires management and entrepreneurial skills improvement, products adaptation, manpower training, systems and procedures design and implementation etc.

An industrial plant operates in an environment which includes government policy, strategy and planning framework on the one hand, and industrial infrastructure - electrical energy, water, transport, communications - on the other. (Exhibit 2 illustrates the industrial unit and its inputs, outputs and environment.)

These include R & D institutes, consulting and design engineering firms, standard institutions, industrial safety units, productivity centres, industrial finance institutions, vocational and academic institutions, training centres, etc. No significant industrial development can be sustained over a period of time without the supportive institutional infrastructure.

During the operating phase of the industrial unit, other problems arise relating to efficiency of operation, capacity utilisation, market changes and product line diversification, debottle-necking and extension of existing units. All these aspects call for a well-developed management consultancy profession.

1.2 <u>The need for the use of local consultants</u>.

The use of independent consultants belonging to the project hosting country or to the region presents obvious advantages in terms of cost and quality of the required consultancy services.

This idea is not new, having been stressed in many fora, particularly by development banks, and international organisations dealing with economic development.

For instance, the principle of using local consultants has been strongly reaffirmed in the latest (August 1981) edition of the World Bank's "Guidelines for the use of Consultants" which expresses that:

"It is the Bank's policy to encourage and foster the development of domestic consulting firms. The Bank encourages borrowers to employ domestic consulting firms in connection with Bank-financed projects where such firms are qualified to perform the work either alone or in combination with foreign firms... The contribution of the local firm should be the maximum of which it is capable".

Moreover,

"It is the Bank's policy to support the strengthening of local capabilities in borrower countries by promoting the transfer of know-how - knowledge and skills - to local professionals engaged in projects it helps finance".

This principle has been adopted by almost all the international development banks but it hardly exists in the laws and regulations of most developing countries.

Nevertheless, one can wonder to which degree this principle finds application in practice "since this depends on the behaviour of the Bank's clients and the bank's operating personnel and in both cases there may be a tendency to minimize risks and to "get the job done" (1).

The prevailing procedures of the qualification and selection of consultants do not leave a lot of chances to local consultants. The exigence of a track record of references pull aside the local consultants from the outset. It favours foreign consulting firms and deter possible local would-be consultants to venture in starting such an activity (2).

---

(1) See Technological Development and Financial Dependence" - Alberto Araoz in Technology Transfert, Cabay - Economica Paris - Louvain La Neuve. 1983, p 176.

(2) See Kan D Mariwalla - Consultancy dimensions of industrial cooperation among developing countries - International Conference "Promotion of developing countries Joint Undertaking in Execution of Industrial Plants. RCCDC - Ljublijana - 1983.

A balance could perfectly be found between the preoccupations of the owner/financial institutions to "get the job done" at a reasonable degree of quality and safety and the use of local consultants.

The most significant advantages of using local or regional consultancy resources are the following: (1)

a. Local and industrial management consultancy inputs provide appropriate economic, technical, technological and managerial solutions not only for the implementation of new projects, but also for operating and maintaining existing plants at the required level of capacity and efficiency.

b. Environmental and cultural factors are as important as technological and engineering inputs in designing practical and economical projects. By depacking the technological package into smaller manageable parts, the local consultancy services have a direct effect on the maximization of the use of other local inputs as engineering man-hours, equipment and construction costs, thus reducing the foreign currency part of the project.

The direct consequence is that the scarce foreign exchange part could be spread over more projects, accelerating the pace of economic development, and reducing the burden of foreign debts.

We shall analyse later the direct interest of the national and international development banks to show a more active and visible participation to the emergence of local engineering/consulting capabilities in the developing countries (2).

---

(1) See Kan D Mariwalla - Consultancy dimensions of industrial cooperation among developing countries - International Conference "Promotion of developing countries Joint Undertaking in Execution of Industrial Plants. RCCDC - Ljublijana - 1983.

(2) Although it is a basic practice in developed countries not to use foreign services (even if they are better) in development projects, particularly when public funds are required for the financing of the project.

c. Methods of local construction affect the design solutions which an industrial consultant develops, thus indicating the need for intimate knowledge of local conditions, skills and practices.

d. Similarly, deep knowledge of local cultural and environmental factors spell success or failure of solutions to problems worked out by management consultants.

e. There is need for continuous upgrading of local consultancy capabilities through training and experience and joint working with other consultants.

f. There is great need for cooperation among consultancy firms of developing countries. Through such association, both will benefit by pooling technical knowledge and experience, and would also acquire intimate knowledge of local conditions and environmental factors to the advantage of the project.

g. Appropriate local management consultancy inputs help significantly in national problem solving techniques keeping in view the cultural and environmental factors, and also in the training and development of managerial resources which is generally a scarce resource.

1.3 Constraints to the generation and development of local consulting capabilities in developing countries

It is not often realised that the consultancy profession in developing countries has to work under certain constraints (1).

a. There is generally a lack of awareness of the role and functions of a consultant, and his contribution to the economic and technological development.

---

(1) National design and engineering organisations: their role in the technological capacity of developing countries. UNIDO TD/B/66/35, 19[illegible] 7.

b. There is often prejudice against and hesitation in using local consultancy services, as both industry and government have been for long accustomed to obtain engineering services from foreign sources as part of the supply of plant and equipment.

c. The domestic consultancy organisation has to face strong competition from foreign consultancy firms from developed countries, strongly backed by diplomatic and financial support of the respective institutions and/or their governments.

d. There are the perennial problems of uncertainty of workload. The development of local and regional consultancy capabilities is closely linked to an increased and sustained workload which enable to retain and develop staff, and capitalise skills and experiences.

e. Adequate level of remuneration and billing rates should be recognised to consultancy profession to enable it to maintain a high level of professional services and high standards of quality.

f. Owing to non-availability of sufficient reliable domestic data, the local consultants have themselves to collect and compile the basic data and often have to start the work on the assignment with scanty and often unreliable data.

2. IS THE DEVELOPMENT OF ENGINEERING/CONSULTING ACTIVITIES IN DEVELOPING COUNTRIES FEASIBLE OR IS IT A "GOAL BEYOND REACH"?

Given the low development of consulting services in developing countries even in countries where a large industrial sector has been developed, it is of essential importance to analyse the opportunity and feasibility of developing such services.

These questions are important to answer particularly if we keep in mind that little have been done in this field, considering that engineering/consulting services are reserved to foreign companies and that developir h activities is very often considered as a "goal beyond reach".

As in any activity, to develop a viable engineering/consulting capability, it requires a market, resources in terms of staff, technical and managerial skills, and also financial resources for investment and working capital.

2.1 The market of engineering/consulting services in developing countries.

Since there is no readily available data on the size of the demand for engineering/consulting activities in LDCs, one can only assess the order of magnitude of the current demand, and define the trends of potential demand for these services.

The demand for engineering/consulting services in LDCs comes from 2 major sources:

2.1.1 Investments of the public sector

Both by its nature and size of the demand of consulting services by public entities is, by and large, the major component of their global demand in LDCs (1).

In Latin America for instance the public sector accounts for 82% of the overall demand (see table X). When the foreign firms that operate in the region are considered, that percentage is even higher: 92% thereof reported that more than $^{3}/4$ of their invoicing was accounted for by public contracts.

In terms of size the current demand is related both to new and existing investments.

For new investments, if we consider only the 29 ESCAP developing countries, the total investment costs for the period 1980/1982 accounted for 163 billions of US dollars and the development assistance flows to 12 billions of US dollars (1).

---

(1) Regional cooperation network in industrial consulting between the developing countries in the ESCAP region. Dr Nicholas Nicolaidis.

Percentage of conciliatory services' demand accounted for by the public sector

Country	%
Argentina	57,3
Bolivia	69,9
Brazil	76,3
Colombia	87,4
Chile	73,8
Ecuador	48,5
México	83,4
Paraguay	80,2
Perú	76,4
Uruguay	55,6
Venezuela	78,6
Total	82,0

Source: Felac - Intal, op. cit. Table 41.

The engineering/consulting services required for these investments account for about 17.7 billions US dollars or 442 millions engineering/consulting man-hours yearly or an annual average of 73.000 specialists/designers working permanently for the implementing of these projects (1).

If we consider the level of new investments in one single developing country (Algeria - 1976) they account for 4 billions US dollars or 23.5 millions engineering/consulting man-hours or the equivalent of 11,700 specialist/designers employed permanently to implement these projects.

It is less easy to assess the scale of engineering/consulting services required for the current operation/maintenance of existing plants, or for turnarounds, revamps, debottle-necking. The demand is more stable than for new investments and generally stands between 20 to 25% of the total engineering/consulting demand.

Naturally the size of the demand for engineering/consulting services varies from one developing country to another but in general it is in relation with the level of human resources each country could affect to this field of activity.

2.1.2 Investments financed by international development banks

To illustrate the importance of the demands for engineering/consulting services in LDCs, one can quote the statement of World Bank on IDA cumulative lending operations by major purpose and regions (June 1985) which show that loans allocated to developing countries for development projects amounted to 149 billions of US dollars. The flow of resources to investments in developing countries. The amount of projects financed last year by African Development Bank accounted for 1.2 billion of US dollars. On the other hand, fees that have been billed by foreign consulting services in 1982 for Africa, Middle

---

(1) Assumptions - engineering costs 13.5% of the technical investment.

- Man/hour selling rate: 40 US$ (current international rate 1985).
- Man-year = 2.000 man-hours.

East, Asia and Latin America (1) accounted for 3.2 billions of US dollars suggesting investment costs of more than 30 billions of US dollars and about 500,000 man-year of engineering/consulting services.

Two conclusions arise from these figures:

- the demand for engineering/consulting services of developing countries is very important, and can widely sustain and justify the generation of a large sector of engineering/consulting firms even in the least developed countries;

- these figures clearly suggest the enormous influence that the policies applied by the public sector and the international development banks may have on the main patterns of development of consulting activities in developing countries.

2.2 Human resources requirements for consulting services. (To execute 4 levels of investments ranging from 1 million to 1 billion US$.)

Total Investment Costs (US Dollars)	Eng./Consult Costs (US Dollars)	No of Man-Hours	Total manpower Required
1,000,000	101,250	2,520	1,26 man-year or 15, 18 man-month
10,000,000	1,012,500	25,200	12,6 man-year
100,000,000	10,125,000	252,000	126 man-year
1,000,000,000	101,250,000	2,520,000	1260 man-year

(1)

Africa	US $	800 mil
Middle East	US $	1,266 mil
Asia	US $	733 mil
Latin America	US $	382 mil
	US $	3,181 mil

Engineering News Records June 1983 quoted by V Skendrovic "Consulting services in developing countries - Existing capabilities and cooperation".

Since the total investment costs of the large majority of developing countries is at the level of hundreds of millions of US dollars (about only 15% spend the level of billions of US dollars for investment) one can have a fairly acceptable evaluation of the size of the human resources required to execute the related engineering/consulting services.

From the quantitative point of view, most of the developing countries can theoretically meet the manpower requirements to execute a large part of their engineering/consulting services. A ministerial committee survey conducted in 1976 in Algeria shows that the available manpower strength of various engineering/consulting organisations and firms working for the industrial sector accounted for about 6,000 staff (equivalent to 12,000,000 man-hours). (See table)

The same year the national consumption of engineering/consulting services is evaluated at 23,400,000 man-hours out of which more than 90% have been executed by foreign companies, which represent as an average about 11% of the total installed cost, and more than 90% of the total consulting and engineering services.

These conclusions have to be balanced to a certain extent due to the fact that the human resources for engineering/consulting services cover a very large spectrum of disciplines and specialised expertise.

For consulting services related to the project generation phase (which generally represents about 1% of the total investment) the studies carried out require 2 types of expertise:

- The selection of the product, the study of raw materials characteristics and availability, the process selection and to a certain extent the environmental assessments are executed by experts/engineers specialised in the technologies related to a given product or industry.

- The remaining aspects of the studies related to the project generation phase (investment planning, economic evaluation

TABLEAU N° 1 - EFFECTIF D'ENGINEERING AU 31.12.75

QUALIFICATION	Bureau d'Etudes			Contrôle technique des travaux			Gestion des Projets			TOTAL		
	Algériens	Etrangers		Algériens	Etrangers		Algériens	Etrangers		Algériens	Etrangers	
		a +	b +		a +	b +		a +	b +		a +	b +
Architectes	15	40	14	6	3	0	9			31	3	14
Ingénieurs et diplômés scientifiques de l'enseignement supérieur	189	175	186	76	43	64	184	57	24	449	275	274
Autres diplômés de l'enseignement supérieur (économistes, juristes, etc.)	156	10	2	11	0	0	131	37	0	298	55	2
Techniciens supérieurs et projecteurs	318	114	22	202	16	4	187	3	7	707	133	33
Cadres moyens non techniques	157	2	0	20	0	0	194	0	0	371	2	0
Autres personnel techniques (dessinateur, topographes, métreurs, surveillant de travaux etc.)	726	2	22	490	1	33	315	0	0	1.531	3	55
Personnel d'exécution non techniques (paie, comptabilité... à l'exclusion de chauffeur agent d'entretien, gardien, magasinier	377	1	0	209	0	0	1312	3	0	1.898	1	0
	1938	352	246	1014	65	101	2326	100	31	5.278	517	378

a + - Il est porté dans cette collone le nombre d'étrangers intégrés dans les structures de la société nationale ou d
filiales.

c + - Il sera porté dans cette collone le nombre d'étrangers détachés en Algérie de façon permanente par une société
dans le cadre d'un contrat d'engineering pur et non intégré dans les structures de la sté. nationale ou de ses

of the investment costs, market and pricing, optimisation of the production system, financial studies, etc) are executed by generalists who are not necessarily specialised in the technological aspects of a given project.

The services of technologists and generalists are regrouped into a project team and in many cases do not belong to the same organisation or the same firm.

For engineering services we find the same separation between technologists and generalists.

A package of basic design and engineering is usually given to the engineering company from the processor licensor (or for small industrial plants and technically sophisticated from the company manufacturing the main equipment). When the owner assures under its responsibility the procurement of the process, both process and basic design package are given to the engineer/consultant by the owner. Very often the role of the engineering companies will be to detail the basic design, and assure the procurement services and supervision of the construction till start-up and commissioning.

As during the consulting services related to project generation, the engineering services for the project execution phase contain a small part of the specialised technological and process aspects, and the quasi-totality of the required man-hours are performed by generalists (engineers and designers and draughtsmen in common disciplines like civil, mechanics, electrics, instrumentation, insulation cost and planning engineers, estimators, buyers, expeditors, etc). This core performs the general engineering services and can deal with the design of a variety of different industrial plants. These general engineering services absorb about 90% of the total engineering costs. As a matter of fact the biggest international engineering companies do not develop in-house the technological processes which are developed and sold by generally much smaller firms specialised in producing and developing a process in a very narrow technological field.

This disaggregation of the various types of expertise required to execute engineering/consulting services is very important since it clarifies what is within or beyond the capabilities of most of the developing countries. The type of personnel able to perform the general engineering services is available in various quantities.

The human resources in the engineering/consulting firms being the main asset of the company, they are the subject of a very sophisticated and permanent "on the job training" systems under the direction and supervision of more senior engineering specialists (1), based on the principle of "learn and earn".

The training of engineering/consulting manpower is mainly related to the use of another important asset of engineering/consultancy firms: the documents for engineering standards, specific ?, design manuals, project execution procedures etc. For process civil and structures piping, mechanical, electrical, instrument design as well as procedures for procurement, inspection, construction, supervision and project management.

2.3 Financial resources for capital expenditures and working capital

Investment Costs	Eng/Cons Man-Hours Required	Capital Costs Required	Working Capital	Total Investment Costs Required
US dollars	man-hours	US dollars	US dollars	US dollars
1,000,000	2,520	10,080	25,200	35,280
10,000,000	25,200	100,800	252,000	352,800
100,000,000	252,000	1,008,000	2,520,000	3,528,000
1,000,000,000	2,520,000	10,080,000	25,000,000	35,280,000

(1) The technologists, lead engineers and some senior professionals can be seconded from foreign companies or hired in the labour markets on a permanent or part-time basis which is a common practice for international engineering companies.

In other terms, the development of engineering/consulting services cost about 3.5% of the projected total investment costs, out of which 1% for the capital expenditure and 2.5% for the working capital.

The savings in foreign exchange when using local engineering/consulting services are multiple. They include not only the part of engineering/consulting costs executed locally but also the incorporation of various local inputs like equipment (1), construction, appropriate technologies to local raw materials, etc. The maximisation of local inputs can reduce the total investment costs.

Developing local engineering/consulting services will not require additional financial resources since these costs are anyway actually paid within the investment costs. Having established that the generation and the development of engineering/consulting activities in developing countries is perfectly feasible, it clearly appears that the low level of generation and development of this profession can only be imputed to the quasi-inexistence of measures to deal with a subject which seems marginal at first sight, but which, in fact, is of critical importance and conditions the whole economic development process.

Financial requirements for the generation/creation/development of consulting/engineering services are not important, when compared with other activities (notably industrial investments).

The main assets of engineering/consulting firms are immaterial (quality and level of experience/expertise of the manpower, technical manuals and procedures, data banks).
The material assets are limited to equipment for offices, telecommunication and for the most important firms computing requirements.

The following statement shows the cost breakdown of a selling rate of a consulting/engineering manhour.

	Cost per M/H	Breakdown of Engineering M/H Cost - %
- Project direct personnel costs	14	35%
- Capital amortization	4	10%
- Overheads (including office space)	12	30%
- Business development (including proposal's preparation)	6	15%
- Profit	4	10%
- Total	40	100%

3. MEASURES, RECOMMENDATIONS AND TENTATIVE PLAN OF ACTION FOR THE STRENGTHENING OF LOCAL CONSULTING CAPABILITIES

It is firmly established that the missing point for the building up of indigenous technological capabilities is the weakness if not the in existence of consulting engineering services at various extent in developing countries.

Paradoxically, no substantial actions or measures have been adopted in this field at the national or international level.

The objective of generating indigenous consulting capabilities has been overshadowed by other apparently more immediate objectives, such as growth, implantation of investment projects, very often linked to urgent or basic needs like projects related to food and agriculture, pharmaceuticals and health, import substitution to lower as soon as possible the burden of foreign exchange requirements.

The objective of executing locally the design of a given project is very often in contradiction with the goals of the various institutions dealing with economic development. If we except the newly industrialised countries, the conciliation of contradictory interests has always led to favour the project execution even by foreign resources. The development of local project execution capabilities was in most cases either postponed or considered as a factor which will develop as a driving effect of industrial investments.

Considering the complexity of the problem, how to formulate feasible and effective measures which could have an effect on the generation and development of consulting capabilities?

One of the keys to success or failure of a programme to increase technological capabilities lies in the conception of an efficient institutional framework of bodies (professional associations, federations, financial institutions, government bodies in charge of economic development policies) that may have an influence on the main patterns of development of consulting activities.

It lies also in the identification of the main constraints which opposed the development of local consulting capabilities and the formulation of a coherent network in charge of coordinating the activities of relevant bodies and institutions.

Therefore it is necessary to identify, modify (or even create) institutions that will have the vision, the competence and the authority to deal with this objective as such.

3.1 Identification of the institutions which can have a decisive influence on the generation/development of consulting activities

- Building up local consulting capabilities and promoting locally designer projects is primarily the responsibility of the County itself.

- Development Banks (at the national, regional and international level) play a central role in the use of consultants and have shown considerable interest to the matter without for the time being having adopted practical measures towards this objective.

- International organizations and agencies notably UNIDO could manage a specific plan of action through an international and regional cooperation network dealing specifically with generating/strengthening local projects execution capabilities.

3.1.1 At the Country level

Consulting capabilities have reached different levels of importance in developing countries. Three groups of countries could be considered:

- the group of "newly industrialised countries" (mainly located in Latin America and Asia, like Brazil, Argentina, India, South Korea); these countries have already established a fairly well developed consulting/engineering sector and are able to absorb and adopt foreign technologies and even to export significant amounts of services in these fields. They have developed sophisticated institutions, laws, regulations and practices to favour and sustain the development of local capabilities. Their experience is precious and relevant for other developing countries.

- The second group concerns countries which import the major part if not the quasi totality of their consulting/engineering needs but have a great potential of resources to develop their own capabilities. There is generally no recognition or visible support to the consulting profession in these countries which probably represent the large majority of developing countries but where a specific and strong action can produce quite rapid results and improvements.

- The third group of countries concerns the less developed countries where the basic various resources required for consulting are still low and call for different approaches.

I will limit myself in presenting the role of the local bodies or institutions which have an influence on the development of local consulting activities (professional associations, owner's organizations in charge of investments implementation, development Banks (1), governmental bodies in charge of regulating various aspects affecting the consulting profession).

---

(1) In view of the particular importance of development Banks the role of these institutions will be the subject of a special section (see 3.2).

3.1.2 Professional associations

Their basic role is to establish "the credibility and qualifications of the profession and to undertake the development and coordination of collective promotion and development efforts which individual consulting firms can not do or afford" (1).

To sustain their activities they need the existence of a well developed consulting profession in the country. The International Federation of Consultants (FIDIC) provide to the national associations a forum for meetings, dealing with problems of interest to the profession and has published the major international guidelines, rules of behaviour ruling the profession.

A very recent manifestation is the emergence of new federations of consultants created under the auspices of international development Banks. More precisely African Development Bank (Federation of African Consultants (FECA)) and Islamic Development Bank (Federation of Consultants of Islamic Countries (FCIC)). The interesting factor concerning these creations is that on top of the additional role of professional associations to establish the credibility of the profession, FECA and FCIC pursue additional objectives, notably:

Article 3.31

- "to inform the members in good time about consultancy assignments or possibilities of participation in various projects and programmes financed by the development finance institutions and in particular by IDB;

- promote the creation of associations of consultants in member countries as well as to encourage the formation of appropriate regional and sub-regional groupings;

---

(1) open cit N Nicolaidis, p.102.

- encourage governments of member countries to use the services of Member Country Consultants;

- act as a catalyst in the creation of joint ventures so as to enhance their ability to mobilise more resources and to improve their potential to undertake more complex assignments".

It is relevant to emphasize the point that these regional development banks and consultants have not confined themselves to the creation of a traditional professional association, like in developed countries where the associations deal with an already well developed profession. They went one step further and included in their objectives an active contribution to securing a stable work load to consultants (sine qua non condition to sustain a consultancy business) and even participating in the generation and development of new consulting capabilities.

The interest which has been shown by ADB and IDB should be taken into account, and it could be useful to consider the regional development banks as important operating bodies in the cooperation network for consulting capabilities development.

3.1.3 Owner's Organizations

The owner organization in charge of managing the project investments plays a key role in association or ignoring the local possible inputs to the project design and implementation.

Decisions like disaggregating the project package into different components bought separately to incorporate local intellectual and material inputs, or going for a turnkey contract are of paramount importance. The owner project management team has a strong influence on the budget, the execution strategies and the planning of the project (see functional responsibility chart of a typical project owner organization).

FUNCTIONAL RESPONSIBILITY CHART

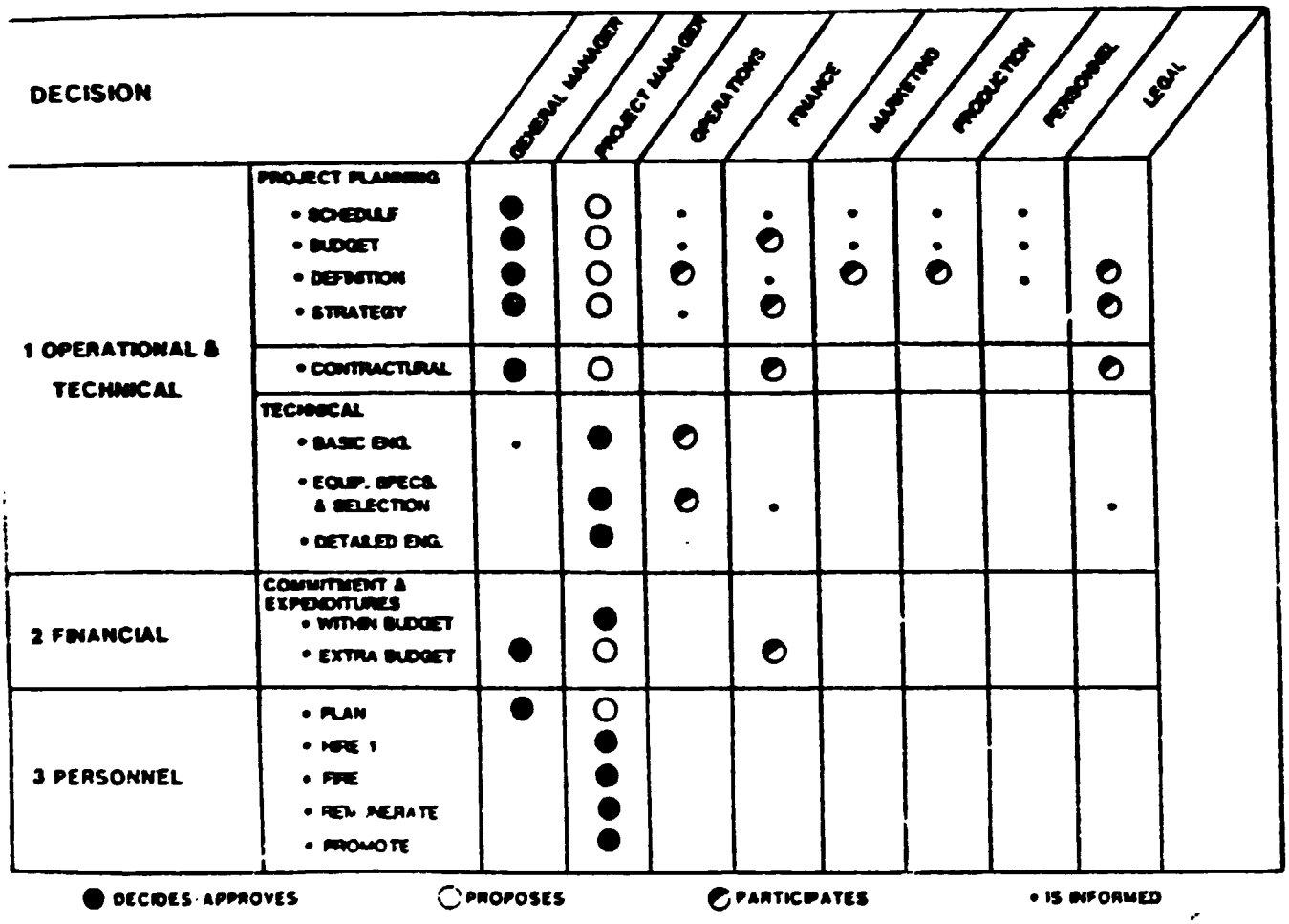


EXHIBIT I.3

During the formulation of the project at the pre-investment stage, the characteristics of the project are defined. The decisions adopted at that time strongly affect the specifications and the origin of the goods and services that will be required in subsequent stages. The consulting engineer will develop alternative solutions on the basis of market and location studies, a preliminary engineering design, and tentative negotiations with potential suppliers. These alternatives are submitted to appraisal, and recommendations are made to the project owner. Naturally it is the latter that will make a definite choice among the alternatives; but the consulting engineering organization in charge of pre-investment will have already adopted a large number of preliminary decisions, which have been incorporated in the alternative solutions, and the latter may be more or less adequate to local inputs, according to the viewpoint (and the biases) of that organization. Experience shows that when the pre-investment stage is entrusted to a local consulting engineer, a better choice of technology may result and more local inputs may be incorporated.

On entering the project implementation stage, a series of decisions are to be taken about the supply of inputs. There has already been a choice of the technological solution and of the supplier of basic engineering, which can be the technology owner himself or a firm licensed by him, and often both the technology and the basic engineering design applying it are obtained from outside the country. There are however opportunities to detach certain "peripheral" technologies from the central process and carry out locally their engineering design. SOmetimes it is necessary to perform R&D work to adapt the process or the product to local conditions, and it may be possible to do this locally. The extent to which peripheral basic design and adoptive R&D may be made locally will depend on the country's technological level and on the attitude and efforts of the project owner and the engineering consultant assisting him.

The next task is detail engineering, in which basic engineering is transformed into a set of drawings, specifications and instructions that define equipment, buildings and installations. At this stage

many apparently minor decisions are taken, which when added together may mean significant differences in the characteristics and sources of inputs and components to be employed. A strong participation by local consulting and engineering capacity becomes important to assure the inclusion of local inputs in the investment and production stages.

A local engineering group that participates actively in a large number of decisions of this nature may play an important social role on specifying inputs that can be produced by local suppliers. During the stage of investment this may affect the origin of equipment, technical services, construction materials and construction services. During the stage of operation, the design and engineering decisions taken previously will influence the nature and origin of raw materials, basic inputs, components, parts, spares, technical services, and administrative services, all "current" purchases on which influence will be exerted by decisions taken during the investment stage.

It is therefore important for the country that the control of pre-investment and engineering design activities should be in local hands if there is to be full utilization of the local supply potential at the time of investment and also when operating the new facilities. Consulting and engineering organizations in charge of these activities should be familiar with the possibilities of local supply in each of the instances above, and should adopt the right attitudes regarding modifications in design, specifications, technical standards, and delivery dates. They should evaluate the risks and the extra costs - if any - of each local purchase, and advise the project owner about the best long-term decision. In this way they may play a decisive role in maximizing the social efficiency of the investment process (1).

Strong owner organization for projects management must be developed and improved investment procedures taking into account the incorporation of local inputs should be adopted by governmental bodies.

---

(1) open cit. Alber to Araoz in "Technological development and financial deper Colloquium of Louvain University, Belgium, 1983.

3.1.4 The role of the various governmental bodies dealing with economic development

The level of development of local consulting capabilities is directly linked to the level of development and sophistication of the national framework of laws and regulations adopted to favour and foster their emergence and development.

To illustrate this idea, we shall examine some of the legal institutions used to this effect by some of the most advanced Latin American countries (notably Brazil).

Consulting/engineering activities require flexibility, mobility, exposure to technological changes, and quick operational decisions. Serious operation difficulties arise if the environment where the firms operate impedes in these areas. Unfortunately, in most developing countries, such impedances are considerable.

Laws and regulations are often a crippling burden for the development of the local engineering firms. Considerable time and energy is wasted for securing visas, registration and certification requirements, import licensing ability to hire the most competent and experiences specialists, usage of foreign consultants, currency exchange regulations etc. All of these laws and regulations act as deterrent factors for consulting to start or develop their activities.

As specific laws and regulations adopted by Latin American countries in favour of the consulting sector, one can mention two interesting fields of appreciation: the laws on "market reservation" and those in favour of "compulsory joint ventures".

The obligation to constitute consultancy joint ventures is, in most countries (Argentina, Brazil, Colombia, Paraguay, Peru, Uruguay and Venezuela) <u>ancillary</u> to the market reservation principle, i.e. it applies when foreign firms can be contracted. In other countries (Bolivia and Ecuador) that obligation is, instead, the <u>main</u> preferential measure currently in force.

In order to appraise the characteristic [illegible] role of compulsory CJV's, they should be considered in the context of the regulatory framework to which they pertain. For this purpose, the following sub-section will describe the ways in which the market reservation operates and the next one (point (b) below) will focus, in particular, on the regulation of CJV's" (i).

a. Market Reservation

Market reservation has been implemented through two channels:

i. Compulsory awarding of contracts to local firms, whenever the required services can be adequately performed by them

The obligation to contract local firms - when they are qualified to render the relevant service - is one of the basic tools of "national buying" policies embodies in administrative legislation applicable to public contracts in Argentina, Brazil, Colombia, Uruguay and Venezuela.

Such legislation has been complemented in many countries by transfer of technology regulations which apply to contracts of both the private and public sector. In the case of Brazil, Normative Act 60 of the Instituto Nacional de Propriedade Industrial (1982) provided that the importation of consultancy services is conditional upon the unexistence of national technical ability to supply them. Likewise, in Mexico, the law on transfer of technology (amended in 1982) covers the importation of consulting and engineering services and permits the competent consultancy/authority to refuse the registration of contracts relating to technologies which are available in the country (Art. 16.1).

In Paraguay, the obligation to contract local firms also applies to the private and public sector. In Bolivia, such an obligation will become enforceable in January 1986 (for the public sector only).

---

(1) Carlos Maria Correa - "Regulations on the use of consultancy and engineering services by the public sector in Latin America Inst. C[illegible]nce - Engineering contractors for industrial pl[illegible]DC - Ljubljana - Yugoslavia - 1983

The requirement to engage local firms, when possible, is not at all absolute. It is conditioned by the existence and appropriateness of the local supply of the required service, as expressly formulated by the legislation referred to.

Besides, the application of such rule may be excepted in cases where it is imposed by conditions resulting from loans by international agencies or foreign governments. Wide exceptions of this type are recognized in Colombia (in connection with engineering but not consultancy services), Bolivia, Ecuador and Paraguay and more limited in Paraguay.

ii. Restrictions on foreign investments

Another way of limiting the contracting of foreign consultancy is by the application of foreign investment regimes. The impact of this measure differs from the obligation to contract local firms discussed before, primarily because it preserves the right of foreign firms previously established in the country to continue in the supply of such services.

This type of limitation only has a formal expression in the case of Venezuela. In conformity with Decree 2031/77 - sectoral implementation of Decision 24 - professional services in consultancy, advice, design, project analysis and studies in general, involving areas where professional activities are regulated by law, are reserved to national companies, except when according to the Superintendencia de Inversiones Extranjeras (SIEX) a foreign investment is convenient in view of its technological contribution to the country's development, and only if the foreign participation does not exceed 49% of the new company's capital.

Application of the market reservation

Country	Contracting of foreign firms is admissible:
Argentina	Only in special cases that can solely be founded on the lack of local technical ability in the subject matter of the required service, being impossible of substituting by subcontracting (Art. 16, Law 18.875).
Bolivia	In cases where the national consultancy companies lack sufficient technical experience (Art. 14, V. Decree-Law 16.850)*.
Brazil	In cases in which there is not a national company duly qualified for the performance of the services to be contracted (Art. 1, Decree 73.685).
Colombia	When the foreign participation is deemed necessary (Art. 107 and 126, Decree 222).
Paraguay	If unavoidable conditions imposed by financing sources require it (Art. 2, Decree 28.482).
Peru	For basic engineering aspects where national technology does not exist, under conditions that guarantee an adequate transfer of technology (Art. 6, Law 22.554).
Uruguay	When the consultancy involves subject matters for which there is not sufficient knowledge or experience in the country (Art. 7, f. 1, R.S. 2/6/74).
Venezuela	When there is not supply of national origin on adequate conditions of quality, opportunity and price (Art. 1, Decree 1.234).

* Applicable from 1 January 1986.

b. Compulsory CJV's

The principal aim of the compulsory constitution of a?? CJV's - as declared even in some applicable regulations - is to ensure the transfer of technology from the foreign to the local partner, and the?? by contribute to the creation and improvement of the country's technical abilities. At the same time, the participation of local firms enhances the utilization of their operative capacity, generally subject to an unstable demand and abrupt oscillations in the levels of activity.

As indicated above, in all countries where policies of market reservation are applied, when local services are not available, a foreign firm can render the required services, provided that it associates compulsorily with a local firm. In Bolivia and Ecuador (where such a reservation is not yet in force) the compulsory association is the main rule applied to favour the participation of local firms.

The compulsory association has been provided for in absolute terms - that is, without holding it down to any type of external conditions - in the majority of the countries. In Bolivia, however, it applies when local firms with sufficient experience for the object of the work do exist; and in Venezuela, if a significant partial supply of national origin is available. Apparently, according to these qualifications, foreign firms could eventually bid for or obtain a contract without associating themselves with local firms.

The conditions under which the association must take place varies from country to country. In almost all of them, there are some rules referring to the domicile and place of constitution, degree of participation of the local firm, attribution of representation and responsibility or to the conditions of employment and training.

One of the main aspects regulated is the minimum participation that should be accorded to the local partner in the execution of the work. These rules are intended to avoid the constitution of CJV's as a mere formality, - a risk often pointed out - without an effective participation of the local personnel. This point is closely related to the conception of CJV's as a vehicle for the transfer of technology.

Notwithstanding the uniformity as regards to the principle, its implementation differs considerably from country to country. Two main parameters have been laid down:

i. minimum percentage of participation in the cost (Bolivia), contract's value (Colombia) or fees (Uruguay) involved in the project;

ii. minimum participation in the tasks (Bolivia), or in the total scheduled "months-man" in each phase, category or specialization or work (Uruguay).

The second criterion is crucial to ensure that the local personnel is not confined to merely administrative tasks, or to those which are not relevant from the technical point of view and for the upgrading of local abilities.

It should be noted that while the Ecuatorian regulation establishes a minimum local participation of 30%, it does not spell out the factors on which that percentage is to be calculated.

3.2 Role of the Development Banks regarding the strengthening of local consulting capabilities

We have already mentioned that the demand of consultancy services by public entities is by large the major component of the global demand of such services in developing countries (in Latin America the public sector accounts for 82% of the global demand).

Most of the financing of these services is channelled through public financing institutions, more particularly the development Banks at national, regional and international level.

In the field of consultancy services like in the case of construction and capital goods industry, the adequate use of the State's and/or Bank's buying power may substantially contribute to the creation and improvement of local firms competitive position in domestic as well as foreign markets But, it we except the most advanced developing countries, the ...ance between the various reasons conditioning the project execution is most often in favour of using foreign services.

At the national level, financing institutions find it difficult to include in their objectives and modus operandi conditions that go beyond the strict limits of the project and the possible acceptance of extra costs and risks in the short term for the sake of securing important advantages in the long term.

For international Development Banks we can also consider that "the possible space for strengthening" local technological capabilities is generally strongly curtailed as financial consideration become dominant, and strict, cautious approaches tend to eschew any obsessions of actions which may seem rash and adventurous by banker's standards.

Even the World Bank which reserves a considerable attention to the appropriateness in its choices of technology in developing countries has not adopted, for the time being, a firm position regarding the development of local consulting capabilities (1).

But the problem is not simple and it would be unfair to charge the banker with the full responsibility for the prevailing situation.

---

(1) Among the many constraints opposing the assistance to the generation of local consulting capabilities, the World Bank has "to take into account the complex interdependencies between industrialised and developing nations", CH Weiss and N Jacquier, "Technology, Finance and Development, an analysis of the World Bank as a technological institution". Lexington Books, Massachusetts, 1984.

The problem faced by the banker is generally not one of principle, but a technical problem. Development Banks are all willing to take into account long run development impacts, local technological development (and have adopted these principles in their guidelines (2)) but how to quantify these aspects and integrate them into current projects evaluation procedures?

The adequate solution should probably not link necessarily the objective of executing current projects and the objective of developing local project execution capabilities.

It is worthless to insist in trying to conciliate in the short run contradictory objectives. But this doesn't mean that nothing should be done and contradictory objectives very often can be conciliated in the long run.

It is adequate to create within the Development Banks a specific organization dealing with the emergence and the financing of local project execution capabilities, playing a different role and serving different objectives than those related to the implementation of current development project.

---

(2) The World Bank got interested in the early seventies in using the operations it financed for the purpose of developing local technical capabilities. Work done on this issue bore fruit with the drafting in 1977 of an Operational Manual Statement on "The Development of Local Capabilities" (World Bank, 1977), from which we quote the following passages:

"Creating and strengthening local capabilities to conceive, design and carry out development work on a sound basis is an important part of the development process. Without the expansion of such capabilities, the economic and social development of developing countries may not be fully within their control, and even their ability to make the best use of financial and human resources furnished from sources outside the country may be impaired. Furthermore, the effective transfer of technology and the development of technology appropriate to local conditions is facilitated by the insights and understanding of local conditions provided through local talent. It has, therefore, been Bank policy for some time to encourage and foster the development of local capabilities to conceive, design and carry out development work on a sound basis. This policy is an

important element of the Bank's efforts to promote development in the developing countries. Since the Bank lends for "projects", much of the Bank's effort has been oriented toward capabilities related to project work, and this effort is carried out primarily through projects. As the Bank has become more aware of the difficulty and complexity of developing local capabilities of this sort, the scope and character of its effort has changed and grown... The Bank and the borrower are then faced with two problems, the solutions to which may, at least for the shorter term, be inconsistent or conflicting. The first is how to get a high quality project designed and carried out promptly and effectively; the second is how to assist the borrower to do such work on its own in the future. The solution to the first problem is normally found in the use of consultants. If there are qualified local consultants, capable of doing all or part of the work, they should be used to the extent possible. The solution to building up the borrower's capability may be found (i) through practical, on-the-job training and demonstration carried out by the consultants engaged to carry out the first takes, (ii) through other, more intensive and comprehensive project-related training carried out by others, (iii) through technical assistance provided separately from design functions (such as the provision of "managers", technical and financial specialists, or planners), (iv) through technical and vocational training provided as part of the general education programme of the country, or (v) through some combination of these. It is important, however, not to lose sigh of this general problem when finding a solution the the specific problem of getting a high quality project designed and carried out. Furthermore, if any of these general training efforts is to be effective, it is necessary that time, staff and funds be provided for this purpose; these activities can appropriately be included in a project and funds for this purpose included in the loan. The training activities should be supervised in the course of project implementation to the same extent as other activities. There is much that can be cone progressively over time to build up local capabilities, without jeopardizing Bank standards, by starting with the simpler tasks. Over the years, many of the Bank's borrowers have in this way built up their capacities to design and carry out projects, eventually with little outside help; and in a number of developing countries, a strong consulting profession has grown up.

It is important in the long run for developing countries to have a local capability for pre-investment work as well. In drafting terms of reference and considering proposals for pre-investment work, Bank staff should bear this consideration in mind and should be prepared, depending on country and other circumstances, to include in the terms of reference provisions encouraging the consultants to make the maximum use of local firms through joint-ventures, sub-contracts or otherwise".

The objective of developing local project execution capabilities is a development objectives in itself and deserves as much are as developing any basic infrastructure.

To substantiate the feasibility of this idea, I will mention an existing institution which actually has in a developing country the mandate, the objective, the authority and the resources to specifically assist and finance the creation and absorption processes of technologies in general, and the generation/development of local consulting capabilities in particular (1).

"Finalization de Estudos e Projectos" (FINEP) is a Brazilian public institution dealing with the financing of and the assistance to the whole process of creation and absorption of technologies from basic research at academic institutions to the development and use of new technologies by Brazilian firms. The activities of FINEP may be classified into four functions:

a. as a government enterprise - it supports the execution of studies and projects, the technical and financial capacity of Brazilian consulting firms and the technological development of national corporations;

b. as the Executive Secretariat of the National S&T Development Fund, it regulates the utilization of its resources in priority programmes and projects according to the criteria established by the Basic Scientific and Technological Development Plan (PBDCT);

c. as the Executive Secretariat of the Coordinating Commission of the Articulation Nuclei with the Industry (SE-CCNAI) it is responsible for promoting the substitution of imports of capital goods and engineering services by public corporations;

---

(1) Some equivalent institutions should exist in some of the most advanced developing countries. Their activities are quite recent but their experience could be relevant to define practical measures towards the generation of consulting cap...

d. as responsible for managing the funds of the Programme of Energy Mobilization (PME), created with the objective of promoting energy conservation in general and the substitution of the oil products through the utilization of alternative sources.

3.3 Recommended measures

Having identified the institutions which may have an influence on the generation/development of consulting services, the role they can play, and some of the relevant mechanisms actually used, one can outline a corresponding international cooperation network for industrial consulting in charge of conducting an efficient and coherent plan of action in this field.

3.3.1 The cooperation network for industrial consulting

The use of international cooperation networks to deal with complex issues involving to many actors and mechanisms is a well established practice which proved its efficiency.

The World Bank has contributed, financially and organizationally, to the building up of three international networks (the Consultative Group on International Agricultural Research, CGIAR; the Tropical Diseases Research Programme, TDR; and Cotton Development International, CDI).

The way these networks have been created and managed amount to a state-of-the-art method for managing international networks.

The international network for industrial consulting (which should be the subject of a comprehensive study (1)) will include at least the institutions and bodies identified in 3.1 (professional associations, owners organizations in charge of investment, development Banks, governmental bodies in charge of regulating various aspects affecting the consulting profession). The salient feature of the network could be as follows:

---

(1) A study has already been executed by UNIDO concerning the regional cooperation network between DC in the ESCAP Region. A similar study should be done for Africa and Latin America.

- maximum use of existing institutions which deal with an important aspect of the various facets of the consulting profession;

- the operational arm, the back bone of generation/development of consulting activities are the development Banks which not only assure (at national, regional and international level) the financing of investments, but should also develop services to finance the development of local capabilities. The successful activity of FINEP in Brazil in this field has proved that this objective could be pursued as a viable financing scheme.

Moreover, some regional financing institutions (notably African Development Bank and Islamic Development Bank) have already shown a particular interest in supporting the development of the consulting profession in their respective regions. They have initiated and are partly financing regional federations of consultants and are looking for more active measures to develop the profession.

The contribution of the World Bank to the development of local capabilities could be more focused on the use of joint ventures (between local and foreign consultants) for the projects financed through its group (1).

The World Bank could also finance the creation of private consulting firms through International Finance Corporation (IFC).

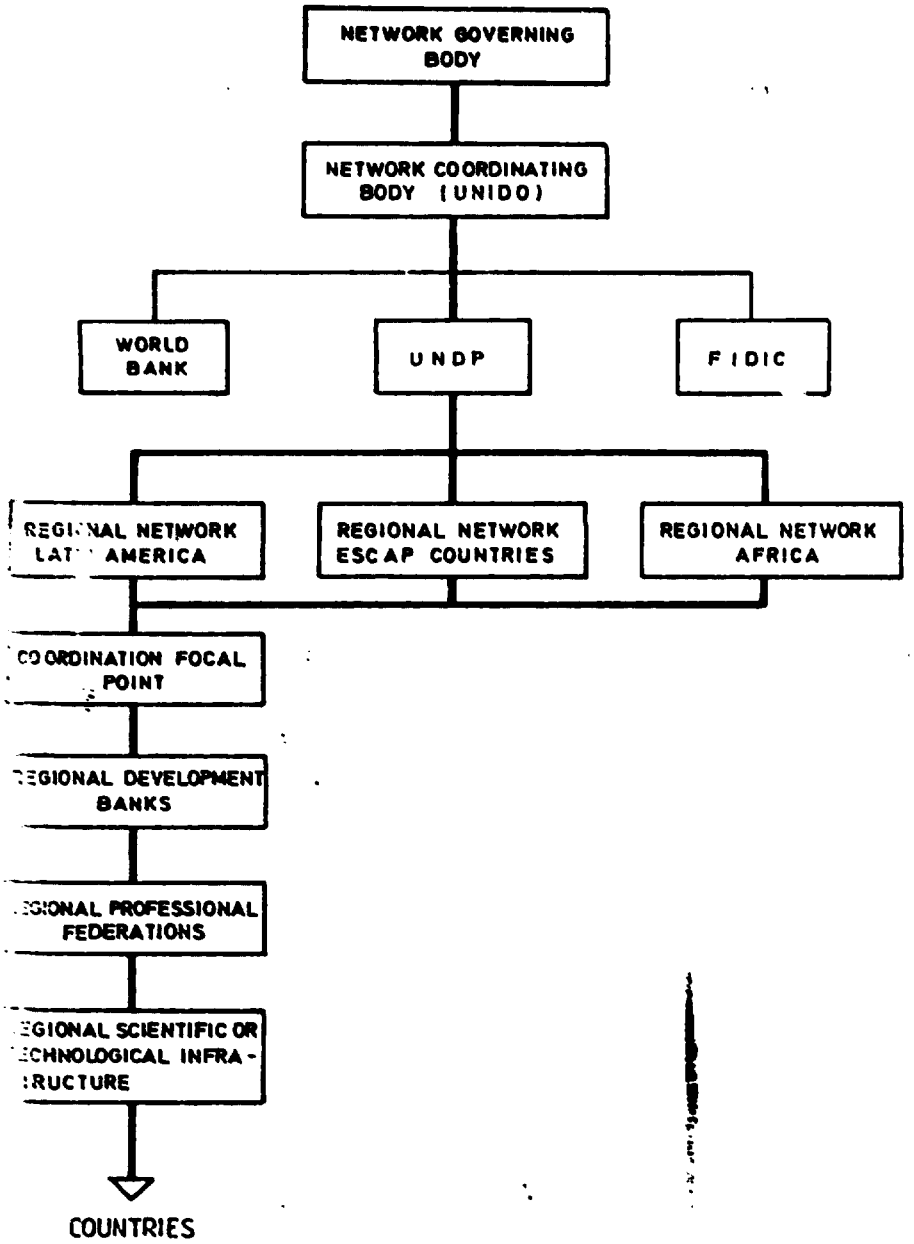
As shown in the attached network charts, the multiplicity of bodies/institutions having an influence on one aspect or another of the consulting profession, imposes a "focal coordination and convergence point" at the national, regional and international level (2).

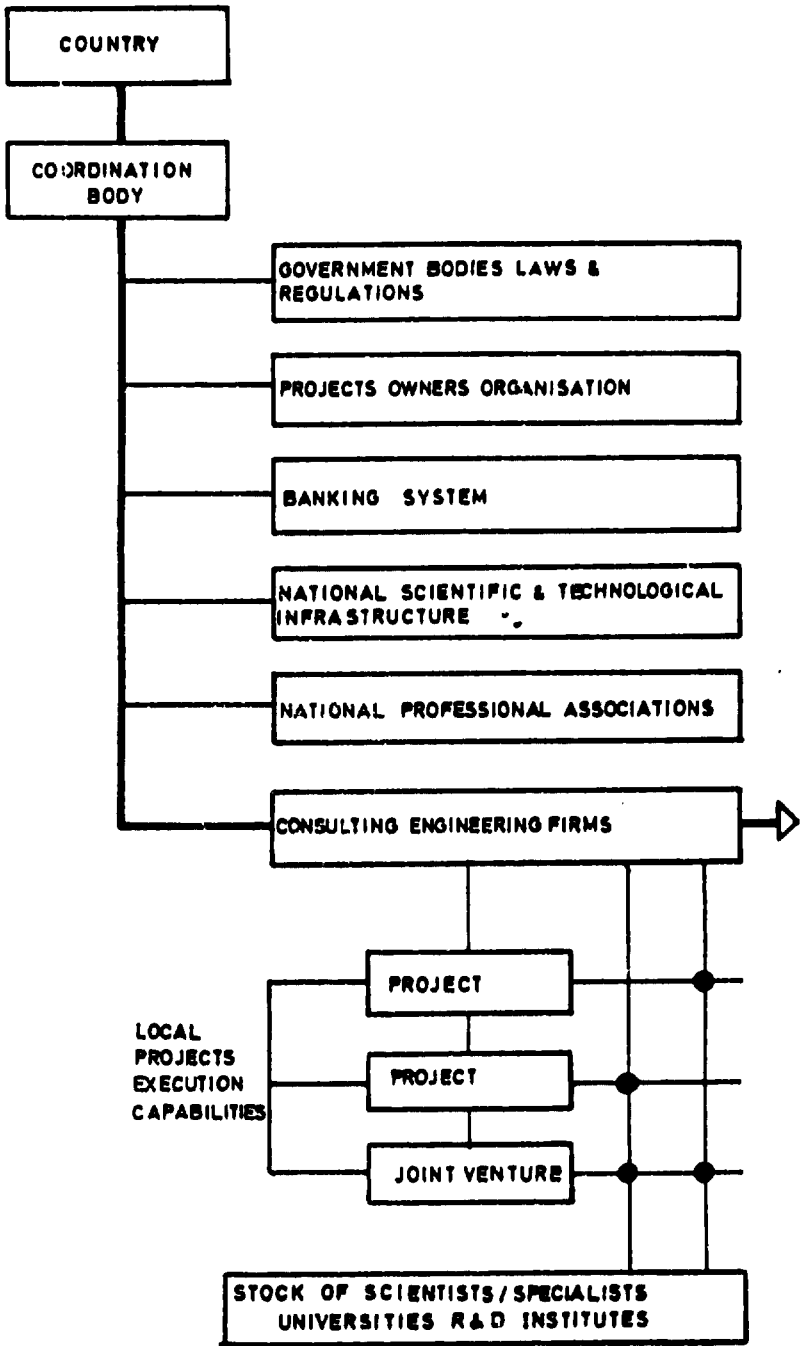
---

(1) This is in accordance with the trends of national regulations concerning the use of compulsory joint ventures to develop local consulting capabilities.

(2) For instance M? N Nicolaidis in the UNIDO Report (Regional Cooperation Networks in Industrial Consulting between DC in the ESCAP Region (DP/RAS/83/013), p.111) recommends as suitable location for the Regional Secretariat, the Asian and Pacific Development Centre (APDC) in Kuala Lumpur.

INTERNATIONAL INDUSTRIAL CONSULTING NETWORK





At the national level this focal coordination point could be located in the Ministry in charge of industrial development. At the regional level it could be a cell or a Secretariat located in one of the relevant regional organizations (1).

At the international level UNIDO through its ECDC/TCDC activities could assure the coordination of the Industrial Consulting Network.

On the top of the framework "a governing body (Board, Commission, Committee) or Executive Director" (2) should reflect the representation of the main interests or institutions having an influence on the matter and assure the role of defining the main objectives of the network and controling its execution.

3.3.2 Tentative plan of action

It can take between one to two years to establish an international network for industrial consulting.

Practical and realistic steps toward the establishing of these networks could be:

3.3.2.1 Intermediate steps before establishing the network for Industrial Consulting

- to deepen the knowledge of the current situation and level of development of consulting capabilities in developing countries - existing potential, ways and means to generate and develop these capabilities.

---

(1)(2) For instance, M N Nicolaidis in the UNIDO Report (Regional Cooperation Networks in Industrial Consulting between DC in the ESCAP Region (DP/RAS/83/013), p.111) recommends as suitable location for the Regional Secretariat, the Asian and Pacific Development Centre (APDC) in Kuala Lumpur.

More surveys and studies should be devoted to this matter (1) and diffused to bodies or people interested in the development of these activities;

- to provide assistance to the development of national and regional professional associations;

- to assist in developing financing instruments for the development of local capabilities (probably as a new activity of existing development Banks);

- to provide assistance to developing countries to establish institutionals frameworks, and the necessary laws, regulations and practices to monitor the generation and development of local capabilities.

3.3.2.2 The development of the international network for industrial consulting

Most of the measures proposed in 3.3.2.1 can be considered as preparatory steps toward the establishment of the industrial consulting network.

The creation of the network itself requires to design a workable network, and a fairly long period of negotiations with the main participants.

This is why I recommend the measures defined in 3.3.2.1 as the minimum which can be done in the short run, if some practical actions are to be initiated in favour of the development of the consulting sector. In that case, the establishment and the functioning of the network could be pursued as a medium term objective but the first set of measures will contribute to prepare it.

---

(1) Despite the strategic importance of consulting for industrial development the studies and surveys related to the matter are derisory and very poor, and reflect the level of concern, allocated resources and results reached regarding the development of local project execution capabilities in developing countries.