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**COOPERATION AMONG DEVELOPING COUNTRIES'  
CONSULTANCY AND ENGINEERING DESIGN ORGANISATIONS  
FOR BETTER ACCESS AND POSITION  
IN INTERNATIONAL CONSULTANCY AND ENGINEERING MARKET**

**PROJECT REPORT**

**1993**

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# Abbreviations

The following abbreviations are used:

ADB	Asian Development Bank
AfDB	African Development Bank
C/E	Consultancy and Engineering
CEDO	Consultancy and Engineering Design Organisation
DACON	CEDOs Registration system of multilateral DFIs
DC	Developing Country
DFI	Development Finance Institution
EBRD	European Bank for Reconstruction and Development
FAO	Food and Agriculture Organisation of United Nations
FELAC	Federation of Latin American Associations of Consultants
FIDIC	International Federation of Consulting Engineers
IDB	Inter-American Development Bank
INRES	TCDC Information Referral System of UNDP - TCDC Unit
INTIB	Industrial and Technological Information Bank of UNIDO
SITTDEC	South Investment, Trade and Technology Exchange Centre
TCDC	Technical Cooperation among Developing Countries
TIPS	Technical Information Pilot System
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organisation

# REFACE

Following the recommendations of the feasibility report on Development of Cooperative Arrangements among Developing Countries in the Consultancy / Engineering Field prepared by ICPE and ASTRO in 1989 and endorsed by the Fourteenth Annual Meeting of the Ministers of Foreign Affairs of the Group of 77 in its Decision on ECDC (New York, October 1990) the G-77 Perez Guerrero Trust Fund for ECDC/TCDC with technical support of UNDP approved the project "Cooperation among developing countries consultancy and engineering organisations for better access and position in international consultancy and engineering market" (INT/89/KO4).

The "development" objective of the project was "to strengthen the capacities of developing countries (DCs) consultancy and engineering design organisations (CEDOs) for international activities and to facilitate their access to the international consultancy and engineering (C/E) market and to promote mutual cooperation".

The project document stated the following three "immediate" objectives:

- i) to analyse, compare and make an assessment of methodologies/procedures and rosters of CEDOs of different international/regional institutions (like World Bank, Regional Development Banks, UNIDO, UNDP) and give initiatives for more adequate presence of DCs CEDOs in these systems and for inclusion of data which are of specific relevance for investment projects in DCs.
- ii) to undertake an analysis of selection methodologies, criteria and procedures utilised in connection with C/E projects sponsored by major international / regional organisations and to propose adaptations in these systems which would give a better chance to "new entrants" to win contracts and would give a greater weight to some non-traditional criteria in comparison to purely "technical" criteria; and
- iii) to make an analysis of major information systems concerning project opportunities and availability of CEDOs services and to make proposals for more efficient use and better presence of DCs CEDOs in these systems.

The Consultative meeting of DCs CEDOs on Development of cooperative arrangement among DCs in the C/E field, organised by ICPE/ASTRO in Ljubljana in 1989 and the resulting feasibility report on Development of cooperative arrangements among DCs CEDOs, considered the above three inter-related areas as being a basic pre-condition for successful entry in the international C/E market and, hence, of immediate relevance for DCs CEDOs intending to venture overseas.

The issues discussed in this study - although being mainly of a formal - and procedural nature, represent an essential element of the operating environment for DCs CEDOs international activities and can either help or curb the entrance of DCs CEDOs into this market. The study did, however, not deal with the array of measures to build up substantive export capacities of DCs CEDOs.

For DCs CEDOs - which are mainly "new entrants" into international C/E market - it is impossible to start operating efficiently on this extremely competitive market if they are not, in the first place, properly registered; if the information about their capacities are not readily available to interested parties; and if they are not familiar with the evaluation and selection criteria and procedures of potential clients. Their entry into international C/E market can, however, be either facilitated or hampered by the prevailing international systems and practices of CEDOs registration, information and selection.

The starting assumption of the study was that these systems are biased in favour of reputed CEDOs from industrialised countries or at least that they are just neutral, supporting a "biased liberalism" in favour of large, experienced, reputed players in the international C/E market.

The study has analysed the main international systems of CEDOs registration (CEDOs Rosters), the main international information systems on DCs technological and C/E supply capacities and the prevailing international practice for evaluation and selection of CEDOs (particularly the practices of the World Bank and of Regional Development Banks). On the basis of this analysis and interviews with representative of DCs C/E profession, conclusions and recommendations for activities of DCs CEDOs and concerned national and international institutions for maximising the use and for making these systems more "DCs CEDOs friendly" have been proposed.

The study is divided into four chapters:

- Chapter 1 is analysing the international C/E market and the position of DCs CEDOs in this market;
- Chapter 2 is dealing with C/E market characteristics (C/E activities, stakeholders, marketing activities), the comparative advantages and weaknesses of DCs CEDOs vis-a-vis CEDOs from industrialised countries, and with transition strategies from CEDOs domestic to international operations;
- Chapter 3 is dealing in sub paragraph 1 with registration of CEDOs, in sub-paragraph 2 with information relevant for CEDOs and in sub-paragraph 3 with evaluation and selection of CEDOs;
- Chapter 4 contains conclusions and recommendations of the study.

In preparing the study ICPE/ASTRO consulted and discussed extensively on above issues (the Interview Questionnaire is attached as Annex I) with a number of concerned organisations (World Bank, Regional Development Banks, CEDOs Associations) and resource persons from DCs CEDOs (List of organisations/resource persons contacted is attached as Annex II). A Consultative Group created in the framework of the National Association of Consulting Engineers of Slovenia provided advice to ICPE/ASTRO throughout the implementation of the project. The support and cooperation received from the above organisations and experts is gratefully acknowledged.

## EXECUTIVE SUMMARY

In the consultancy and engineering (C/E) area, the developing countries are confronted with a paradox situation: they are the main buyers of international C/E services, traditionally representing more than 80% of the international demand for such services, and on the other side the consultancy and engineering design organisations (CEDOs) from developing countries play only a modest, if not negligible, role in this market, covering less than 10% of this demand. The situation on the international C/E market can be best illustrated by the fact that out of top 200 international CEDOs, 95% are from industrialised countries, while 80-85% of their foreign billings originate from developing countries markets. Among the top 200 international CEDOs there are only around 5% from developing countries, whose foreign billings originate practically exclusively from developing countries.

On this specific market there are basically "qualitative" factors (like, technical competence, qualified staff, organisational capacities, experiences, etc.) which play an essential role in defining the competitiveness of CEDOs. There are, however, also a number of other factors, from attitudinal to financial, which give a starting competitive advantage to some CEDOs, irrespective of the "quality" of their service offered. Such contextual factors are - in the present international context - helping to perpetuate the dominant position of some thousands large, well staffed, financially strong CEDOS from industrialised countries, with long years of experience in development work.

The present study is specifically looking into how the entry of developing countries CEDOs, as "new entrants" to the international C/E market, can be either facilitated or hampers by three of such contextual factors, i.e. registration of CEDOs, information systems on C/E supply and demand and criteria and procedures for selection of CEDOs.

There is namely an increasing number of developing countries CEDOs which have accumulated skills, knowledge and experiences in the process of developing domestic economies, and are now in the position to offer valuable services to other countries, especially their neighbours in the region. There are, however, very few developing countries CEDOs which have succeeded to expand their C/E activities beyond the domestic market.



In the initial stages of developing countries efforts to penetrate the international C/E market, the domestic market plays a crucial role. It is on this market where the first international contacts can be most easily established and where the first internationally relevant experiences and references can be accumulated. It is above all the domestic Government - as the main user (public investments usually represent the prevailing part of C/E demand in developing countries), regulator and promoter of domestic C/E industry, which plays a paramount role in giving the chance to domestic CEDOs to be involved in C/E assignments which generate the needed knowledge, contacts and experiences for international operations. A number of developing countries has been using different formal and informal instruments to promote the participation of domestic CEDOs in domestic C/E assignments, ranging from outright market reservations and/or compulsory associations to encouragement of sub-contracting and different forms of strategic partnering with foreign CEDOs. It is also the stated policy of most multilateral financial agencies (World Bank, Regional Development Banks, etc.) to promote, through technical assistance and project finance, the development and utilisation of domestic CEDOs and the formation of joint ventures with foreign partners.

The domestic market in most developing countries is, however, characterised by high fluctuations of demand (particularly the public investment segment) and usually - particularly in smaller developing countries - cannot ensure a steady workload for domestic CEDOs and the possibility of their normal development and needed specialisation. For many developing countries CEDOs, the internationalisation of their activities, which may start with simple sub-contracting activities, is the only possibility to level out the workload fluctuation in the domestic market and to ensure a normal development.

The fact that developing countries are the main international buyer (at least formally) of C/E services can be utilised as the major strength and opportunity in the hands of developing countries to help their CEDOs to break the "vicious circle" in which they are at present, and where they cannot get important international assignments because they lack relevant experience, and they are not in the position to acquire the required experience without being actually engaged in such assignments.

Considering the fact that the present international C/E market is strongly dominated by

a more or less exclusive club of international CEDOs from industrialised countries, having a market share of more than 90%, and the fact that the prevailing "rules of the game" on the international C/E market, which are also imitated by most developing countries, are favourising well established, large, experienced, reputed CEDOs with a long tradition, it is essential that a positive - "affirmative" action is taken by developing countries and the international community (especially the UN system and the multilateral financing institutions) in order to help the "new entrants" and "minority" - to be admitted to this market, in the first place, and, secondly, to be given the opportunity to compete on the basis of "merits" of their C/E services offers.

There are a number of potential substantive competitive advantages which C/E services offered by developing countries CEDOs have vis-a-vis the services traditionally offered by CEDOs from industrialised countries. Among these advantages the following may be of particular relevance for the clients in developing countries:

- availability of technologies and technical services better adapted to developing countries needs and operating conditions;
- experience in scaling-down, decreasing the level of sophistication, material substitution, tropicalisation and other adaptations of technology to conditions prevailing in developing countries;
- experiences in working on "greenfield sites" without the infrastructural and other support services which are "normal" in industrialised countries environment;
- availability of training and other labour intensive technical services (like detailed design) at lower cost;
- experience in implementing similar projects in their home countries and thus the possibility of avoiding repetition of mistakes;
- greater geographical and cultural proximity and interpersonal sensitivity;
- availability for follow-on presence in the country and thus lower project life cycle and maintenance costs, etc.

The developing countries CEDOs face, however, a number of barriers and constraints in accessing the overseas C/E markets, including the markets of sister developing countries, which have nothing to do with the "quality" of their services and with which their competitors from industrialised countries are usually not confronted with, like:

- attitudinal barriers against " new entrants", especially from developing countries (risk syndrome, image problems, lack of confidence etc.);
- inadequate information of clients from developing countries about CEDOs from other developing countries, their availability, capacities and experiences (problem of predominance of North-South information and communication channels);
- constraints of historical nature, like historic links with former metropolis (education, technical language, technical literature, standards, metrology, legal systems, mass media etc.);
- financing and insurance mechanisms biased in favour of "reputed" CEDOs;
- inadequate support from home governments, financial institutions, chambers of commerce, etc. for export of C/E services from developing countries;
- CEDOs evaluation and selection criteria and procedures biased in favour of "experienced", "reputed" well established CEDOs with a long tradition and impressive track records.

The present study has analysed three of such possible "constraints" facing developing countries CEDOs in the international C/E market, i.e. the registration requirements, information systems and systems of CEDOs evaluation and selection. These issues are basically of a "formal", "procedural" nature, but can, nevertheless, be a serious stumbling block on CEDOs way to overseas markets.

The analysis of these three basic "entry conditions" to the international C/E market, i.e. CEDOs registration, information and selection systems, shows that this systems do not formally discriminate against "new entrants" into C/E market, but that on the factual

level they help to perpetuate the dominance of an "exclusive club" of large, experienced, reputed international CEDOs from industrialised countries. On the practical level, these systems are either biased in favour of large and reputed international CEDOs (like the prevailing CEDOs short-listing criteria, which favour such factors as: years of experience, number of executed projects, number of staff, etc., which are normally a characteristic of large and reputed CEDOs and not of CEDOs from developing countries) or are "neutral" concerning different types of CEDOs (like registration or information systems). But also in these "neutral" system the problem of factual inequality is very much present, taking into account the enormous differences in marketing, financial and other institutional capacities among typical CEDOs from industrialised and developing countries. Except for some minor preferences given to "qualified" CEDOs from developing countries (like the practice of some regional development banks to reserve some places on the short-lists for domestic or regional CEDOs) there are presently no major elements or activities contained in these systems which would - in addition to open "equal opportunities" for all - take into account the specific characteristics of developing countries CEDOs and actively help these CEDOs to overcome at least the formal barriers to the international C/E market.

For developing countries an important - but insufficiently used - instrument for facilitating the access to international C/E market, particularly the market of developing countries (the market of other developing countries being practically the only available export market for their CEDOs) is the instrumentality of inter-CEDOs TCDC. In the specific areas discussed in this study, the cooperative activities may be used for facilitating the CEDOs registration with potential clients in the concerned countries; it may be used for short-cutting the information gap which typically exists on the horizontal level between developing countries; and it may also help in providing timely and relevant "personal" information in the CEDOs selection process.

Besides the possible TCDC "short-cut" route of entering the international C/E market, there is the "normal" route, which requires from CEDOs that they are properly registered with potential clients and other stake-holders in particular C/E projects (like, project sponsors, financial institutions, etc.); that they are informed about potential demand and properly represented in the information systems on CEDOs supply; and that they are familiar with the CEDOs evaluation and selection procedures and criteria applied by potential clients. The systems of CEDOs registration, information and

selection, although being "peripheral" in relation to "core" consultancy activities, play an important role on the international C/E market, by "filtering", in the first place, the future players on this market.

One of the elementary steps which a CEDO has to undertake in order to be present and have the chance to be considered for assignments in the international C/E market is the proper registration with concerned institutions. The registration is in some cases a pre-condition to be admitted to apply for work at specific institutions, in others, it is only one of the information sources for locating suitable CEDOs and for establishing the "long lists" of CEDOs. Most agencies have some minimum requirement for CEDOs to be eligible for entering into agency's CEDOs roster. In this way, the registration procedure represents a first "filtering" of CEDOs. The most widely used international system of CEDOs registration is the DACON system used by the World Bank and - with minor adaptations - by Regional Development Banks and a number of other institutions. Different UN organisations have their own systems of CEDOs registration, which contain basically the same data as the DACON system but differ in format of data arrangement. On the national level, the CEDOs usually have to register with different institutions with which they are interested to work. For some developing countries CEDOs, the eligibility requirements of some registries (like, prescribed minimum number of professionals with prescribed years of experience, required minimum number of executed projects, etc.) represent already a first obstacle in their efforts to compete for certain assignments. For most developing countries CEDOs - with their relatively modest administrative capacities - the formal requirements of registration and the variety of different - mostly incompatible - registration systems, in which they have to be registered, represent, however, primarily a practical administrative problem. The developing countries CEDOs could, however, be much better represented in the CEDOs rosters of relevant institutions if the problems of standardisation, compatibility and interchangeability of basic data contained in different registries would be better solved as at present.

Access to timely and reliable information on forthcoming development projects and other business opportunities in the international C/E market (information on C/E demand) as well as dissemination of information on CEDOs, their availability, capacities and capabilities (information on C/E supply) to potential clients, represent another set of pre-conditions for efficient entry into international C/E market and is another "filter" on the route of CEDOs to the international C/E market.

There is an important number of publications and data banks on international project demand - the most relevant for CEDOs being the UN publication "Development Business", which provides information on C/E business opportunities generated by the World Bank, Regional Development Banks, UNDP and a number of other development agencies. However, the information available from "public" information sources is usually of a very general nature and needs - in order to be a relevant basis for CEDOs business decisions - to be complemented by additional data which are usually not readily available. Developing countries CEDOs usually suffer from the lack of access to such specific information, which can often be obtained only through direct presence at the prospective project market and through personal contacts with project promoters. CEDOs from other developing countries can in this respect be an excellent "personalised" information source and can substantially short-cut the information gap which presently exists among developing countries. The information infrastructure, so far, has been designed mainly from the standpoint of needs and interests of industrialised countries, and frequently does not permit direct communication on the horizontal level between developing countries. Thus, CEDOs from developing countries usually do not have direct access to information on the neighbouring and other developing countries, which are presently practically the only relevant market for export of their C/E services.

There are also multiple sources of information on C/E supply, ranging from "personal" sources to "impersonal" sources, like CEDOs brochures, CEDOs directories and various information systems and data banks. The information systems, which have as their main objective to facilitate and promote TCDC and ECDC, like INRES-SOUTH ( UNDP), INTIB (UNIDO), TIPS and SITTDEC (G-15), can play an important role in disseminating information on developing countries C/E supply capacities. Among these systems, at present, only INRES- SOUTH includes data on developing countries CEDOs and is used mainly by the UN system to identify developing countries CEDOs for TCDC and other C/E assignments. By including a special CEDOs "window" also in other TCDC/ECDC information system the general information level on developing countries C/E capacities could be greatly increased.

Similarly, as in the area of CEDOs registration, the public information systems relevant for CEDOs international operations are basically equally accessible to CEDOs from industrialised and developing countries. The problem specifically facing developing

countries in this area, is their factual capacity and capability to participate and make proper use of these systems. The specific TCDC/ECDC information systems -if properly linked to other "main stream" information systems could be an important "positive" support to greater awareness of the international clients about developing countries CEDOs capacities and capabilities.

The third "filtering" stage of CEDOs which have successfully passed through the registration and information systems and "reached" the concrete project client, is the CEDOs selection process. Typically, there are three critical stages in this process:

- the assembling of the "long list" of CEDOs which may be considered for the assignment (in this stage, the registration and information systems play an important role);
- the pre-selection stage, in which a specific number of "long-listed" CEDOs, which appear to be most qualified to undertake the assignment, is "short- listed; and
- the selection per se, in which the most suitable CEDO is selected on the basis of evaluation of the bids received from competing short-listed CEDOs.

In this selection process the main problems for developing countries CEDOs are the following:

- first, to make themselves known to prospective clients and to ensure that they are put on the "long-list" of CEDOs;
- second, to pass the pre-qualification screening and enter the "short-list", and thus get the opportunity to compete with a concrete proposal; and
- third, to be given a fair chance to compete with other bidders primarily on the basis of the "merits" of his proposal and not on the basis of some "historic" factors, like years of experience, number of executed projects etc.

The pre-selection stage represent for most developing countries CEDOs the most critical phase in their effort to penetrate the international C/E market. It is in this phase where different quantitative and historic "experience" based criteria (like, number of executed projects, number of professionals, years of experience, etc.) often automatically exclude the "new entrants" from developing countries from further participation in the selection process-and thus perpetuate the dominance and

exclusiveness of the "club" of well established, "experienced" international CEDOs. It is specifically in this phase of CEDOs selection process, where it is particularly difficult for developing countries CEDOs to break the "vicious circle" problem connected with the required "experience".

The pre-selection phase represents, however, the most appropriate framework for developing countries and other regional and international institutions to intervene, also with political means, into the CEDOs selection process and - without compromising on the quality of required C/E services per se - ensure some form of "special treatment" of developing countries CEDOs in entering the international C/E market (like, reservations for domestic or other developing countries CEDOs on the short-lists, balanced representation of CEDOs from different countries on the short-list, including or ascribing greater weight to some "non-traditional" factors in CEDOs pre-qualification process, etc.).

In the final "bid selection" phase, the "quality" considerations are continuing to be the overriding evaluation and selection factor. But the "quality" is being considered in this stage mainly in the context of concrete project requirements. This gives a better chance to developing countries CEDOs to be judged on the basis of the "merits" of their proposals and not on the basis of some quantitative or historic institutional factors, which may not be relevant for the concrete assignment. However, besides the remaining "experience" biases also in this selection phase, the fact that the great majority of bid selection methodologies take "price" into consideration only as a secondary factor, after the evaluation according to technical criteria has been completed, represents another handicap for most developing countries CEDOs, - whose main competitive advantage vis-a-vis CEDOs from industrialised countries may often be a significantly lower consultants rate for comparable services. For developing countries CEDOs, it would be therefore of great relevance that the range of assignments in which the price would be accepted as a permissible evaluation factor would be enlarged and would not be restricted to simple routine C/E assignments, as it is presently the prevailing international practice.

The conclusions and recommendations of the study are contained on pages 59-65 of the Project Report.



## **1. MARKET FOR CEDOs: AN INTERNATIONAL PERSPECTIVE**

### **1.1. INTRODUCTION**

Just as quality and manufacturing excellence were key to competitiveness in the eighties, superior induction, absorption and diffusion of technology in the various national sectors will be crucial for economic development, especially in the DCs, in the nineties. The intermediation of CEDOs in such a technology transfer and developmental effort is significant as they offer all the requisite activities essential to such a process, viz. its choice, technical realisation and management.

Very few DCs that have established domestic competence in C/E services have succeeded in penetrating international C/E market. The reasons for such a peripheral role of DCs CEDOs are many; they range from outreach capabilities to financial muscle. Concerted and coordinated efforts are required at the national and international levels to improve their export competitiveness and secure their fair market share in the international consultancy / engineering / technology trade. Relevant back-drop for such efforts is provided in this Chapter.

### **1.2. STRUCTURE OF C/E SERVICES**

C/E services include a wide range of activities, essentially intellectual, which are combined to optimise investment decisions in terms of choice, design and project management and implementation. These services may include all the stages mentioned in *Figure 1* in the case of a turn- key contract, or in most cases the CEDO intervention is limited to some stages in this process.

**FIGURE 1**  
**Stages in Engineering Services**

Stages	Actors	Comments
1. Decision to invest	Client	Often following studies by the planning department
2. Feasibility Study	Engineering Company	Often performed by a consulting company specialised in economic studies
3. Process engineering	Engineering Company	By the Engineering Company or another company in the same industry
4. General engineering	Engineering Company	Technical design of the production unit for the client
5. Detailed engineering	Engineering Company	Detailed technical design of a plant, equipment location, energy supply system, etc.
6. Procurement	Engineering Company	Selection of equipment suppliers
7. Construction	Construction Company	Based on the Engineering Company's design
8. Delivery and assembling of equipment on-site	Suppliers	According to Engineering Company specifications
9. Inspection and control	Specialized Control Organisation	Control takes place each time a step has been carried out
10. Acceptance	Engineering Company	According to Control Organisation's assessment
11. Staff training	Engineering Company	Possibly with the owner of the process
12. Start up	Engineering Company	In the case of a 'turn-key' contract

Adapted and translated from Alfred Hubert: *Le contrat d'ingenieur-conseil*, Paris: Masson, 1980, p. 127

**Note:** The scope of the engineering service, i.e. the number of stages provided, depends on the capabilities of the client company which may perform some of the stages themselves.

Even with the narrower scope of activities, C/E services represent a wide variety of tasks: analyses, drawings, market studies, supervision of work in progress, purchasing, etc. (*Annex III*). These activities do not require the same sets of skills. Technical drawing calls for one kind of work force, supervision of a major industrial yard requires another. The diversity of skills and competences needed warrant a division of labour within the C/E services industry. Small engineering companies are generally limited to a few stages which require far lesser resources and skills; generally they act as sub-contractors to large companies which are able to undertake turn-key projects.

Even for larger CEDOs, the current trend is that clients would look for C/E consortia as opposed to a whole C/E service from a single CEDO. The reason for such a change in business practice is that technology/process requirements in production require increasing number of technology/competence components which a single CEDO, however large, may not be able to master, acquire or integrate in their service capability. Furthermore, C/E service companies interact with two types of organizations: equipment suppliers and know-how suppliers. Equipment Suppliers provide machines or systems that will be installed in the client's plant. Know-how suppliers show the client how to use the equipment. These are generally firms which use this kind of equipment in their industrial activities. Engineering services are thus a part of "vertical stream of industries" in which increasingly strategic alliances between know-how companies, equipment manufacturers and sub-contractors are the emerging pattern.

### **1.3. MARKETS FOR CEDOs SERVICES**

Three main types of markets can be established for the CEDOs services: construction, infrastructure, and manufacturing sectors. Lately, environment related C/E services and waste management are emerging as important aspects of the C/E services. Most C/E service companies specialise in only one of these markets, although a few of them may operate in more than one.

Demand for C/E services is directly related to the level of industrial investment at a given time period in a country. This may fluctuate in accordance with the state of the national economy, capital availability, interest rates and economic trends. The demand may also vary from one industrial sector to another at different points of time.

A precise assessment of market for CEDOs services - whether existing or potential, domestic or foreign - is rather difficult. There is no institution which collects and disseminates such information. At best one can visualise the magnitude of the market by the periodic survey provided by *Engineering News Record*, a U.S. periodical which examines the engineering services market with an American perspective.

As summarised in *Annex IV*, the top 200 CEDOs in the world had a collective value of foreign billing of US\$ 7.4 billion in 1989, US\$ 8.8 billion in 1990 and US\$ 10.09 billion in 1991. North American companies dominated every regional market and had an aggregate share of 47 per cent of global billings of top 200 CEDOs, followed by European companies who had 46 per cent of the global billings, with Japanese falling far behind at 3 per cent. All other countries put together participated with around 3 per cent in the global C/E services market of top 200 CEDOs. Despite constant efforts to increase the market share of the developing countries, they continue to remain in the periphery of this booming market. Also in the World Bank financed projects, the share of DCs CEDOs among foreign suppliers is only approximately 10 per cent. In effect, engineering services profession is dominated by the Euro-American club, as *Table 1* given below indicates.

**TABLE 1**

**Market Share of the Top 200 CEDOs for the Years 1989-91**

CEDOS FROM	INST. BILLINGS %		MIDEAST %		ASIA %		AFRICA %		EUROPE %		U.S. %		LATIN AMERICA %	
	89	91	89	91	89	91	89	91	89	91	89	91	89	91
AMERICAN & CANADIAN	51.5	47.2	57.5	59.8	51.5	43.9	35.9	32.5	65.1	58.3	16.0	21.3	66.9	48.2
EUROPEAN	42.0	46.1	33.9	29.6	34.1	44.1	58.4	61.1	34.1	40.3	80.9	73.1	28.6	46.5
JAPANESE	3.5	3.1	1.1	1.0	10.5	8.5	2.0	2.3	0.1	0.1	0.1	1.8	3.5	3.3
ALL OTHER	3.0	3.6	7.5	9.6	3.9	3.5	3.7	4.1	0.7	1.3	3.0	3.8	1.0	2.0
ALL FIRMS	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Source:* Computed from Annex IV.

From DCs, nine CEDOs are represented on the ENR list of top 200 international CEDOs and the share of their international billings vary from 100 per cent, in one case, to 10 per cent of their total domestic and foreign billings (see Annex V).

A large part of the demand for engineering services arises from a few industrial sectors: petroleum, chemicals, energy, steel, electronics and mechanical engineering, whose investment levels vary considerably over time. *Engineering News Record* estimates indicate that the leading edge of the C/E activities in recent years have been the petroleum industries accounting to around a quarter of C/E assignments followed by transportation (18%), water resources management (11%), power (11%), and industrial processing (6%).

Another significant trend in the CEDO market development is its distinct relationship with the flow of economic aid to developing countries and the countries in transition. Currently, Asian and East European market seem to be on the upscale in this field in view of the World Bank and EBRD, and Euro-American bilateral aid investment flows to East European and CIS countries on the one hand, and the Japanese aid funds to the Asian region, on the other. During 1991, 30 per cent of the billings each arose from Asia and Europe and the rest of the world accounted only for 40 per cent.

Services provided to DCs accounted in 1990 for 58% of "top 200" billings (Africa 10%, Asia 26%, Latin America 8% and Middle East 14%) - compared to approx. 80%-85% of such billings in the 80's.

These international market characteristics have a definitive impact on DCs CEDOs export prospects and their international marketing strategies.

#### **1.4. REASONS FOR INDUSTRIALISED COUNTRIES PRE-EMINENCE IN C/E SERVICES MARKETS**

Industrialised countries CEDOs have longer and diversified experience in a wide range of sectors and in different countries; they have built up an international reputation that make them more attractive for project owners in developing countries. Their range of markets is wide; breadth of technologies high and consequently the learning curve superior. They are also the leaders in newer technologies in the areas of petroleum industry, fine chemicals, pharmaceuticals and drugs. Related to this factors is the ability of firms from developed countries to provide project owners with attractive completion and performance guarantees that can be rarely matched by DCs firms.

Developed countries firms are also well equipped in tapping international financial markets and other sources for proposing attractive financing arrangements. The question of financing has lately become an increasingly important factor affecting the competitiveness of CEDOs in international markets. In the prevailing international environment where the debt crisis is affecting the development performance of the DCs, particularly in Africa and Latin America, project financing is becoming an important determinant of trade in CEDOs services. Further, governments of many developed countries provide direct and indirect support to exporters of C/E services in different forms, like project development support through technical assistance, tied aid or credit, support for trade missions, etc.

Another important factor is the utilisation of new technology in the CEDO services sector, like microelectronics-based technologies (computer-aided design and drafting systems). These have the advantages of saving on labour time by factor of three or more, improving the quality of CEDO services, enabling quick adjustments in the conception and design of the projects to suit the requirements of the clients. The development, utilisation, perfection and diffusion of such technologies in C/E services, occurring mainly in the industrialised countries, tend to improve their competitive advantage, make it more difficult for DCs firms to compete in some of the traditionally labour intensive C/E service areas.

High performing CEDOs also possess a set of skills notably different from their less successful counterparts. They value cross functional skills more than mere single functional or sectoral strengths. In order to enhance such cross functional strengths, they even enter into joint ventures, cross licensing and marketing relationships, thus gaining enormous cost and resources edge over their competitors.

#### **1.5. DCs IN THE INTERNATIONAL CEDOs MARKET**

Very few developing countries that have established a domestic capability in C/E services have succeeded in penetrating international markets. Among these countries are the Republic of Korea, Indonesia, India, Brazil and Mexico. Nearly 100 per cent of the DCs exports of C/E services go to the other DCs. What could explain, at least partly, the direction of those exports, is the fact that the international market for C/E services (excluding domestic contracts) is mainly in the DCs where markets are much more open to international competition than in industrialised countries.

There is an increasing number of DCs which have accumulated skills, knowledge and experiences in the process of establishing and developing domestic manufacturing sectors and are now in the position to transfer this knowledge to other DCs. Significant efforts of a number of DCs to assimilate, adapt and improve acquired technology and to develop original technological solutions suited to their specific environmental conditions and development objectives coupled with important project planning, implementation and maintenance experiences accumulated in their CEDOs have equipped a dozen of developing countries for expanding their activities into technology export markets.\* The major part of developing countries technological assets is, however, not "codified" and organised in a form of a transferable business proposition which can be attractive to other DCs.

The position of DCs in the international CEDO market continues to be very weak. Their share of this market varies well below 10 per cent. While a handful of DCs have made some impressive inroads into international market for construction services, they have not been very successful in developing a competitive advantage in the relatively technology-intensive C/E services sector. This is, for example, the case of the Republic of Korea which succeeded in controlling about 10 per cent of the international market for construction services in the early 1980's but whose share of the international consultancy and design market remains modest. However, a few firms from some developing countries have appeared more than once among the top 200 international CEDOs (see Annex V). Their market share, however, remains very small.

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\* See studies on technology export of India, Korea and Mexico sponsored by the World Bank, on Argentina and Brazil sponsored by the Inter-American Development Bank, and on Portugal, Argentina, Egypt and Yugoslavia sponsored by UNIDO, see also special issue of World Development, May/June 1984 on *"Export of Technology by Newly Industrialised Countries"*.

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India, for example, exports infrastructure and manufacturing - related C/E services including licensing of product and process technologies and managerial services. This country seems also to be among the leading DCs exporters of industrial projects in sectors such as steel, cement and metal works. The C/E services that are usually provided for these projects come often from C/E departments of equipment manufacturers or process firms.

Brazil has also emerged as an important exporter of C/E services, mainly to other countries in Latin America, and succeeded in building-up an export capacity in industrial engineering services often as part of technology project exports in such sectors as capital goods, steel, sugar and alcohol. On the other hand, the Republic of Korea's export capability in C/E services has been directed mainly to infrastructure-related C/E services.

A number of factors could explain the weak position of DCs CEDOs in the international market. There is, first, the characteristics of the C/E services. C/E services are technology intensive and their production requires multidisciplinary efforts to deal with the multifaceted aspects of investment projects ranging from technical, economic, social, to financial and environmental aspects. This often requires specific and advanced expertise and a particular organisational and managerial ability that would allow the integration of the different techno-economic inputs to produce these services. These services can also be very specialised and often industry-specific, requiring fairly detailed technical knowledge and operating experience, that industrialised countries firms are generally better equipped to assemble due to their industrial tradition and manufacturing base.

Another factor that may have made it difficult for DCs to access the international market is the influence of the "reputation" criterion used in the selection process. Because services in general are intangible and can only be assessed after they are produced, the reputation of a CEDO plays a vital role in deciding on selection and later on the award of contract.

Since early 1980's, fierce competition has raged among C/E firms in the international market. This has recently induced changes in the corporate strategies of international firms. There seems to be a tendency for those firms to move away from execution contracts and move towards management contracts, offering planning services and



developing integrated types of projects with financing and leasing arrangements. This has also created incentives among international firms, particularly contractors, to establish joint cooperation agreements leading to the formation of international consortia and other "strategic alliances". This has been the case lately between some Japanese and U.S. firms which used their joint marketing, technical and managerial skills to win contracts in the U.S., Japan and DCs markets.

DCs on the other hand neither keep themselves abreast of technological demands of other DCs, nor do the prospective buyer search the market to obtain adequate information about sources of technologies available in the other DCs.

## **2. DEVELOPMENT OF DCs CEDO's INTERNATIONAL OPERATIONS**

### **2.1. Transition from domestic to international activities**

In the efforts to build up national capacities in C/E services it is essential that the efforts to develop the national "supply" capacity in C/E services are matched by adequate "demand" for such services.

Domestic investment activities represent the most important potential demand for these services in the early stages of their development and are used by many DCs as a basic strategic instrument for helping the development of local C/E capacities (market reservations, preferences to domestic firms, compulsory associations and participation of local CEDOs in domestic projects, promoting collaboration with foreign firms, encouraging mergers and creation of large-scale integrated organisations, prohibiting foreign CEDOs from acting as prime contractors on domestic projects, conducting active indigenization policies etc.). In most DCs the public sector is the dominant market for C/E services and the Government - as user, regulator and promoter of C/E industry - exercises a paramount influence on the development of domestic C/E capacities.

An important characteristic of the demand for CEDOs services in DCs, particularly on the part of the State, is its fluctuating nature. The drying up of demand has not infrequently meant the disbandment of local C/E teams that had been build up with much effort and the need to turn to foreign CEDOs when demand picks up again.

In addition and complementary to domestic demand, the potential demand that exists in export markets, particularly in other DCs in the region (practically the totality of DCs CEDOs international activities is in other DCs), provides an additional impetus and opportunity for the development of this sector and can play an important role in evening out workload fluctuations in domestic market. Most large-scale investment projects in those export markets are financed with the help of foreign resources, obtained either via bilateral or multilateral channels. Bilaterally financed projects are usually linked with explicit or implicit tying provisions and are normally not readily accessible by DCs CEDOs, while the multilaterally financed project represent in principle more attractive business opportunities for DCs CEDOs.

The transition from domestic to international activities of CEDOs is very much influenced by accumulation of knowledge and experiences gained in domestic C/E activities carried out earlier - particularly the activities implemented in collaboration with foreign CEDOs in domestic projects. This move is also strongly influenced by government policy in this area (export promotion policy for the C/E sector), the availability of financial resources and by the competitive environment that prevails in the relevant international market.

Today a number of DCs succeeded to establish a domestic "supply" capacity in a number of specific C/E areas. A major problem, however, remains on the "demand" side, i.e. the problem how to keep these capacities steadily employed.

On the "supply side" the following factors are of particular relevance in determining the competitiveness of CEDOs (see A. Sapir, Trade in Investment-related Technological Services, *World Development*, 1986, no.5, pp. 615-619 and Y. Soubra, The Construction and Engineering Design Services Sector : Some Trade and Development Aspects, *Journal of World Trade*, 1989, no.1, pp. 112-119):

- factor endowments (human and physical capital);
- labour cost;
- technology;
- financing;
- scale economies;

On the "demand side" the pattern of demand in DCs markets - which are presently practically the only relevant potential markets for DCs CEDOs - is characterised by:

- public investment programmes;
- infrastructure projects;
- DCs adapted project solutions;
- internationally financed projects;
- interventionist government policies.

#### **2.1.1. Potential competitive advantages of DCs CEDOs**

From the point of view of demand characteristics prevailing in DCs, the C/E services offered by DCs CEDOs have some important advantages as compared to those usually offered by industrialised countries, like:

- availability of technology and technical services better adapted to DCs needs and conditions, scale of operation, level of sophistication, climatic conditions, working and cultural environment;
- experience in scaling-down, material substitution, tropicalisation and other adaptations of technologies to specific conditions prevailing in DCs;
- experience in working on "greenfield sites", without adequate infrastructural support;
- experience in implementing similar projects in their home country and thus avoiding repetition of mistakes;
- design and project management philosophy based on the principle of maximum involvement and utilisation of local resources;
- more unpackaged forms of technology transfer and less "vested interests" (tie-ups with equipment / construction services suppliers etc.);
- greater willingness to provide for transfer of knowledge;
- availability of training and other labour intensive technical services (like detailed design) at lower cost;
- greater geographical and cultural proximity and interpersonal sensitivity;
- more balanced bargaining position;
- follow-on presence in the country and lower project life cycle and maintenance costs.

### 2.1.2. Constraints in accessing international C/E market

DCs CEDOs face a number of barriers and constraints in accessing the international C/E market, including the market of other DCs, which are not of a substantive - C/E service "quality" nature, and with which their competitors from industrialised countries are usually not confronted with, like:

- attitudinal barriers against CEDOs from DCs ( lack of confidence, image problems, risk syndrome etc.);
- inadequate information of potential clients about DCs CEDOs, their availability, capabilities, experiences (problem of predominance of North-South Information and Communication Channels);
- problems of reference lists, performance records, and of established "reputation" for "new entrants" in the C/E field;
- inadequately developed market-intelligence systems in DCs on international project demand;
- evaluation criteria and selection procedures biased in favour of "experienced", "reputed", well established CEDOs with long tradition and impressive "track records";
- financing and insurance mechanisms biased in favour of big "reputed" international CEDOs, including tied project finance;
- constraints of historical nature, like historic links with former metropolis mass (media, language, education, technical literature, technical standards, metrology, legal systems, etc.);
- inadequate support from home governments, financial institutions, chambers of commerce, and other institutions for export of C/E services (commodity-oriented export policies prevailing in most DCs).

From among the above "constraints" the present study is concentrating on three constraints, which represent an important pre-condition for efficient entry of DCs CEDOs into the relevant international C/E market (internationally financed project in DCs), i.e. CEDOs registration systems, information systems on CEDOs capacities and availability and CEDOs evaluation and selection criteria and procedures.

### **2.1.3. Sequencing the transition efforts**

It is generally believed that the most efficient sequence in building up export capacities and in entering the international C/E market would be via domestic market in a three stages approach, using collaboration with foreign CEDOs in domestic projects in the first stage (learning through exposure to international operations of experienced foreign CEDOs in domestic projects), utilising - in the second stage - the support of foreign CEDOs as "intermediaries" in foreign assignments (by establishing different collaborative arrangements, starting with simple ad-hoc sub-contracting arrangements), and finally - in the third stage - competing directly for international C/E assignments - individually or in collaboration with other CEDOs (different forms of inter-enterprise strategic partnering / alliances).

### **2.1.4. Cooperation among DCs CEDOs**

Considering the fact that markets of DCs represent the major part of the international C/E market and that DCs are practically the only potential market for DCs CEDOs international operations, there are excellent opportunities on the "demand side" for cooperation among DCs CEDOs. However, the international project-financing mechanisms, particularly the bilateral ones, usually favorise "vertical" North-South arrangements and often preclude or discourage "horizontal" cooperation among DCs CEDOs in such projects.

Considering the demand and supply characteristics prevailing in potential partner DCs, advantage could be taken by DCs in this cooperation of both - their heterogeneities (like, differences in development stage, specific resource endowments, sectoral specialisation, etc.), as well as their similarities (like, similar development priorities, lack of adequate development infrastructure, dependence on foreign technology, similar supply/demand characteristics, cultural proximity, etc.).

The "menu" of possible cooperative activities may range from activities facilitating and promoting direct inter-CEDOs business contacts, to joint development of supportive systems and of a favourable business environment for DCs operations in the home and host country and on the cooperative and international level. The activities aiming at promotion of direct inter-CEDOs contacts may include activities like:

- information exchange ("privileged" information on project demand, market intelligence, person-to-person contacts, visits, consultations, information on availability of consultancy / engineering and other investment related goods and services, legislation and procedures, cost structure of various elements, incentives, etc.),
- marketing support, representation, promotion, market survey;
- training (at home office, in the host country, on-the-job training, training in operating plants or plants equipment manufacturers, joint refresher courses, mutual exchange of fellowships, etc.);
- tweening arrangements and institution building support;
- exchange of information and experience on performance record of already utilised technologies, types, sources and terms and conditions of acquisition of the same or similar equipment/technical services, training facilities;
- associations in provision of C/E services in host countries and in third countries (sub-contracting, consortia, joint ventures);
- promotion of cooperation in "triangular" arrangements (including suppliers from industrialised countries);
- division of labour and specialisation, and subsequent joint project work;
- mutual support in planning and negotiating projects (strengthening bargaining position vis-a-vis suppliers from industrialised countries);
- joint development of specific knowledge/skills;

- mutually agreed code of ethics and guidelines/principles of cooperation.

A second group of cooperative activities, which require an active involvement of governments and of other national / regional/ international institutions, may be directed towards establishing and strengthening supporting facilities for CEDOs operations (like, information systems, project development and finance facilities, CEDOs registration systems, CEDO's associations, technical diplomacy, etc.) and lobbying for policy measures and instruments which would facilitate and promote their activities (like, regulations and guidelines for utilisation of CEDOs, financial and fiscal measures, trade and investment agreements/protocols, etc.).

## **2.2. MARKETING OF C/E SERVICES**

Before taking the strategic decision to enter the international project market (in this study we are mainly concentrating on the market of C/E projects financed by international/regional financial institutions, i.e.projects which are in principle open to CEDOs of all countries), a CEDO has to undertake export marketing research (see International Trade Centre UNCTAD/GATT, The export marketing of technical consulting services from developing countries, Geneva, 1986) to locate interesting potential markets (countries, regions, sectors, projects, project cycle activities etc.), identify services that have the best potential on these markets and identify the main stakeholders in the project development and CEDOs selection process. The CEDOs have to set specific export targets, since a general across-the-board approach has always failed owing to modest supply capacities of most DCs CEDOs, on the one side, and intense competition on the international C/E market, on the other.

In order to properly target the marketing efforts, CEDOs have to be aware of the respective roles of clients and of financial institutions in the project cycle and of typical steps in a CEDOs selection process.

### 2.2.1. Project cycle activities

Most internationally funded project (World Bank, Regional Development Banks, etc.) - which represent the major demand for international C/E services in DCs - pass through a project cycle which consists of following main phases/activities:

1. Project identification (project planning and generation) - formal responsibility of the borrower,
2. Preparations of loan projects and loan applications (project briefs, feasibility studies, etc.) - formal responsibility of the borrower,
3. Project appraisal (technical, economic, financial) - responsibility of the funding agency,
4. Negotiations and approval - borrower and funding agency,
5. Project implementation - responsibility of the borrower,
6. Project supervision - responsibility of funding agency,
7. Project audit - responsibility of funding agency.

All these project cycle phases/activities represent potential "functional" market-segments for CEDOs international operations and require specific marketing approaches.

### 2.2.2. Clients evaluation/selection criteria and procedures

The marketing strategy has also to respond and be attuned to specific CEDOs evaluation criteria and to the requirements of specific selection procedures, applied by different project clients.

The CEDO's selection process - in a project financed by international financial institutions - typically contains the following activities:

- preparation of terms of reference (prepared by the borrower, assistance and approval by funding agency);
- establishment of "long-lists" of CEDOs which may be considered for the assignment (prepared by the borrower);
- preparation of a short-list of CEDOs (prepared by the borrower and submitted to the funding agency for approval);



- dispatch of letters of invitation (borrower with approval of funding agency);
- evaluation of proposals submitted by short-listed CEDOs (borrower with approval of funding agency);
- selection of a CEDO (borrower with approval of funding agency);
- negotiation of the contract with the selected CEDO (borrower with approval of funding agency).

### **2.2.3. Stake-holders in C/E projects**

The CEDOs marketing effort have to be also directed towards main actors/stakeholders in the project development and CEDOs selection processes. In a typical borrower - funding agency interaction in internationally funded projects, it is the borrower that is the client and is formally responsible for most activities and decisions. The funding agency is rarely the client and, in theory, is not supposed to advise the borrower on the choice of consultants. In practical terms, however, the funding agencies play a crucial role in the project development and CEDOs selection process by "counselling" the client and by requiring the client to follow their rules and procedures and reserving the right of approval for all important activities/decisions in this processes. The funding agencies (led by the World Bank and Regional Development Banks) are also defining general international standards / criteria / procedures for qualification, evaluation and selection of consultants.

### **2.2.4. Methods of market entry**

Once the decision has been made to export a particular range of C/E services to selected countries and clients, consideration must be given to the method of entry into a selected target market. The C/E services may be exported directly (using their own technical salesman, opening a representative's office, etc.) or through an intermediary (by appointing an agent or a sales representative, by entering into joint ventures and other cooperative arrangements with firms in the target markets, by participating in assignment as subcontractor etc.).

The high entry cost and other entry barriers in the international C/E market have led many DCs CEDOs to choose operating under "the wings" of a international contractor - as his subcontractor - as the easiest way to initiate market entry and to gain international experience and reputation. Some of main reason for such an approach are

the following:

- lower cost of market development;
- less competition and better chance to succeed in bidding for a subcontract than competing for the entire contract;
- credibility easier to develop vis-a-vis a major contractor than with client directly;
- project financing, bid bonds and guaranties are not required;
- easier to be reimbursed by a contractor than by client, etc.

Different cooperative arrangements among DCs CEDOs (see para 2.1.4) may provide a good opportunity and strategy for DCs CEDOs to enter the market of other DCs rapidly, efficiently and relatively inexpensively.

### **3. REGISTRATION, INFORMATION AND SELECTION SYSTEMS FOR CEDOs**

#### **3.1. Introduction**

In order to properly present themselves to the main actors/stake-holders in relevant C/E markets and to familiarise themselves on "how to do business" with them, CEDOs have to ensure that they are, in the first place:

- properly registered
- properly informed about project demand and represented in information systems on CEDOs:
- informed about CEDOs evaluation criteria and selection procedures.

The following paragraphs discuss the above three areas as important entry pre-conditions in the framework of DCs CEDOs international market penetration efforts.

These areas - also being "peripherals" in relation to "core" consultancy activities - play an important role in "filtering" the entry and in defining the "rules of the game" on the international C/E market.

It is important that DCs and their CEDOs are familiar with these systems and organise their activities in accordance with the requirements of these systems and that, at the same time, they try to ensure that the logic of these systems does not a priori exclude or put in an inferior position CEDOs from DCs and other "new entrants" and that the specific conditions of DCs CEDOs (advantages, constraints) as "new entrants" and "minority" in the international C/E market are adequately taken care of by these systems.

## **3.2. REGISTRATION OF CEDOs**

### **3.2.1. Introduction**

One of the elementary steps which the CEDOs have to undertake in order to be present in the international C/E market is the proper registration with relevant international/regional institutions (particularly World Bank, Regional Development Banks, UNDP, UNIDO, FAO, etc.) and national bodies (Governments, Public Works Departments, Tender Boards, DFIs, CEDOs Associations, Chambers of Commerce, etc.). An example of a typical registration portfolio of a DCs CEDO is contained in Annex IX.

The CEDOs registration systems differ among themselves and can be grouped according to the following main characteristics:

- international/regional (World Bank, Regional Banks, UN system, etc.);
- national (Governmental bodies, Chambers of Commerce, etc.);
- applicable to C/E firms only (like World Bank DACON system, etc.);
- applicable to individual consultants (like DICON system of the ADB);
- registration systems which consider the registration as a pre-condition for assignments by the registering agency (mainly registration systems of specific national institutions);
- registration systems where the registration is not a pre-condition for qualifying for agencies assignments (like World Bank DACON system);
- registration systems which verify the data provided by the CEDOs and approve and classify the registered CEDOs in accordance with specific criteria (system of approved CEDOs).

The registration is in most cases not a legal pre-condition for qualifying for C/E assignments and does not imply the agencies recognition or acceptance of the CEDO for any project or assignment (it is usually not a list of approved CEDOs), but it is playing an important factual role in the processes of preparing the "long lists" and "short lists" of CEDOs and in providing basic information about CEDOs to concerned institutions.

Most agencies have some minimum requirement for CEDOs to enter the CEDOs Roster / Register (like World Bank's requirement of minimum of 5 full-time professional staff, 2 years of CEDOs existence, completion of 3 major projects, incorporation in a member country of the Bank, etc.) and are thus conducting the first "filtering" of candidates through the registration system.

The registration processes thus represent an entry process - a "pre-pre" selection process - and the registration requirement reflect already the general agency's policy and weightages ascribed to different components of CEDOs capabilities and experiences. This may play an important role in the subsequent evaluation / selection process.

It is therefore of great relevance for DCs CEDOs, aspiring to enter the international C/E market to be informed about the registration requirements and procedures of relevant agencies and to undertake the necessary steps to properly organise themselves to be eligible for registration (sometimes requiring association with other CEDOs to achieve the "critical mass" of required capacities) and to undertake the registration formalities.

If the registering agencies have no other source through which they can identify suitable CEDOs for a particular task, they normally consult CEDOs rosters.

### **3.2.2. DACON registration system**

The most widely used international system for CEDOs registration is the DACON system (acronym on Data on Consultants ). The system is used by The World Bank, the Regional Development Banks and many other international institutions (see List of institutions accepting the DACON Registration Form, Annex VI) as an uniform method for registering, classifying and locating CEDOs.

These Banks/institutions (in continuation: Banks) maintain files of information concerning capabilities and experiences of CEDOs, using the computerised DACON registration system for consultancy firms (and a separate consultant roster for individual consultants, like DICON in the ADB). Such information is used by the Banks as their data base to identify suitable CEDO's, to make their own evaluation and selection of CEDOs for technical assistance activities which are financed by the Bank from its own resources or which are executed by the Bank on behalf of an other institution or to make the Bank's assessment of the acceptability of CEDOs proposed or chosen by Bank's borrowers.

The information contained in DACON is purely descriptive, not evaluative. It contains data on technical, professional, and language capabilities of the CEDO, its nationality, the number of full-time professional staff, examples of work carried out in each sector in which it claims expertise, etc.

CEDOs need not be listed on Banks CEDOs Roster to win a contract from the Bank or its borrowers, nor is the selection based solely on DACON data. Failure to register can, however, slow down the approval of the short-listed firms by the Banks, since that Bank has to have on file information on all firms expressing interest in a Bank financed project.

The registration does not constitute the Bank's endorsement of the firm's qualifications or the Bank's approval of the CEDO's appointment for any specific project.

CEDOs have to up-date information in the roster in specified intervals (periodic updating). The Banks usually purge in five years intervals those files on which no updating has been received (ADB has even a two year interval). CEDOs are encouraged to file revised DACON forms showing increased project experience, new fields of expertise, or strengthened staff capabilities at any time (ad hoc updating).

While the DACON form is used by several international / regional development institutions (Annex VI), CEDO's have to file the form separately with each institution with which they wish to be registered (not all these agencies use the registration form in the same manner and some have particular registration requirements).

The DACON system provides for registration of consultancy firms/organizations (not individual consultants), which include (according to World Bank Guidelines on Use of Consultants by the World Bank Borrowers and the World Bank as Executing Agency, 1981), inter alia, consulting partnerships, private companies, public companies or corporations, government assisted firms, government enterprises, private non-profit organizations, international organizations and universities.

For registration purposes the services which these organizations provide are grouped broadly into four categories:

- pre-investment studies (investigations which normally precede decisions to go forward with a project);
- preparation services (technical, economic or other work required to fully define a project and prepare it for implementation);
- implementation services (construction supervision, project management, assistance in procurement and coordination of supplies etc.); and
- technical assistance (a wide range of advisory and support services, like training, etc.).

To be considered eligible for inclusion in the DACON system, candidates must normally meet the following minimum criteria:

- a) to be incorporated in one of Bank's member countries;
- b) to have a prescribed minimum number of full-time professionals (like WB, ADB, IDB requiring 5 full-time professionals); with each having a specified number of years of experience in the field ( WB, IDB: five years);
- c) to be established as a legal entity for a prescribed period of time (like, two years ADB, three years required by EBRD);
- d) to have completed a minimum prescribed number of major projects (like ADB: three projects), resp. projects with a completion date not older than a specified number of years (World Bank: five years).

CEDOs that are not qualified are advised to register their permanent staff as individual

consultants in the rosters of individual consultants (see para 3.2.3 (c)).

Only active CEDOs are kept in the DACON system, therefore, updating of information has to be done in prescribed intervals (like every three years in WB or two years in ADB), otherwise the CEDO's registration will be automatically deleted from the system.

The Banks recommend that a registration form is submitted also to Bank borrowers whenever the CEDO is stating its interest in C/E assignments by Bank borrowers.

The Banks using DACON registration system utilise with minor modifications a common "DACON Consulting Firm Registration Form" - Form 1600 - 11/88 (see Annex VII), which was introduced in November 1988 and has replaced the December 1983 version (the new form has reduced the format from 71 to 7 pages). The Banks have also issued specific "Guides to Completing the DACON Consulting Firm Registration Form".

### 3.2.3. Other registration systems

#### a) UN organisations

Different UN organisations have their own systems of CEDOs registration. But some of them accept also the DACON registration form, like UNIDO, which has its own system of registration of consulting firms/organisations (UNIDO Roster of industrial consultants). For registration purposes UNIDO uses a specific questionnaire (Form/IO.22/Rev.1 - see Annex VIII), which contains basically the same set of data as DACON Registration form, but differs rather substantially in format.

On the level of international organisation, the problem of standardisation of the format of data required for CEDOs registration by different international organisation and the problems of compatibility, interchangeability of data and of linkages among different registration systems are presently not yet adequately solved. Therefore, it is quite an important administrative burden for many DCs CEDOs - with their modest administrative capacities - to respond properly to the requirement of the various international CEDO registration systems.

## b) National registration systems

In most countries there exist Registries of CEDOs, and in many cases there are more than one such Register. On the national level CEDOs are usually registered with a number of national authorities and agencies (see the example in Annex IX). The registration with specific institutions on the national level is often a pre-condition and a pre-screening for qualifying for project work sponsored by these institution.

Like on the international level, also on the national level - which should represent the first building bloc for further bi-lateral, regional and international CEDOs registration and information systems - the problems of standardisation, compatibility and interchangeability of registration data are not adequately solved.

## c) Individual consultants

Different national and international/regional institutions maintain rosters of individual consultants (e.g., ADB roster of individual consultants DICON, which contained in the beginning of 1992 the names of 4.219 persons). These rosters are used to identify potential candidates for both - to complement, on temporary basis, their own staff (the so called staff consultants) and for purposes of projects which they sponsor, if they include the use of individual consultants (the so called project consultants).

The rosters of individual consultants are also important for consultancy firms which do not meet the requirements of specific agencies for registration as a corporate body (like: World Bank requirement of a minimum of five full-time professionals for CEDOs to be eligible for DACON registration). In such cases CEDOs professional staff may be registered as individual consultants.

Different agencies prescribe different criteria for consultants to qualify for their individual consultant roster. As example, the IDB requires the candidates to meet the following minimum criteria, to be eligible for inclusion in their roster of individual consultants: (a) be a citizens or bona fide permanent residents of one of Bank's member countries; (b) have a university degree; and (c) have five to eight years (depending on years of study and specialisation) of relevant experience.

Again, as in the case of rosters of C/E firms, the substantive data contained in different



individual consultant rosters are practically the same (main blocs of data refer to: education, employment record, professional experience, work history, language abilities), but the format of data contained in different rosters usually differs among different institutions in such a way that eventual shared utilisation of data is made practically impossible.

### **3.3. INFORMATION FOR CEDOS INTERNATIONAL ACTIVITIES**

#### **3.3.1. Introduction**

Access to reliable and timely information on forthcoming development projects and other business opportunities as well as dissemination of information on Cedos availability and their capacities and capabilities, is another basic precondition for CEDOs presence and efficient operation in the international C/E market.

As regards the information needs of potential users of information, a distinction between at least two different groups of information can be made:

- the needs of CEDOs which are looking for business opportunities (information on project demand);
- the needs of investment promoters, executive agencies, governmental departments, local enterprises, local CEDOs, financial institutions, etc., which are looking for experience, knowledge and technologies, financial sources, potential partners, etc. (information on C/E services supply).

As regards the modality of information search and transmittal, the information can be obtained from both "personal sources" (e.g., colleagues, CEDOs representatives, past users, etc.) and "impersonal sources" (e.g., CEDOs brochures, publications, etc.). Different information sources and their combinations play different roles in different stages of CEDOs export activity development or in the specific areas of "demand" or "supply" informations. It is characteristic for the "supply" information area, that "personal sources" play a much more influential role as the "impersonal" ones (see para 3.3.3 ).

### **3.3.2. Information on project demand**

The CEDOs interested in international activities need a very broad spectrum of information on target markets, as shown in Table 2.

TABLE 2

## Desk research sources of information for the export marketing of C/E services

Type of information	Typical source
Trade and market data	ITC, <u>Development Business</u> , national TPOs
Import/export statistics	United Nations, OECD trade statistics, national and regional trade statistics
Service statistics	IMF, GATT, UNCTAD, FIDIC <sup>a/</sup> , FELAC <sup>b/</sup> and the World Bank
Financial regulations	Banks, government departments, foreign embassies
Economic situations	Banks, economic and financial journals and newspapers, and IMF, World Bank and OECD reports
Political situations	Banks, economic and political journals, TPOs, newspapers, and World Bank situation and country reports
Demand for services	Monthly operational summaries as published in <u>Development Business</u> , Scan-a-bid data base of the United Nations, specialised information, data bases, trade journals and TPOs
Regulations for doing business in a particular country	TPOs, embassy of the country in question, chamber of commerce, <u>Development Business</u> , trade associations, banks specialising in international business
Identification of agent	Trade directories, chamber of commerce of the country in question, embassy of the country in question, trade associations
Information about specific projects or programmes	Banks, TPOs, written request to own embassy or chamber of commerce in that country, trade directories, company brochures and annual reports if available
Credit terms	Banks, TPOs, trade associations
Credit incentives	Banks, TPOs, development finance corporations, UNCTAD and government finance department
Credit insurance	Export credit guarantee departments or export-import banks, chase guide to export credit agencies
Identification of trade opportunities	TPO, specialised magazines and journals
Competition	Specialised magazines of ENR <sup>c/</sup> , TPOs, United Nations, trade associations, scanning of news reports, trade literature
Population statistics	Statistical yearbooks of the United Nations and the World Bank
Geographical features	Atlases and encyclopaedias
Country overviews	Bank reports from Barclays Bank, British Bank of Middle East, Grindlays Bank, Lloyds Bank, Midland Bank, National Westminster Bank and Standard Chartered Bank (all based in London)

**Source:** ITC, The export marketing of technical consultancy services from DC, Geneva, 1986.

- a/ Federation internationale des ingenieurs conseils.  
b/ Federacion Latinoamericana Asociaciones Consultores.  
c/ Engineering News-Record.

The needed information can be grouped into two main categories:

(a) Country/market information:

- Political and economic features of target countries;
- Basic indicators of the country's economic development;
- Priorities of development plans according to sectors;
- List of planned projects;
- Local conditions, practical information, potential customers and suppliers, financing institutions, local consulting & engineering firms, etc.;
- Human resources;
- Registers and procedures for participating in tenders and state purchase.

(b) Project information:

- Name and code of the project;
- Project description: content, stages, specifications;
- Location: country and geographical features of the micro-location;
- Executing agency;
- Total investment;
- Sources of financing;
- Probable dates of project implementation;
- Follow-up activities.

International/regional banks and international organisations, which have a substantial share in supporting investment projects in DCs, are generating valuable information on projects in different stages of the project cycle. This information is readily available to CEDOs, either through personal contacts (country desks, press conferences etc.) or through publications or data banks of these institutions. The most important among these publications is the bi-weekly UN publication **DEVELOPMENT BUSINESS** that provides information about C/E business opportunities generated through the World Bank, as well as similar information from the regional multilateral development banks (monthly Operational Summaries), the UNDP, and other development agencies. The same information can be obtained from the computerised data bank "Scan-a bid". Particular regional banks publish also their own publications, listing proposed projects,

procurement notices, contract awards and other information important for CEDOs, like the monthly publication of the ADB "ADB Business Opportunities" or the monthly newsletter, entitled "Procurement Opportunities" published by the EBRD .These publications provide up-to-date information on pipeline projects of the banks, as well as the names of borrowers and executing agencies.

There are also several global commercial information systems covering investment markets in developing countries, which are available to subscribers all over the world.

Important information on planned projects can also be obtained from newspapers, bulletins and other public media.

However, the information available from "public" information sources is usually of very general nature and needs - in order to be a relevant base for CEDOs business decisions - to be complemented by additional data which are usually not readily available. CEDOs from developing countries usually suffer from the lack of access to such specific information, which can often be obtained only through direct presence at the prospective project market and through personal contacts with project promoters.

Direct - personal contacts with government bodies, funding and executive agencies, local CEDOs and other project sponsors usually represent the most timely, precise and comprehensive information on forthcoming projects.

For most users in industrialised countries, "general" information on project demand is right at their fingertips, requiring only a telephone call or their PC to establish access to different information systems, public information sources, databases, etc.

Information infrastructure so far has been designed mainly from the standpoint of industrialised countries' needs, and frequently - although most developing countries are today linked to international databases and networks - does not permit direct communication on a horizontal level between developing countries. Thus, CEDOs from DCs usually do not have direct access to information on the neighbouring and other developing countries, which are presently practically the only relevant market for their international activities.

Developing countries are often better informed about market opportunities, potential

suppliers, business conditions, etc. in distant markets of industrialised countries than those of the neighbouring DCs.

DCs should therefore give highest priority to developing their information systems and databases in order to fill the information gap which exists not only between North and South, but also between countries, subregions and regions of the South.

CEDOs from DCs - linked through different cooperative arrangements (see para 2.1.4.) - can be a major source of most valuable "personalised" information on project opportunities in their countries.

### **3.3.3. Information on C/E supply**

A recent study on "Information sources used to select different types of management consultancy services" (by P.L. Dawes, G.R. Dowling, and P.G. Patterson in Asia Pacific Journal of Management, vol.8, no.2) has clearly shown that the majority of purchaser of consultancy services use multiple sources of information when identifying, evaluating and selecting a consultant. From interviews with clients and consultants the study has identified the following main information sources:

- Consultants' Brochures
- Trade Directories
- Professional Associations
- Articles by Consultants in Magazines and Journals
- Articles about Consultant in Business Press
- Advertisements in Business Press
- Written Consulting Proposal
- Formal Presentation
- References Supplied by Consultant
- Meeting at Consultant's Office
- Consultant Giving Public Speech or Seminar
- Discussions with Colleagues Inside own Company
- Past Dealings with Consulting Firm
- Discussions with Colleagues outside your Company
- Referral from Another Consultant
- Referral from a Satisfied Customer

The above study also confirmed the findings of a number of previous studies (e.g., Freiden and Goldsmith, Pre-purchase information seeking for professional services, Journal of Services Marketing, 1989, no.3; Stick and Zinszer, The industrial purchase decision for professional services, Journal of Business Research, 1987, no.15), that "personal sources" of information are the most influential information sources in marketing C/E services, and that the majority of interviewed client firms used on average 4 to 5 information sources to get needed information on CEDOs.

For DCs CEDOs, different personal contacts through TCDC/ECDC arrangements - from direct inter-CEDOs contacts to bilateral, regional and multilateral arrangements, as discussed in para 2.1.4., represent one of the most promising routes to "reach" and influence the clients in other DCs.

Among the "impersonal sources", which are an important part of the CEDOs overall information and promotional mix, the following are of particular relevance:

- CEDOs brochures and formal presentations (representing CEDO's corporate visit card/CV );
- national directories of CEDOs (containing data on CEDOs or/and professionals in the C/E field, usually prepared by CEDOs/consultants Associations or Chambers of Commerce);
- regional and international CEDOs directories (published mainly by CEDOs associations, like FELAC's regional or FIDIC's international directory of CEDOs, members of these associations);

An example of the format of CEDOs presentation in FELAC's directory is attached as Annex X.

- CEDOS registries;
- information systems and data banks, containing data on CEDOs;

### 3.3.4. International TCDC/ECDC information systems

Some international information system, which have been set-up with the exclusive or dominant objective to facilitate and promote TCDC/ECDC activities, are or could be of particular relevance for promoting the cooperation among DCs CEDOs.

The effective participation of DCs CEDOs in these systems, which are presently not specifically focused on C/E services, depends to a great extent on the active role of CEDOs in supplying data to these systems on their capabilities and potentials.

In the following paragraphs four of these systems are analysed from the point of view of their potential to include among their priorities also a specific "CEDOs window", devoted to promotion of TCDC/ECDC through the instrumentality of DCs CEDOs.

#### a) INRES - SOUTH (UNDP)

TCDC-INRES (or also TCDC-INRES) is an information referral system specifically established by UNDP to facilitate and promote TCDC. It is a computerised data bank, operated by the Special Unit for TCDC of UNDP. It provides information on training programmes and expertise (C/E services and technology) of institutions in DCs, which can be used by developing and other countries and institutions for their developmental activities.

INRES-South system contains data and information on training programmes and expert capacities of approx. 4,000 institutions (universities, government organisations, research centres and other institutions, among them also CEDOs.) from over 100 DCs. The system does not register individual experts. The information on CEDOs contains data on professional staff, areas of specialisation, completed projects, project sponsors/clients, etc. (see TCDC-INRES Registration Form in Annex XI). The data are provided by interested institutions from the South and by some UN and other inter-governmental institutions (like UNIDO, FAO, SELA etc.). INRES is also actively screening DCs and is occasionally engaging national consultants to help in identifying and registering institutions which may be of special interest as potential participants in development activities carried out according to the TCDC modality. Compared to other databases in the UN system, INRES-SOUTH maintains the only multi-sectoral UN database on institutions in DCs which have capacities to provide training and/or



expertise.

The main users of INRES-SOUTH data are government institutions from DCs which use data mainly for short-listing of DCs institutions (including CEDOs) for their development projects. UNDP (Office of Project Services, Field offices), UN organizations (like FAO, UNIDO) and various donors also use the INRES data to identify DCs institutions for participation in their activities in DCs.

So far information is obtainable free of charge. The problem of INRES and similar referral databases is how to increase the awareness of potential users that such a data base exists, what kind of information can be obtained, and which national institutions (focal points) provide assistance with searches. Inquiry services seems to be too complicated and the national (TCDC) focal points usually do not play an intermediary role in linking INRES databases with the users in their respective countries, particularly those in business circles. This is partly due to the fact that the (TCDC) focal points are usually governmental bodies with very limited contacts with enterprises, commercial banks, etc. The system, however, provides an excellent institutional framework for intensifying the information exchange among DCs CEDOs and their associations.

There are plans to make INRES more user-friendly. First of all, it is planned that INRES becomes more decentralised (through regional/sub-regional offices and international organisations) and that it will intensify its on-line service.

#### b) INTIB (UNIDO)

INTIB is an Industrial and Technological Information Bank operated by UNIDO. The main objectives of INTIB are to facilitate and accelerate the flow of relevant information to the users in DCs with a view to properly selecting technology and equipment and matching potential partners in a number of selected industrial sectors. INTIB is providing selected and annotated information on industrial topics through its Industrial Inquiry Service (IIS) based on in-house information and on external resources including about 200 on-line databases. It fosters the exchange of information through the "INTIB Net" network of over 70 national, 4 regional and 3 sub-regional focal points and a great number of "nodes" (Chambers of commerce, industrial associations, etc.). The focal points promote the diffusion of INTIB information within their countries and help in supplying answers to inquiries from enterprises/institutions from

their own and other countries.

Of specific interest for DCs CEDOs may be two INTIB data basis:

- TSDB (Technology Supply Data Base). This data base contains information on technology offers and requests, and on joint venture opportunities;
- INPRIS (Investment Promotion Information System). This system is concerned with investment opportunities and contains information on projects, investors, banks, sponsors and country data.

INTIB, which is presently dealing only indirectly with information on CEDOs, has a good potential (concentration on industrial sector and technology transfer, well established network of focal points and nodes) to further develop its information activities by including also specific data bases on CEDOs (like data on C/E sub-contracting or joint venture opportunities, etc.).

#### c) TIPS

TIPS (Technical Information Pilot System) is a trade and technology information network, which has been created with the support of UN with the primary objective to promote trade and technology transactions among DCs through intensified information exchange. The system is also aiming at promotion of DCs exports.

Relying on various sources of information from public and private sectors in DCs, the network collects and disseminates information on new products and processes, research and development, transfer and adaptation of technology and trade and investment opportunities. It includes also information about consultancy contracts and equipment procurement tenders of the UN system.

TIPS is a network composed of national bureaus, regional centres and of the International Operations Centre in Rome (Italy). Considering that one of the main priorities of TIPS is the promotion of TCDC in investment related areas, the system may be used by DCs CEDOs for promoting their export and TCDC interests.

#### d) SITTDEC (G-15)

SITTDEC (South Investment, Trade and Technology Exchange Centre) is an information network established by G-15 in Kuala Lumpur (Malaysia) with the objective to make relevant information on investment, trade and technology exchange opportunities in DCs readily available to interested parties in these countries.

The following DCs have by now joined SITTDEC as members (status June 1992): Algeria, Argentina, India, Indonesia, Jamaica, Malaysia, Nigeria, Senegal, Venezuela and Zimbabwe.

SITTDEC operates various data bases, like trade database (covering such areas as trade opportunities, market information and international operations), investment data base, technology database and product database.

Apart from its information centre activities, SITTDEC is in the process of providing also value added services such as formation of joint ventures between firms in SITTDEC member countries.

Like in the case of previously discussed information systems, also SITTDEC represents a good opportunity for DCs CEDOs to promote their TCDC and export interests.

### **3.4. EVALUATION AND SELECTION OF CEDOs**

#### **3.4.1. Introduction**

In contrast to selection of contractors and suppliers of goods, the selection of consultancy services has traditionally been made without great regard to price, taking the "expertise" of the consultant as the prime consideration. Therefore, the CEDOs selection process is normally less formal than that applied to procurement of goods and other services (like construction services), where the rigid rules of international competitive bidding are normally applied in major internationally supported projects and where price is a dominating factor.

Unlike procurement of goods and construction, the procurement of services typically involves the supply of an intangible commodity whose exact content and quality may

be difficult to quantify. The precise quality of services to be provided will be largely dependent on the skills and expertise of the service providers. This is in contrast to supply of goods or construction, where technical and quality specifications are more easily specified in the solicitation documents and are relatively easy to monitor and enforce during the implementation stage.

Another element which characterises services supply - which is also reflected in the method of CEDOs selection - is the relation of mutual trust and confidence between the two parties, wherein the consultant is supposed to take decisions and act always in the best interest of the client.

#### **3.4.2. Selection procedure**

A typical procedure for selection of CEDOs (e.g., as recommended by FIDIC) includes the following main activities:

1. Prepare terms of reference;
2. Prepare a pre-qualification list (the long-list);
3. Draw up a list of 3 to 6 of the best qualified CEDOs (the short-list);
4. Negotiate directly with the most qualified CEDO or request proposals from the short-listed CEDOs (direct acquisition or competitive procurement);
5. Screen the proposals;
6. Rank the proposals in accordance with preset evaluation criteria;
7. Negotiate with the CEDO which is ranked first;
8. If this negotiations are not successful negotiate with the CEDO ranked second, etc.;

In the framework of such procedure there are three stages which are critical for the selection of CEDOs:

- 1 the stage of assembling the "long-list" of CEDOs which may be considered for the assignment;
- 2 the pre-selection stage in which some CEDOs which appear to be most qualified to undertake the assignment are selected from the long-list; and
- 3 the selection per se, in which the most suitable CEDO is selected on the basis of evaluation of bids received from invited short-listed CEDOs.

In this CEDOs "filtering" process, the main problems for DCs CEDOs are the following:

- First, the problem of making themselves known to prospective clients and ensure their inclusion into "long list",
- Second, to pass the pre-qualification screening and enter the "short list" and, thus, get the opportunity to compete with a concrete proposal; and
- Third, to be given a fair chance to compete with other bidders primarily on the basis of the "merits" of his proposal and not to be automatically excluded from such competition by some requirements, which a "new entrant" usually cannot fulfil (like years of experiences, number of executed projects, etc.).

It is therefore of utmost importance for enabling the participation of DCs CEDOs in the international C/E market that the CEDOs selection process and the evaluation/selection criteria used by lending institutions, and generally accepted by their borrowers, give a fair chance also to "new entrants" from DCs and do not automatically exclude them on account of such factors as sheer volume of past experience and the renown of professionals listed.

Presently the most DCs CEDOs are confronted with the vicious circle problem of not being short-listed and getting important international C/E assignments because they lack adequate experience and not being able to acquire the required experience without being given the chance of working on important international assignments.

#### **3.4.3. Long-lists of CEDOs**

The long-list of CEDOs represents the theoretical pool of potential candidates, from which the client will be seeking candidates for particular assignment. In practical term, the preparation of long-lists is already the first step in the CEDOs selection process. The critical element in this process is the availability of information about particular CEDOs by the client.

There are three main sources of information used to establish a long-list of CEDOs:

- personal knowledge about CEDO by the client, his consultant, financing agency and other stake-holders in the project. This awareness and knowledge about a particular CEDO is mainly based on previous contacts with the CEDO and on other "personal" sources of information about the CEDOs.
- screening CEDOs rosters (like DACON), CEDOs directories and other formal information systems on CEDOs "supply" (like INRES-South) The eligibility requirements of different registration systems represent, already at this stage, a first pre-selection of CEDOs;
- gathering information on CEDOs by placing advertisements in trade journals and other publications, (e.g., in IDB financed projects it is mandatory to advertise publicly, both locally and internationally, all contracts of more than US \$ 200.000. At a minimum, the advertisements has to be published in Business Development and the national press of the borrowing country and sent to all embassies accredited to that country.)

The problem of DCs CEDOs at this long-listing stage is mainly a problem of their adequate representation in relevant international information and registration systems, their capacities to follow the pre-qualification announcements and of their marketing capacities and capabilities.

In order to put DCs CEDOs "on the map" at this stage of CEDOs selection process and open the first door or the relevant C/E market, particularly the market of other DCs, the most efficient instrument could be to promote or make mandatory the system of "public announcements" of all major C/E projects, and to intensify inter-CEDOs contacts (see para 2.1.4.) to short-cut the information gap among DCs in this area.

#### **3.4.4. Short lists**

The main client's purpose of short-listing is to identify suitable candidates who might be capable and interested of doing the job and to reduce the number of candidates to a manageable size, and thus lower the overheads cost of the bidding process.

For a CEDO, the short-listing process represents a most critical phase in the decision making process about its project involvement in a concrete case. In this process the chances of being awarded the contract are evaluated by the CEDO; the basic organisational questions (like formation of joint ventures, etc.) are sorted out and the basic decisions whether to compete for the assignment or not, are taken.

As a rule, in this pre-qualification process, 3 to 6 CEDO are selected from the long-list and included into the short-list.

The sources of information needed for pre-qualification purposes may range from personal experiences with particular CEDO in previous jobs, through interviews, and registration data, to specifically gathered information for short-listing purposes from interested CEDOs using a specific "pre-qualification questionnaire".

The pre-selection procedure recommended or prescribed for important internationally financed C/E projects by some multilateral finance institutions (e.g., IDB for C/E contracts of more than US \$ 200.000) consists of the following main activities:

- 1 Publishing a notice, inviting all interested CEDOs to apply for the "pre-qualification questionnaire". This brief notice should contain already the elementary data on the client, on the project (outline of project - including scope, scale, location, etc.) and major requirements that would concern prospective tenderers. On the basis of these data and other information, the CEDO has to take the decision to express the preliminary interest in the project and apply for further "inquiry documents";

The "public pre-qualification announcement" will add two to three months to the selection process and is requiring additional work by the clients selection committee. Some institutions, like ADB (see: Handbook for users of consulting services, ADB, 1991, p.59) recommend such procedure only "when there is a clear and pressing reason" for it, while others, like IDB, make it obligatory for all major C/E contracts).

- 2 On receipt of application from interested CEDOs the client is issuing pre-qualification documents containing more detailed data on the project, the "pre-qualification forms" and instruction for completion and return of the form. At

this stage the information about the project is enlarged as compared to information contained in the "invitation to pre-qualify" and includes also data, like:

- pre-selection criteria;
  - requirement for local participation and the scope of work that will be undertaken by nominated sub-contractors;
  - outline of performance standards to be met and requirements such as training and technology transfer;
  - financial guarantees to be provided by the tenderer;
  - sources of finance and payment arrangements;
  - contract language, terms & conditions, applicable law;
  - any aspect that is unusual and that would have a bearing on the requirements to be placed on the tenderer.
- 3 The evaluation of suitability of the CEDO will primarily be made on the basis of the completed questionnaire but may be complemented by knowledge of previous experience, data from registries (Banks require that an updated DACON form is attached to CEDOs response) and directories, discussions if necessary, etc. The evaluation will determine for each potential tenderer its structure and organisation, its experience (type of work/country/region-wise), its available resources (in house technical staff, need for sub-contracting, management ability, back-up facilities etc.), financial status and its overall ability to execute the project, taking into account problems of language and familiarity with circumstances in the country of the project.

Banks have issued specific Guidelines on the use of consultants which apply in all cases where the banks uses consultants in their operations or where consultants are used by the borrowers for a Bank financed project.

When borrowers use consultants they are responsible for the selection, engagement and supervision of the consultant and the contracts are directly with borrowers, or an agency designated by the borrower. These cases constitute by far the largest proportion of consultants' services in which the banks have an interest. If the Banks use consultants for technical assistance activities which are financed by the Bank's own resources or when the Bank is acting as executing agency on behalf of other



institutions (like UNDP), the consultants will be selected by the Banks and their contract is directly with the Bank.

Bank's involvement in the selection and engagement of consultants by the borrower which may start already in the project appraisal phase where the Bank may require borrowers to engage consultants, is determined in detail in each case by agreement between the Bank and the borrower. It is however the prevailing practice that the Banks comment and approve the most significant activities in the selection process.

Some institutions utilise specific criteria and points system for pre-selecting CEDOs. As example, the IDB system for hiring consultants, requires that the pre-selection criteria include, as a minimum the following five factors (see IDB, Business Opportunities for Consulting Firms, May 1991):

1. The general background of the firm being rated;
2. Whether the firm has done similar work in the past;
3. Whether the firm has done previous work in the borrowing member country or similar countries;
4. Language capabilities of the firm's staff;
5. Whether the firm will use local consultants.

The ADB is even more specific in specifying the main considerations which should be used in selecting eligible CEDOs for the short-list (see Handbook for users of consulting services, ADB, 1991, p. 60):

1. Eligibility, i.e., from a member country of the funding source.
2. Extensive experience in similar projects, particularly in the most demanding features of the project. It is the level of responsibility and the extent of experience and not just the number of projects which are important.
3. Experience with similar project authorities, e.g., at the municipal or national level, integrated or specialised agencies, small scale or large scale projects, as the case may be.
4. Work experience in the kind of services under consideration, such as feasibility studies, design work, construction supervision, economic analysis, management, etc.
5. Experience outside the firm's own country in climatic, geographical and/or

cultural areas similar to those of the project.

6. Work volume in monetary value and manpower sufficient to indicate that the firm should be able to handle the financial and manpower investment required for the project.

The pre-selection phase represents for DCs CEDOs the most critical phase in their efforts to penetrate the international C/E market. It is in this phase where different quantitative "experience" based criteria (like number of executed projects, number of professionals, years of experience, etc.) often automatically exclude the "new entrants" from DCs from further participation in the selection process, and thus perpetuate the dominance and exclusiveness of the club well established, "experienced" international CEDOs.

The system of "public announcements" of important international C/E projects as promoted by some financial institutions (like IDB) gives DCs CEDOs a better formal starting position in this process, than less formalised pre-selection systems. The public announcement systems facilitate the inclusion of DCs CEDOs into CEDOs long-lists even without them having the comparable intelligence and marketing muscles as their major international competitors. Such more transparent pre-qualification procedures and criteria, on the other hand, allow the DCs CEDOs to better assess their capacities and capabilities for executing a particular assignment and to take more informed decisions and organise themselves in accordance with basic project requirements (like, forming consortia or joint ventures to round-out their qualifications, etc.).

The pre-selection phase represents the most appropriate framework for DCs and other regional and international institutions to eventually intervene, also with political means, into the CEDOs selection process and - without compromising on the quality of required C/E services per se - ensure some forms of special treatment for DCs CEDOs in entering the C/E market (like, demanding reservations for some domestic CEDOs or CEDOs from other DCs on the short-list), requiring representation of countries in a balanced way, introducing "non-traditional" selection criteria and ascribing greater weightage to some selection criteria, etc.).

### 3.4.5. Bid selection process

After the evaluation and selection of potential candidates has been made in the pre-qualification process - basically assessing the candidates "ad personam", the "winners" are put on the short-list and invited to submit their proposals and prove their capacities and capabilities "ad rem", i.e. to efficiently execute the specific assignment.

In this phase, the focus of evaluation and selection activities is not on re-evaluating the general capabilities of CEDO (this is assumed to be properly done in the pre-qualification phase), but on the specific capabilities of the tenderer (institutional, methodological, professional, etc.) for efficient implementation of the concrete project assignment.

Quality considerations will continue to be the overriding evaluation factor also in this stage - but "quality" will be considered this time mainly in the context of the concrete project requirements. This gives a better chance to DCs CEDOs to be judged on the "merits" of their proposal and not on the basis of other factors, which may not be of particular importance for efficient execution of the particular assignment, and where DCs CEDOs are normally not in a position to produce impressive records (like, years of experience of members of the project team, etc.). However, besides the remaining "experience" biases in favour of traditional CEDOs, the fact that the great majority of bid selection methodologies take "price" factor into consideration only as a secondary factor - after the evaluation according to technical criteria has been completed - represents an other handicap for DCs CEDOs whose main competitive advantage vis-a-vis CEDOs from industrialised countries may often be a significantly lower consultants rate for comparable services.

The first activity in this stage of CEDOs selection is the sending of a "letter of Invitation" or "request for proposals" to short-listed CEDOs. This letter contains a package of information necessary for the CEDO to prepare and submit responsive proposals. In international projects, these letters are usually of a standardised format and include the following annexes: Terms of reference, Background information (supplementary information for consultants) and a specimen of the draft contract.

Among different elements of a standard letter of invitation, as used in international practice, the indication about the selection methodology and evaluation criteria to be

used by the client, form an important part. According to the World Bank's "Guidelines for the use of consultants by World Bank Borrowers and by the World Bank as executing agency", the Letter of invitation should contain among other information also:

"Details of the selection procedure to be followed, including the technical evaluation categories and an indication of the weights to be given to each. If price is to be a factor in the selection process, the basis on which price will be taken into account should be indicated."

In the bid evaluation process the operative word is "quality". In recognition of the importance of quality, the Banks and other institutions have established elaborate criteria and procedures for selecting consultants, which differ significantly from those used in procurement contracts for goods and construction services.

The CEDOs and their bids are evaluated basically on the basis of three elements: experience, adequacy of work plan and the qualifications of the personnel proposed for the assignment. Numerical ratings are used for evaluating and comparing the qualifications of the bidders and of the merits of their proposals. As example, the World Bank recommends the following weights to be given to these categories (the weights ascribed by ADB are given in brackets):

- CEDOs experience 10 - 20% (ADB : 100 - 300 points)
- Work plan 25 - 40% (ADB : 200 - 400 points)
- Personnel 40 - 60% (ADB : 300 - 700 points)

For different types of C/E assignments, a different range of weights could be used, reflecting the varying degrees of importance attached by the client to different factor. These factors are usually grouped into three groups:

a) CEDOs qualifications and experience

The CEDOs experience is often given less weight in this stage of the selection process, because the experience of the CEDO has already been evaluated in the pre-qualification stage and because the experience of the CEDO can also reside in staff which are not assigned to the concrete project in question. The CEDOs experience in this evaluation

stage is considered mainly in terms of specialised capacities and capabilities that match the specific requirements of the assignment, including CEDOs experiences in the project country or region.

#### b) Work Plan

The evaluation of the work plan comprises an assessment of how well the CEDO understood the nature of the assignment and how professional and realistic is his suggested approach and methodology to tackle the assignment. This factor usually carries more weight as the factor "experience".

#### c) Personnel

The personnel proposed to carry out the services usually carries the highest weight. It is assumed that it is the personnel actually working on the project who is most important for the success of the work assignment. The team leader is considered to be crucial for the success or failure of the assignment, and it is him who is scrutinised most fully. The personnel listed in the project proposal are normally evaluated according to three main factors (see World Bank Guidelines on use of consultants):

- general qualifications (this includes education and training, length of experience, type of position held, time with the firm, etc.);
- adequacy for the project (the suitability to perform the duties for the particular assignment); and
- language and experience in the region (this includes background in DCs similar to the country in which the assignment is to be conducted and linguistic ability).

There are two basic types of selection procedure: those that rely solely on technical evaluation and those that involve both technical and price evaluation.

The World Bank and other international lending institutions generally recommend the selection of consultants for complex and critical assignments solely on the basis of qualitative criteria, and for simple assignments, on the basis of a combination of technical and price factors.

Most international funding agencies use same rules when considering price in selection of C/E services, like:

- the use of price as a criterion of CEDO selection must have been agreed with the funding agency prior to the issue of the letter of invitation;
- the letter of invitation must indicate how and to what extent price will be considered in the selection process;
- the technical evaluation must be completed before the prices quoted by CEDOs are revealed.

The evaluation systems traditionally require the submission of technical proposals only (without including any financial terms). After the final choice on technical merits has been made, the successful CEDO is invited to submit and negotiate the financial terms.

Today the price has become an increasingly important factor in many countries and there is an increasing pressure from the client's side to use methods of selection in which the price plays a role. The dilemma facing the client is how to balance ability against price. By inviting CEDOs to submit priced proposals the clients may be in some cases (particularly in routine type of jobs) in the position to take advantage of cost savings, without necessarily compromising on quality.

Considering the extent to which price may be used in CEDOs selection processes, the World Bank recommends to classify consulting assignments according to following characteristics:

- technical complexity (from extremely complex to simple routine tasks);
- assignment impact (assessing the impact of not adequately performed C/E assignment on the end product);
- comparability (the probability that a number of proposals submitted by invited firms will lead to comparable outputs).

According to the World Bank, the more complex the assignment, the more significant the end product and the less comparable the proposals, the less influence the price should have on the selection.

Where price is taken into account, it is recommended by the international financial agencies to use a two-stage procedure, with technical and financial proposals submitted separately or with the price proposal submitted at a later date. In either case, the technical evaluation has to be completed and the proposals ranked on the basis of technical merits, before the price proposals are reviewed. Then the proposals are weighted on the basis of a combination of both factors.

In a related procedure, known as "two-envelope system", only the price envelope of the best technically-ranked CEDO is opened and there is no comparison of price elements among different proposals. The price envelope of the second-ranked CEDO is not opened until it is clear that the contract with the first firm cannot be concluded.

For DCs CEDOs, for whom the price advantages are often the only significant competitive advantage vis-a-vis their competitors from industrialised countries, it would be of great relevance that the range of assignments in which price would be accepted as a permissible evaluation factor would be enlarged and would not be restricted just to simple or routine assignments, as it is presently the prevailing international practice.

#### **4. CONCLUSIONS AND RECOMMENDATIONS**

On the basis of above analysis of the relevance of presently prevailing international systems of CEDOs registration, information on C/E supply and demand, and systems of CEDOs selection on the position of DC CEDOs in the international C/E market, the following conclusions and recommendations are being made:

##### **A. Conclusions**

1. The international C/E market is presently dominated by CEDOs from industrialised countries, which are controlling over 90% of this market.
2. The main buyers of international C/E services are the DCs, who represent approximately 80% of international demand for C/E services.
3. There is an increasing number of DCs which have, in the process of developing

their economies, developed also important capacities in the C/E sector, which can be offered on the international C/E market.

4. From the point of view of DCs - as the main buyers of international C/E services - the services which can be provided by CEDOs from DCs have some important substantive comparative advantages as compared to C/E services traditionally provided by CEDOs from industrialised countries.
5. In spite of accumulated C/E capacities and some important potential competitive advantages, there are very few DCs CEDOs which have succeeded to expand their C/E activities beyond their domestic markets.
6. DCs CEDOs typically face a number of barriers and constraints in accessing the overseas C/E market, including the market of DCs, which have little to do with the "quality" of their services, and with which their competitors from industrialised countries are usually not confronted with.
7. The presently prevailing "rules of the game" on the international C/E market are basically favouring large, well established, experienced, reputed CEDOs, with a long tradition and impressive track record. The DCs CEDOs and other "new entrants" into this market are basically caught in a "vicious circle" in which they are not getting assignments because they cannot show the required international "experience", and are not in a position to acquire such experience without being given a chance to work on such assignments.
8. The DCs domestic market can play a crucial role in helping DCs CEDOs to break this "vicious circle" and to start accumulating internationally relevant experiences and references. A number of DCs have been using different formal and informal instruments to facilitate the participation of domestic CEDOs in domestic C/E assignments and to promote different forms of associations with "experienced" foreign partners in such assignments.
9. Despite the stated policy of a number of multilateral financial institutions, like the World Bank and Regional Development Banks, to promote the development and utilisation of DCs CEDOs and formation of joint ventures in the projects which they finance, there is little "affirmative" action on the international level



which would actively help DCs CEDOs and other "new entrants" to be admitted to this market and get a fair chance to compete on the basis of "merits" of their C/E proposals.

10. The analysis of three basic "entry - conditions" to the international market, i.e. CEDOs registration, information and selection systems, is showing that the systems do not formally discriminate against any CEDO, but that in practical terms they help to perpetuate the dominant position of an "exclusive club" of large, "experienced" international CEDOs from industrialised countries. It is well known that the experience - curve of DCs CEDOs is rather short, and that their image has yet to reach the levels of long-established traditions of CEDOs from industrialised countries.
11. In the areas of CEDOs registration and information systems the factual advantage of typical CEDO from industrialised countries vis-a-vis CEDOs from DCs, are their organisational, administrative, marketing, financial and other institutional capacities and readily accessible support services. For a typical DCs CEDO, with its modest administrative, marketing and financial resources, the proper representation in, and utilisation of international registration and information systems, is often not only a question of professional and administrative capacities, but often represents a burden which cannot be supported by the volume of C/E activities.
12. A specific problem for DCs CEDOs in the registration area represent the various national, regional and international CEDOs registration systems, in which DCs CEDOs have to register separately, and among which there is very little coordination, standardisation and possibilities for interchange of registration data.
13. In the area of information, the DCs CEDOs are confronted with the problem that most information and communication systems, relevant for CEDOs, have been designed from the standpoint of the needs and interests of industrialised countries, and that often the information on neighbouring and other DCs, which represent practically the only relevant market for export of DCs C/E services, is not directly accessible by DCs CEDOs. There are different information systems which have been specifically established with the objective to facilitate and

promote TCDC and ECDC, like INRES-SOUTH, INTIB, TIPS and SITTDEC, which could play an important role in bridging the present horizontal information gap between DCs.

14. In the area of CEDOs evaluation and selection, the basic problem for DCs CEDOs interested in international assignments, are the prevailing evaluation and selection criteria and procedures on the international C/E market - particularly in the short-listing phase - which are predominantly based on such "capacity" and "experience" factors, like: years of experience, number of executed projects, number of professional staff, etc., which normally characterise the large, well established CEDOs with long tradition and impressive reference lists, and which often automatically disqualify the relatively smaller and younger CEDOs from further competition.
15. In the CEDOs bid selection phase - the DCs CEDOs usually face a specific handicap, by not having the chance to compete with one of their main comparative advantages - with the relatively lower price of their services. The great majority of internationally used bid selection methodologies take the "price" into consideration only as a secondary factor - after the evaluation and selection according to technical criteria has been completed.
16. For DC CEDOs an important - but insufficiently used - instrument for facilitating their access and participation in the international C/E market, particularly in the DCs markets, is the instrumentality of inter-CEDOs TCDC. In specific areas discussed in this study, the cooperative links may be used for facilitating the registration with potential clients in DCs; for short-cutting the information gap between DCs; and for providing timely and privileged "personal" information relevant in the selection process.

## **B. Recommendation**

1. DCs should utilise their position as the major buyer of international C/E services to help their CEDOs to acquire - starting with domestic assignments - internationally relevant knowledge, experiences and references. In the initial stages of development of their C/E industry, Governments of DCs should particularly encourage different forms of association of domestic CEDOs with experienced foreign CEDOs;
2. The cooperation with trading houses and foreign CEDOs, starting with simple sub-contracting arrangements, should be used as a relatively inexpensive, rapid and efficient modality of entering the international C/E market. Through different cooperative arrangements the "entry" problems to the international C/E market, presently faced by most DCs CEDOs, could be substantially diminished;
3. DCs should develop an export mentality in the C/E sector and complement the presently prevailing "commodity-centred" export policies with policies promoting the export of C/E services, which may range from providing simple informational support to subsidising C/E business promotion and tendering costs and providing "tied" project finance;
4. DCs should build-up internationally compatible national CEDOs registration systems and promote the regular updating of registration data and the inclusion of their "qualified" CEDOs in relevant regional and international CEDOs rosters. The concerned governmental bodies, associations of CEDOs or chambers of commerce should provide for the compatibility of different national CEDOs registration systems and should ensure that updated data on their CEDOs is available to all foreign institutions and CEDOs interested in project work in their country;
5. The Associations of DCs CEDOs should prepare and keep updated directories of their member CEDOs and regularly supply relevant data for CEDOs directories of regional and/or international CEDOs associations;
6. The capacities and networks of existing international TCDC/ECDC information systems, like INRES-SOUTH, INTIB, TIPS and SITTDEC should be used to

promote information exchange on DCs CEDOs and for actively promoting different inter-CEDOs cooperative arrangements. These systems should provide for a specific CEDOs "window" among their services and organise CEDOs company matching and sub-contracting exchanges;

7. The inter-CEDOs TCDC arrangements should be used as a privileged instrument to short-cut the present information gap between DCs in the C/E area, to provide mutual support in marketing activities, and to ensure reciprocal engagements in their home markets.
8. Different TCDC arrangements among DCs CEDOs, from simple sub-contracting to ad hoc and institutionalised consortia, should be used to round out the capacities of individual CEDOs and to acquire the needed critical mass of capacities for qualifying for international assignments. DCs Governments and regional groupings and institutions should specifically promote such cooperative arrangements.
9. Multilateral finance institutions should undertake "affirmative" actions to help DCs CEDOs - as "new entrants" to the international C/E market to be adequately represented in the CEDOs rosters and in relevant information systems. Specific training courses should be organised for interested DCs CEDOs on international C/E market-entry strategies.
10. The presently prevailing CEDOs evaluation and selection criteria and procedures should include and give a adequate weight to some "non-traditional" factors, which may be of particular importance for C/E projects in DCs, like familiarity with particular DCs conditions, etc.
11. The project sponsors and clients in DCs should ensure that in the CEDOs pre-selection processes some places on the "short-lists" of CEDOs are reserved for domestic CEDOs and CEDOs from other DCs and that project sponsors and clients would encourage formation of consortia and other associations among DCs CEDOs, in order to help them to reach the required qualifications to be included in the "short-lists";

12. Efforts should be made by project owners to "unpackage" the C/E projects in such a way that DCs CEDOs, which may not qualify for the entire project, could compete for specific project components;
13. The bid selection methodologies should, to a greater extent as at present, consider the "price" of C/E services as an evaluation factor and thus enable the DCs CEDOs to compete with one of its important comparative advantages in the C/E area.
14. The project promoters and clients in DCs should make greater use of DCs consultants in CEDOs pre-selection and selection procedures in order to adapt properly the evaluation and selection criteria to specific project requirements in DCs.
15. The associations of CEDOs on the national, regional and international level should play a key role in providing the needed training and in organising the DCs CEDOs for international activities.



# ANNEXES

**QUESTIONNAIRE**  
**for interviews on**  
**DCs' CEDOs problems in entering international C/E market**

- A.** How can DCs' CEDOs most effectively present themselves to prospective clients and banks?
- actual value of formal registration
  - registration in home country
  - registration in other countries
  - registration with regional international banks (DACON)
  - relevance of DACON system for DCs' CEDOs
  - how could DACON and other registration system be made more relevant for DCs' CEDOs. What changes should be proposed?
  - relevance of other (informal) systems of presentation
- B.** Are there specific information systems/channels/media in which DCs' CEDOs should present/advertise their C/E (supply) capacities?
- C.** Are the prevailing CEDOs evaluation/selection criteria/procedures biased in favour of reputed international CEDOs from industrialised countries?
- how?
  - which specific elements should receive greater weightage?
  - what changes should be proposed to reflect properly DCs' CEDOs specific comparative advantages?
- D.** What should be changed in the present system of CEDOs registration, information and evaluation/selection in order to give DCs' CEDOs, on the "formal"/procedural level, an equal starting competitive position in international C/E market?
- E.** What would be suggested "best practice" for DCs' CEDOs to enter and participate in international C/E market. What should be the needed institutional/infrastructural support:
- on the national level
  - by international organisation (banks, etc.)
  - collective action by DCs (G.77, CEDOs Associations)



## LIST OF CONTACTS

**A. UN Organisations**

United Nations Conference on Trade and Development  
(UNCTAD), Geneva

United Nations Industrial Development Organization  
(UNIDO), Vienna

United Nations Economic and Social Commission for Asia  
and the Pacific (UN ESCAP), Bangkok, Thailand

United Nations Development Programme (UNDP)  
Special Unit for Technical Co-operation among Developing Countries  
(SU/TCDC), New York

United Nations Commission on International Trade Law (UNCITRAL),  
Vienna

**B. International/Regional financial institutions**

The World Bank  
Washington

Inter-American Development Bank (IDB)  
Washington

Asian Development Bank (ADB)  
Manila, Philippines

African Development Bank (AfDB)  
Abidjan, Ivory Coast

The European Bank for Reconstruction and Development (EBRD)  
London, Great Britain

**C. CEDOs Associations**

Federation of African Consultants (FEAC)  
Abidjan, Ivory Coast

Federation of Latin American Associations of Consultants (FELAC),  
Caracas, Venezuela

International Federation of Consulting Engineers (FIDIC)  
Lausanne, Switzerland

National Association of Consulting Engineers of Slovenia  
Ljubljana, Slovenia

**D. Experts**

Dr. Alberto Mendez Arocha, Director, Consorcio INPROMAN VBL C.A. (Empresa de Ingenieria), Caracas, Venezuela

Dr. A. Chatterjee, Director & Chief Executive, Research and Consultancy Directorate, ACC, Thane, India

Ms. M. Fabjan, Advisor, RUDIS, Engineering and Construction, Trbovlje, Slovenia

Mr. M. Grof, Chief General Manger, Inverstment Promotion & Evaluation, Ljubljanska banka, Ljubljana, Slovenia

Mr. A. Gruenfeld, Director EMONA - Engineering, Ljubljana, Slovenia

Dr. P. Kunc, President, Union of Consulting Engineering Firms, Chamber of Economy of Slovenia, Ljubljana, Slovenia

Mr. Lamberto Un Ocampo, President, DCCD Engineering Corporation, Manila, Philippines

Dr. M. Opara, Director, SMELT- Global Project Management, Ljubljana, Slovenia

Dr. K. V. Swaminathan, Ministry of Science and Technology, New Delhi, India

Dr. Ramesh G. Tagat, Associate Professor, Indian Institute of Management, Bangalore, India

Mr. Ramesh S. Tyagi, Executive Director, The National Industrial Development Corporation Limited (NIDC), New Delhi, India

Mr. Rocky Wong Hon Thang, Director, Tenada Ewbank Preece, Kuala Lumpur, Malaysia

Mr. F. Zle, Secretary, Union of Consulting Engineering Firms, Chamber of Economy of Slovenia, Ljubljana, Slovenia

fn:cedolist

## TASK ORIENTATION OF ENGINEERING DESIGN SERVICES

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### **Pre-investment services:**

- \* Opportunity studies;
- \* Screening of project ideas;
- \* Market studies;
- \* Technical requirement studies;
- \* Techno-economic feasibility studies;
- \* Technical evaluation of project;
- \* Economic and financial evaluation;
- \* Location studies;
- \* Evaluation of means of financing.

### **Project execution services:**

- \* Process and product design;
- \* Production planning and scheduling;
- \* Architectural and structural design;
- \* Design and layout of machinery and equipment;
- \* Evaluation of bids;
- \* Supervision of construction and equipment installation;
- \* Purchasing, inspection and testing of materials and equipment;
- \* Quality control.

### **Project implementation:**

- \* Production activities;
  - \* Technical personnel training;
  - \* Management personnel training;
  - \* Maintenance
- 

Source: Y. Soubra, "Construction and Engineering Design Services: Issues Relevant to Multilateral Negotiations on Trade and Services", in Trade and Services: Sectoral Issues, United Nations Publication (UNCTAD/ITP/26) 1989, pp. 186-187

## SHARE OF TOP 200 INTERNATIONAL CEDOS IN THE GLOBAL MARKET

1989

CEDOs,	# OF FIRMS	INTL. BILLINGS		MIDDLE EAST		ASIA		AFRICA		EUROPE		U.S.		CANADA		LATIN AMERICA	
		\$ mil.	%	\$ mil.	%	\$ mil.	%	\$ mil.	%	\$ mil.	%	\$ mil.	%	\$ mil.	%	\$ mil.	%
AMERICAN	67	3,228.8	43.5	436.5	54.4	888.8	44.1	161.1	17.2	1,142.4	64.4	.0	.0	361.2	89.4	233.3	52.6
CANADIAN	11	594.4	8.0	24.8	3.1	149.5	7.4	175.4	18.7	12.6	.7	165.1	16.0	.0	.0	63.3	14.3
EUROPEAN	93	3,118.4	42.0	272.6	33.9	687.8	34.1	547.8	58.4	604.0	34.1	837.0	80.9	40.3	10.0	127.1	28.6
BRITISH	19	1,182.4	15.9	73.9	9.2	340.0	16.9	107.6	11.5	198.2	11.2	419.5	40.6	28.6	7.1	13.8	3.1
GERMAN	19	452.3	6.0	66.8	8.3	54.0	2.7	95.7	10.2	45.2	2.5	158.5	15.3	2.1	.5	30.0	6.8
FRENCH	10	323.2	4.3	11.8	1.5	30.3	1.5	87.1	9.3	17.5	1.0	169.4	16.4	1.3	.3	5.8	1.3
ITALIAN	11	120.6	1.6	2.5	.3	12.4	.6	56.5	6.0	18.3	1.0	9.5	0.9	.0	.0	21.4	4.8
YUGOSLAV	2	34.1	.5	27.2	3.4	.0	.0	3.3	.4	1.1	.06	.0	.0	.0	.0	2.4	.5
DUTCH	11	471.1	6.3	53.1	6.6	135.8	6.7	79.3	8.5	107.0	6.0	60.2	5.8	1.3	.3	34.4	7.8
OTHER	21	534.8	7.2	37.3	4.6	115.3	5.7	118.1	12.6	216.7	12.2	20.0	1.9	7.0	1.7	19.3	4.3
JAPANESE	14	257.4	3.5	8.8	1.1	211.7	10.5	18.6	2.0	2.2	.1	.6	.1	.0	.0	15.5	3.5
ALL OTHER	14	222.7	3.0	60.5	7.5	78.9	3.9	34.6	3.7	12.4	.7	31.6	3.1	2.4	.6	4.6	1.0
ALL FIRMS	200	7,421.8	100	803.1	100	2,016.7	100	937.5	100	1,773.7	100	1,034.4	100	403.9	100	443.8	100

1991

CEDOs,	# OF FIRMS	INTL. BILLINGS		MIDDLE EAST		ASIA		AFRICA		EUROPE		U.S.		CANADA		LATIN AMERICA	
		\$ mil.	%	\$ mil.	%	\$ mil.	%	\$ mil.	%	\$ mil.	%	\$ mil.	%	\$ mil.	%	\$ mil.	%
AMERICAN	78	4,153.6	41.1	741.1	56.7	1,111.0	40.8	248.3	23.4	1,541.6	55.9	.0	.0	196.5	78.6	299.9	40.3
CANADIAN	10	612.0	6.1	41.0	3.1	83.9	3.1	97.1	9.1	67.2	2.4	263.9	21.3	.0	.0	58.6	7.9
EUROPEAN	85	4,651.8	46.1	384.9	29.5	1,198.5	44.1	649.6	61.1	1,112.6	40.3	905.0	73.1	53.1	21.2	345.6	46.5
BRITISH	20	1,947.8	19.3	122.4	9.4	505.7	18.6	162.6	15.3	470.5	17.1	462.2	37.3	52.4	21.0	171.3	23.0
GERMAN	14	530.7	5.3	47.6	3.6	72.0	2.6	121.6	11.4	113.3	4.1	148.3	12.0	.2	.1	27.7	3.7
FRENCH	5	273.7	2.7	43.9	3.4	88.7	3.3	76.9	7.2	52.5	1.9	1.7	.1	.1	.0	9.9	1.3
ITALIAN	8	139.5	1.4	11.4	.9	11.8	.4	51.0	4.8	17.8	.6	.0	.0	.0	.0	47.4	6.4
YUGOSLAV	1	12.6	.1	2.8	.2	.0	.0	4.0	.4	1.6	.1	.0	.0	.0	.0	4.3	.6
DUTCH	10	740.9	7.3	81.7	6.3	252.8	9.3	83.5	7.9	120.8	4.4	159.0	12.8	.0	.0	42.1	5.7
OTHER	27	1,006.7	10.0	75.2	5.8	267.5	9.8	150.0	14.1	336.2	12.2	133.8	10.8	.4	.1	42.9	5.8
JAPANESE	14	316.7	3.1	13.6	1.0	231.4	8.5	24.6	2.3	.7	.0	21.7	1.8	.3	.1	24.4	3.3
ALL OTHER	13	362.8	3.6	125.8	9.6	95.1	3.5	43.4	4.1	36.1	1.3	47.5	3.8	.0	.0	15.1	2.0
ALL FIRMS	200	10,096.9	100	1,306.3	100	2,719.8	100	1,063.1	100	2,758.1	100	1,238.0	100	249.9	100	743.7	100

Source: Various issues "Engineering News Record".

## ANNEX V

**CEDO from developing countries  
among the top 200 international CEDOs,  
1990**

Rank	CEDO	Share of international in total billings
10	Dar Al Handasah Consultants (Shair and partners) Cairo, Egypt	100
68	Energoproject Consulting Engineers, Belgrade, Yugoslavia	45
76	Hyundai Engineering Co., Seoul, Republic of Korea	34
77	Samsung Engineering Co. Ltd. Seoul, Republic of Korea	46
106	Lucky Engineering Co. Ltd. Seoul, Republic of Korea	25
112	Rail India Technical and Economic Services, New Delhi, India	49
119	Hyundai Engineering and Construction Co., Seoul, Republic of Korea	60
197	Daewoo Engineering Co., Seoul, Republic of Korea	10
198	Hidroservice Engenharia Ltd. Sao Paulo, Brazil	10

*Source: Engineering News Record, vol 227, No. 7, 19 August 1991.*

LIST OF INTERNATIONAL/REGIONAL/BILATERAL AND OTHER  
LENDING/FINANCING INSTITUTIONS WHICH ACCEPT THE DACON  
REGISTRATION FORM

1. INTERNATIONAL INSTITUTIONS

IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IFC	International Finance Corporation
ILO	International Labour Office
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization

2. REGIONAL INSTITUTIONS

ADB	Asian Development Bank
AfDB	African Development Bank
EEC	European Economic Community (European Development Fund)
EBRD	European Bank for Reconstruction and Development
IDB	Inter-American Development Bank

3. ARAB AND RELATED DEVELOPMENT FUNDS

IsDB	Islamic Development Bank
BADEA	Arab for Economic Development in Africa
ADFAED	Abu Dhabi Fund for Arab Economic Development

**DACON  
DATA ON  
CONSULTANTS**

**CONSULTING FIRM  
REGISTRATION FORM**

Note: Asian Development Bank  
has expanded the number of  
sectors(point 4)from 14 to  
15(to include as a specific  
sector "Financial Services  
Sector")

**Form 1600 (11/88)**

**PART A. FIRM DESCRIPTION**

Date (mm/dd/yy)

1. Name of Firm (full name)		Acronym (if any)											
		Year Established											
		Telephone No.											
2. Address of Home Office		City, Country											
Street Address		Cable Address											
P.O. Box (if any)	State/Province	Telex No.											
Postal Code	Country Name	Telefax No.											
Office or Partner to be Contacted (name, title)		Country Code (refer to the Guide, Annex I, p. 9)											
3. Former Name of Firm (full name)		Acronym (if any)											
		Year Established											
4. Sectors in which firm has provided services (check appropriate spaces to indicate sectors for which your firm has provided services. Sector(s) marked should correspond with the sectors/ codes marked in Item 9b, p. 3)													
AG	CO	ED	EG	EV	HE	IN	PO	TE	TO	TR	UD	WS	MS

5. Firm/Entity Personnel by Occupational Groups: Professional Staff (a and I) Technicians, Admin./Support Staff (m and N)											
a. Agriculturalists		b. Sociologists		c. Architects and Urban Planners		d. Biologists and Chemists		e. Credit Specialists, Financial Analysts and Accountants		f. Economists	
full-time	part-time	full-time	part-time	full-time	part-time	full-time	part-time	full-time	part-time	full-time	part-time
g. Engineers		h. Educators and Training Specialists		i. Health and Population Specialists		j. Operations and Management Specialists		k. Science and Technology Specialists		l. Surveyors, Estimators	
full-time	part-time	full-time	part-time	full-time	part-time	full-time	part-time	full-time	part-time	full-time	part-time
m. Technicians and Draftsmen		n. Administrative and Support Staff		o. Other (Describe in Item 10b, p. 5)		p. Total Professional		q. Total Technicians, Admin./Support Staff		r. Grand Total	
full-time	part-time	full-time	part-time	full-time	part-time	full-time	part-time	full-time	part-time	full-time	part-time

6. Language Capability of Professional Personnel of Firm/Entity											
a. English		b. French		c. Spanish		d. Portuguese		e. Arabic		f. Other (Describe in Item 10c, p. 5)	
full-time	part-time	full-time	part-time	full-time	part-time	full-time	part-time	full-time	part-time	full-time	part-time



**PART A. FIRM DESCRIPTION**

**AFFILIATED FIRMS** Firms with which the Registering Firm is Affiliated

(a) firms with which Registering Firm operates as an entity (Refer to p. 4 of the "Guide")

Full Name	Acronym (if any)	Country Code	Aff'd Data included? Yes/No

(b) firms with which Registering Firm operates on a project by project basis (Refer to p. 4 of the "Guide")

Full Name	Acronym (if any)	Country Code	Registered? Yes/No

Approximate Annual Volume of Gross Fees of Firm/Entity

Year	Annual Volume of Gross Fees (in US\$ millions to 2 decimal places)		
	(a) As Prime Consulting Firm	(b) As Associated and/or Joint Venture Firm	Total
Current 19			
19			
19			
19			
19			
19			
<b>GRAND TOTAL</b>			

this box if narrative for Part C is provided.

As of this date the information furnished in all parts of this form is accurate and true to the best of my knowledge.

Name and Title of Person Signing (Signature) (Date)

**PART B. FIRM EXPERIENCE**

9. Projects for Which Firm/Entity is Providing Services Now or Has Provided Services in the Past 5 Years.

SPECIFY EXPERIENCE BY PROJECT AND SERVICES:      With Registering Firm      With Other Firm      As an Individual  
 (see p. 6 of "Guide")                 

a. Project Description: Sheet No.	b. Sector(s) in which Firm/Entity Provided Services on this Project (use code(s) from Annex IV e.g. AG, CO, ED, etc.)						

**DATA ON OVERALL PROJECT**

c. Project Title		d. Project Country (see Annex I)			
e. Project Location within Country (name of nearest town or city, or name of region)		f. Approximate Project Value* (in US\$ millions to 2 decimal places)      (nnnn.nn)			
g. Short Project Description (maximum of 75 characters)					
h. International/Bilateral Institutions Financing Project (use acronyms from Annex II of "Guide")					
Loan/Credit/Grant No. (if known) (Circle L or C or G, whichever applies)	L/C/G	L/C/G	L/C/G	L/C/G	L/C/G

**DATA ON SERVICES PROVIDED BY YOUR FIRM/ENTITY**

i. Name of Client		j. No. of Professional Manmonths of Service Provided*			
k. Title of Consulting Services Provided (maximum of 75 characters)					
l. Start Date* (mm/yy)		m. Completion Date* (mm/yy)		n. Approximate Value of Services* (in US\$ millions to 2 decimal places)      (nnnn.nn)	
o. Types of Services Provided* (use codes from Annex III - p. 13 in "Guide")					
p. Fields of Specialization for which Services were Provided* (use codes from Annex IV - pp. 15-37 in "Guide")					
q. Services Provided in Joint Venture or Association with: (full name & nationality)					Acronym (if any)

\* Items 9j to 9n should include data only on services provided by your firm/entity - particularly where the services are provided in joint venture or association with other firm(s).

**PART B. FIRM EXPERIENCE**

19 (cont'd.)

PROJECT TITLE

Narrative Description of Project and Services provided by your Firm

Description of Project

Description of Consulting Services

**PART C. PARTICULARS OF FIRM**

**10. NARRATIVE DESCRIPTION OF FIRM/ENTITY**

a. Overall description of firm/entity

b. Personnel of Firm

c. Language Capability of Professional Personnel of Firm

Continue on additional sheet if necessary)

**PART C. PARTICULARS OF FIRM**

**PARTNERS, DIRECTORS AND KEY OFFICERS OF FIRM/ENTITY**

Name and Title	Nationality (Use code from Annex I)	Degree(s) Diploma(s)	Working Language(s)	Years With Firm	Year of Birth

**OWNERSHIP AND NATIONALITY OF FIRM/ENTITY**

Country of Registration:

Country of Home Office:

Nationality of Individual or firm who owns more than 50% of firm:

Nationality of Individuals who receive more than 30% of net profits or tangible benefits:

Countries of which more than a third of the executive personnel are bona fide residents:

Countries in which the firm has operating equipment and supplies necessary to provide service:

(Use on additional sheet if necessary)

RT C. PARTICULARS OF FIRM

ADDRESSES OF BRANCH OFFICES OF FIRM ENTITY, OUTSIDE HOME COUNTRY

Firm Name			Acronym (if any)
Street Address			Telephone No.
City, County			Cable Address
P. Box (if any)		State/Province	Telex No.
			Telefax No.
Postal Code	Country	Country Code (Refer to Annex I, p. 9 of Guide).	Year Established
Person in Charge (name, title)			

Firm Name			Acronym (if any)
Street Address			Telephone No.
City, County			Cable Address
P. Box (if any)		State/Province	Telex No.
			Telefax No.
Postal Code	Country	Country Code (Refer to Annex I, p. 9 of Guide).	Year Established
Person in Charge (name, title)			

Firm Name			Acronym (if any)
Street Address			Telephone No.
City, County			Cable Address
P. Box (if any)		State/Province	Telex No.
			Telefax No.
Postal Code	Country	Country Code (Refer to Annex I, p. 9 of Guide).	Year Established
Person in Charge (name, title)			

(Continue on additional sheet if necessary)

## UNIDO

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

VIENNA INTERNATIONAL CENTRE

P.O. BOX 300, A-1400 VIENNA, AUSTRIA

TELEPHONE: 211 310 TELEGRAPHIC ADDRESS: UNIDO VIENNA TELEX: 131218

**UNIDO ROSTER OF INDUSTRIAL CONSULTANTS  
QUESTIONNAIRE FOR CONSULTING FIRMS/ORGANIZATIONS**

PLEASE COMPLETE (TYPE) ALL SECTIONS OF THIS QUESTIONNAIRE

**1. NAME AND ADDRESS OF FIRM/ORGANIZATION (Head Office)**

FULL NAME: \_\_\_\_\_

ABBREVIATED NAME (if any): \_\_\_\_\_

FULL POSTAL ADDRESS: \_\_\_\_\_

TELEPHONE NUMBER: \_\_\_\_\_

TELEX: \_\_\_\_\_

CABLE ADDRESS: \_\_\_\_\_

**2. PERSON TO CONTACT**

GIVE NAME AND/OR TITLE OF PERSON WITH WHOM CONTACT SHOULD BE MADE:

NAME: \_\_\_\_\_

TITLE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

(if different from Section 1) \_\_\_\_\_

**3. YEAR AND PLACE OF ESTABLISHMENT/INCORPORATION**

YEAR: \_\_\_\_\_ PLACE/COUNTRY: \_\_\_\_\_

**4. FORMER NAME(S) WITH YEAR AND PLACE OF ESTABLISHMENT/INCORPORATION**

FORMER NAME(S)	ESTABLISHMENT/INCORPORATION	
	YEAR	PLACE/COUNTRY

**5. CATEGORY**

*CHECK ONE BOX ONLY*

- INDEPENDENT CONSULTING ORGANIZATION
- CONSULTING ORGANIZATION WHICH ALSO UNDERTAKES FUNCTIONS PERFORMED BY CONTRACTING FIRMS
- CONSULTING ORGANIZATION ASSOCIATED WITH OR OWNED BY CONTRACTING FIRMS OR MANUFACTURERS
- CONTRACTING FIRM WITH DESIGN OFFICES WHICH PROVIDE CONSULTING SERVICES
- MANUFACTURER OF SPECIALIZED PLANT WITH DESIGN OFFICES WHICH PROVIDE CONSULTING SERVICES

**6. TYPE OF ORGANIZATION**

*CHECK ONE BOX ONLY*

- STATE ENTERPRISE
- PRIVATE COMPANY
- GOVERNMENT-SPONSORED/ASSISTED ORGANIZATION
- PUBLIC CORPORATION
- PARTNERSHIP FIRM
- JOINT VENTURE/ASSOCIATION

**7. BRANCH OFFICES**

*INDICATE WHETHER FIRM/ORGANIZATION HAS BRANCH OFFICES*

- YES       NO      IF "YES", LIST NAMES AND ADDRESSES IN ANNEX A

**8. PARENT, SUBSIDIARY AND AFFILIATE FIRMS**

*INDICATE WHETHER A PARENT, SUBSIDIARY OR AFFILIATE RELATIONSHIP EXISTS WITH OTHER FIRMS/ORGANIZATIONS*

- YES       NO      IF "YES", LIST NAMES AND ADDRESSES (specifying type of relationship) IN ANNEX B

**9. MEMBERSHIP IN NATIONAL OR INTERNATIONAL ASSOCIATIONS**

*INDICATE WHETHER YOUR FIRM/ORGANIZATION IS A MEMBER OF NATIONAL OR INTERNATIONAL ASSOCIATIONS*

- YES       NO      IF "YES", LIST NAMES AND ADDRESSES IN ANNEX C

**10. PRINCIPALS**

*LIST THE NAMES AND TITLES OF PRINCIPALS OF YOUR FIRM/ORGANIZATION IN ANNEX D*

**11. PROFESSIONAL PERSONNEL: FULL-TIME STAFF AND ASSOCIATES**

	ENGINEERS ARCHITECTS	MANAGEMENT ADVISERS, ECONOMISTS AND PLANNERS	OTHER PROFESSIONAL STAFF	TECHNICAL NON-PROFESSIONAL STAFF	TOTAL
MAIN OFFICE					
BRANCH OFFICES					
NON-PERMANENT STAFF/ASSOCIATES					
TOTAL					



**12. APPROXIMATE VALUE (\$U.S.) OF CONTRACTS HANDLED**

ENTER ACTUAL VALUE OF FEES PAYABLE TO YOUR FIRM/ORGANIZATION FOR SERVICES PERFORMED, NOT VALUE OF PROJECT

TYPE OF WORK	VALUE OF CONTRACTS IN HAND	APPROXIMATE ANNUAL VALUE FOR PAST FIVE YEARS
A. SURVEYS, STUDIES AND REPORTS		
B. ENGINEERING DESIGN AND SPECIFICATIONS		
C. CONSTRUCTION AND SUPERVISION		
D. OTHER WORK (specify):		
<b>TOTAL</b>		

**13. NAMES AND ADDRESSES OF BANKS**

LIST THE NAMES AND ADDRESSES OF YOUR BANKS

NAME OF BANK	ADDRESS

**14. PROJECTS AND ASSIGNMENTS COMPLETED IN LAST FIVE YEARS (OR UNDERWAY)**

Itemize in Annex E only those projects where the consulting/engineering services provided by your firm/organization involved fees exceeding \$25,000 and/or 10 professional man/months. Descriptions should be sufficiently comprehensive to reflect your firm's/organization's part in any given project/assignment.

IF NONE, CHECK OPPOSITE

**N.B. IF POSSIBLE, PLEASE AVOID BROCHURE REFERENCES IN ANSWER TO THE ABOVE QUESTIONS**

15. PREVIOUS EXPERIENCE AND FIELDS OF SPECIALIZATION CLASSIFIED

15(a) TYPE OF CONSULTING AND TECHNICAL SERVICES

- 1) In *Column 1*, indicate in the appropriate box(es) the total number of applications of the main consulting and/or technical services rendered by your organization only in respect of those projects/assignments for which references are given under Section 14 of this questionnaire.
- 2) In *Column 2*, check (with an "x") the appropriate box(es) where your organization is able to offer any of the consulting and technical services listed.

N.B. THE SYMBOLS IN COLUMN 3 ARE TO BE USED FOR THE PURPOSES OF COMPLETING SECTION 15(b) BELOW

COLUMN 1	COLUMN 2	COLUMN 3	TYPE OF CONSULTING AND TECHNICAL SERVICES
		A	<b>GENERAL SURVEYS AND STUDIES</b>
		AA	NATURAL RESOURCES SURVEYS
		AB	GEOLOGICAL SURVEYS AND MAPPING
		AC	HUMAN RESOURCES SURVEYS
		AD	GENERAL MARKET SURVEYS
		AE	SURVEYS OF INDUSTRIAL ESTABLISHMENTS
		AF	SECTORAL STUDIES
		AG	INTER-INDUSTRY RELATIONS
		B	<b>PROJECT IDENTIFICATION, PREPARATION AND EVALUATION</b>
		BA	OPPORTUNITY STUDIES/SCREENING OF PROJECT IDEAS
		BB	MARKET STUDIES
		BC	TECHNICAL REQUIREMENT STUDIES
		BD	LABORATORY AND/OR SEMI-INDUSTRIAL TESTS
		BE	REGIONAL AND/OR LOCATION STUDIES
		BF	TECHNO-ECONOMIC FEASIBILITY STUDIES
		BG	TECHNICAL EVALUATION OF PROJECTS
		BH	ECONOMIC AND FINANCIAL EVALUATION OF PROJECTS
		C	<b>DESIGN AND PROJECT IMPLEMENTATION</b>
		CA	ENGINEERING AND RECONNAISSANCE AND INVESTIGATION
		CB	PROJECT AND PLANT LOCATION
		CC	ARCHITECTURAL AND STRUCTURAL DESIGN
		CD	DESIGN AND LAYOUT OF MACHINERY AND EQUIPMENT
		CE	PURCHASING, INSPECTION AND TESTING OF MATERIALS AND EQUIPMENT
		CF	SUPERVISION OF CONSTRUCTION OR EQUIPMENT INSTALLATION
		CG	DESIGN OR INSTALLATION OF AUXILIARY EQUIPMENT (heating, ventilating, electrical and refrigeration systems)
		CH	START-UP OPERATIONS
		D	<b>MANUFACTURING TECHNOLOGY</b>
		DA	PRODUCT DESIGN
		DB	PRODUCTION PLANNING AND SCHEDULING
		DC	PROCESS AND PRODUCT ENGINEERING
		DD	MATERIALS AND PROCESS RESEARCH AND DEVELOPMENT
		DE	QUALITY CONTROL
		DF	LABORATORY TESTING

15(a) TYPE OF CONSULTING AND TECHNICAL SERVICES (Continued)

COLUMN 1	COLUMN 2	COLUMN 3	TYPE OF CONSULTING AND TECHNICAL SERVICES (Continued)
		E	<b>PRODUCT HANDLING</b>
		EA	PACKAGING AND STORAGE
		EB	WAREHOUSING AND INVENTORY CONTROL
		EC	DISTRIBUTION AND SHIPPING
		ED	MARKETING ANALYSES, PRICING AND SALES
		EE	EXPORTING
		F	<b>GENERAL MANAGEMENT SERVICES</b>
		FA	PERSONNEL MANAGEMENT AND LABOUR RELATIONS
		FB	TECHNICAL PERSONNEL TRAINING
		FC	MANAGEMENT PERSONNEL TRAINING
		FD	PERSONNEL AND EXECUTIVE SEARCH
		FE	ORGANIZATION AND MANAGEMENT OF SPECIAL INSTITUTIONS
		FF	COMPANY ORGANIZATION AND MANAGEMENT
		FG	MANAGEMENT INFORMATION SYSTEMS
		FH	STATISTICAL SERVICES
		FI	ACCOUNTING SYSTEMS AND METHODS
		FJ	COST CONTROL SYSTEMS
		FK	BUDGETING
		FL	ELECTRONIC DATA PROCESSING
		G	<b>MISCELLANEOUS</b>
		GA	PILOT PLANTS
		GB	TURNKEY OPERATIONS
		GC	TROUBLE-SHOOTING
		GD	MAINTENANCE AND REPAIR
		H	OTHERS (please specify)

15(b) TYPE OF PROJECT, FACILITY AND ACTIVITY

- 1) In *Column 1*, indicate in the appropriate box(es) the total number of those projects/assignments for which references are given under Section 14 of this questionnaire.
- 2) In *Column 2*, indicate the main types of consulting and/or technical services and the number of times rendered in respect of the projects/assignments entered in *Column 1* utilizing the symbols appearing in *Column 3* of Section 15(a) above. (Thus "AF/2, BB/3" would indicate that two sectoral studies and three market studies have been undertaken in respect of the project/assignment in question.)
- 3) In *Column 3*, indicate the main types of consulting and/or technical services rendered in respect of those projects that have been completed or are underway (or where such services are offered) but where no entry can be made under Section 14 (utilizing the symbols appearing in *Column 3* of Section 15(a)).

COLUMN 1	COLUMN 2	COLUMN 3	TYPE OF PROJECT, FACILITY AND ACTIVITY
			<b>MANUFACTURING INDUSTRIES - PLANTS, PROCESSES AND PRODUCTS</b>
			<b>0100 FOOD PROCESSING INDUSTRIES</b>
			0101 MEAT PRODUCTS AND BY-PRODUCTS
			0102 DAIRY PRODUCTS AND EGGS
			0103 FRUITS AND VEGETABLES
			0104 FISH AND FISH PRODUCTS
			0105 VEGETABLE OILS AND FATS
			0106 CEREALS AND CEREAL PRODUCTS (including milling)
			0107 BAKERY PRODUCTS
			0108 SUGAR AND SUGAR PRODUCTS (including refining)
			0109 COCOA AND CHOCOLATE
			0110 STARCH
			0111 SPICES
			0112 TROPICAL FOOD-STUFFS
			0113 COFFEE
			0114 TEA
			<b>0200 BEVERAGE INDUSTRIES</b>
			0201 SPIRITS, DISTILLING AND BLENDING
			0202 WINES
			0203 OTHER ALCOHOLIC BEVERAGES
			0204 NON-ALCOHOLIC BEVERAGES
			<b>0300 TOBACCO INDUSTRY</b>
			0301 TOBACCO CURING
			0302 TOBACCO PRODUCTS
			<b>0400 TEXTILE AND GARMENT INDUSTRY</b>
			0401 WOOL, COTTON AND OTHER NATURAL FIBRES
			0402 MAN-MADE FIBRES
			0403 SPINNING, WEAVING AND FINISHING TEXTILES
			0404 KNITWEAR

COLUMN 1	COLUMN 2	COLUMN 3	TYPE OF PROJECT, FACILITY AND ACTIVITY (Continued)
			0405 CARPETS AND RUGS
			0406 CORDAGE: ROPES AND TWINES
			0407 OTHER MADE-UP TEXTILE GOODS
			<b>0500 LEATHER INDUSTRY</b>
			0501 TANNING AND LEATHER FINISHING
			0502 FUR DRESSING AND DYEING
			0503 FOOTWEAR
			0504 LEATHER GOODS
			<b>0600 WOOD PROCESSING INDUSTRY</b>
			0601 SAWMILLING
			0602 VENEER
			0603 WOOD-BASED PANELS (plywood, particle board)
			0604 JOINERY AND ELEMENTS FOR PRE-FABRICATED WOODEN HOUSES
			0605 WOODEN CONTAINERS
			0606 FURNITURE
			0607 OTHER WOOD MANUFACTURED ARTICLES
			0608 CORK PRODUCTS
			0609 CANE AND WICKERWARE
			<b>0700 PULP AND PAPER INDUSTRY</b>
			0701 PULP
			0702 PAPER AND PAPERBOARD
			0703 HARDBOARD AND FIBREBOARD
			0704 PAPER CONVERTING
			0705 PRINTING, PUBLISHING AND BOOKBINDING
			<b>0800 PETROCHEMICAL AND PLASTICS INDUSTRY</b>
			0801 PETROLEUM REFINING
			0802 NATURAL GAS
			0803 OILS AND GREASES
			0804 MISCELLANEOUS PETROLEUM AND COAL PRODUCTS
			0805 PLASTICS, SYNTHETIC RESINS AND FIBRES
			0806 PLASTIC PRODUCTS
			<b>0900 INDUSTRIAL CHEMICALS AND FERTILIZER INDUSTRIES</b>
			0901 BASIC INORGANIC CHEMICALS
			0902 BASIC ORGANIC CHEMICALS
			0903 FERTILIZERS
			0904 PESTICIDES

COLUMN 1	COLUMN 2	COLUMN 3	TYPE OF PROJECT, FACILITY AND ACTIVITY (Continued)
			<b>1000 PHARMACEUTICALS INDUSTRY AND OTHER CHEMICAL PRODUCTS</b>
			1001 DRUGS AND MEDICINES
			1002 VACCINES, SERA AND ANTIBIOTICS
			1003 PAINTS, VARNISHES AND LACQUERS
			1004 SOAP AND CLEANING PREPARATIONS, PERFUMES AND COSMETICS
			<b>1100 RUBBER INDUSTRY</b>
			1101 RUBBER MILLING
			1102 RUBBER TYRES AND TUBES
			1103 OTHER RUBBER PRODUCTS
			<b>1200 NON-METALLIC MINERAL PRODUCTS AND BUILDING MATERIALS</b>
			1201 POTTERY, CHINA AND EARTHENWARE
			1202 GLASS AND GLASS PRODUCTS
			1203 STRUCTURAL CLAY PRODUCTS
			1204 CEMENT, LIME AND PLASTER
			1205 CONCRETE, SAND, AGGREGATES AND STONE PRODUCTS
			1206 ABRASIVES
			1207 ASBESTOS PRODUCTS
			<b>1300 IRON AND STEEL INDUSTRIES</b>
			1301 ORE BENEFICIATION AND AGGLOMERATION
			1302 COAL PREPARATION AND COKE PRODUCTION
			1303 FERRO-ALLOY PRODUCTION
			1304 REFRACTORIES FOR THE IRON AND STEEL INDUSTRY
			1305 IRONMAKING (blast furnace design and operation)
			1306 STEELMAKING
			1307 INGOT CASTING (including continuous casting)
			1308 ROLLING, FORGING, DRAWING AND SIMILAR OPERATIONS
			1309 STEEL FOUNDRY
			1310 SPECIAL AND/OR ALLOY STEEL PRODUCTION
			1311 SURFACE FINISHING AND TREATMENT
			1312 HEAT TREATMENT
			1313 WELDING, BRAZING AND SOLDERING
			1314 POWDER METALLURGY

COLUMN 1	COLUMN 2	COLUMN 3	TYPE OF PROJECT, FACILITY AND ACTIVITY (Continued)	
			1400 <b>NON-FERROUS METAL INDUSTRIES</b> (please specify metal)	<b>M E T A L</b>
			1401 ORE BENEFICIATION AND AGGLOMERATION	
			1402 HYDROMETALLURGY	
			1403 SMELTING AND/OR REFINING	
			1404 INGOT AND SHAPE CASTING	
			1405 ROLLING, FORGING, DRAWING, EXTRUDING AND SIMILAR OPERATIONS	
			1406 FOUNDRY	
			1407 COMPLEX ALLOY PREPARATION	
			1408 SURFACE FINISHING AND TREATMENT	
			1409 HEAT TREATMENT	
			1410 WELDING, BRAZING AND SOLDERING	
			1411 POWDER METALLURGY	
			1500 <b>MANUFACTURE OF FABRICATED METAL PRODUCTS</b> (excluding machinery)	
			1501 CUTLERY AND HAND TOOLS	
			1502 FURNITURE AND FIXTURES (metal)	
			1503 STRUCTURAL METAL PRODUCTS	
			1504 METAL CONTAINERS	
			1505 WIRE AND CABLE PRODUCTS	
			1506 BUILDERS' HARDWARE	
			1507 GENERAL HARDWARE	
			1600 <b>MANUFACTURE OF MACHINERY</b> (excluding electrical)	
			1601 ENGINES AND TURBINES	
			1602 AGRICULTURAL MACHINERY AND EQUIPMENT (excluding tractors)	
			1603 MACHINE TOOLS AND METAL-WORKING MACHINERY	
			1604 MACHINE TOOLS AND WOOD-WORKING MACHINERY	
			1605 SPECIAL INDUSTRIAL PLANTS AND MACHINERY	
			1606 OFFICE MACHINERY AND EQUIPMENT	
			1607 DOMESTIC APPLIANCES AND MACHINES	
			1608 LIFTING, HOISTING AND CONVEYING EQUIPMENT	
			1609 AIR-CONDITIONING, VENTILATING AND REFRIGERATION EQUIPMENT	
			1610 PUMPS AND COMPRESSORS	

COLUMN 1	COLUMN 2	COLUMN 3	TYPE OF PROJECT, FACILITY AND ACTIVITY (Continued)
			<b>1700 MANUFACTURE OF ELECTRICAL MACHINERY</b>
			1701 ELECTRICAL INDUSTRIAL MACHINERY
			1702 RADIO, TELEVISION AND TELE- COMMUNICATIONS EQUIPMENT
			1703 ELECTRICAL HOUSEHOLD APPLIANCES
			1704 INSULATED WIRES AND CABLES
			1705 ELECTRICAL ACCESSORIES AND SUPPLIES
			1706 ELECTRONIC EQUIPMENT
			1707 ELECTRONIC COMPUTERS AND DATA PROCESSING EQUIPMENT
			<b>1800 MANUFACTURE OF TRANSPORT EQUIPMENT</b>
			1801 SHIPBUILDING AND REPAIRING
			1802 RAILROAD ROLLING STOCK ( <i>carriages and wagons</i> )
			1803 LOCOMOTIVES
			1804 MOTOR VEHICLES
			1805 TRACTORS
			1806 MOTOR CYCLES AND BICYCLES
			1807 AIRCRAFT
			<b>1900 MANUFACTURE OF PRECISION INSTRUMENTS</b>
			1901 SCIENTIFIC INSTRUMENTS AND MEASURING EQUIPMENT
			1902 MEDICAL AND DENTAL EQUIPMENT
			1903 PHOTOGRAPHIC AND OPTICAL GOODS
			1904 WATCHES AND CLOCKS
			<b>2000 MISCELLANEOUS MANUFACTURING INDUSTRIES</b>
			2001 JEWELLERY
			2002 MUSICAL INSTRUMENTS
			2003 SPORTING AND ATHLETIC GOODS
			2004 TOYS
			<b>NON-MANUFACTURING INDUSTRIES AND PROJECTS</b>
			<b>2100 MINING AND QUARRYING</b>
			2101 COAL MINING
			2102 PETROLEUM AND NATURAL GAS
			2103 IRON ORE MINING
			2104 NON-FERROUS METAL ORE MINING
			2105 STONE QUARRYING, CLAY AND SAND PITS
			2106 CHEMICAL AND FERTILIZER MINERAL MINING
			2107 SALT MINING
			2108 LOGGING



COLUMN 1	COLUMN 2	COLUMN 3	TYPE OF PROJECT, FACILITY AND ACTIVITY (Continued)
			<b>2200 UTILITIES (including power plants)</b>
			2201 ELECTRICITY, GENERATION AND DISTRIBUTION
			2202 GAS, PRODUCTION AND DISTRIBUTION
			2203 WATER SUPPLY, TREATMENT AND DISTRIBUTION
			2204 SEA-WATER DISTRIBUTION
			2205 STEAM AND HOT WATER SUPPLY (district heating)
			2206 SEWAGE TREATMENT AND DISPOSAL
			2207 POWER PLANTS, DIESEL
			2208 POWER PLANTS, HYDROELECTRIC
			2209 POWER PLANTS, NUCLEAR
			2210 POWER PLANTS, SOLAR
			2211 POWER PLANTS, STEAM
			<b>2300 MISCELLANEOUS PUBLIC SERVICES</b>
			2301 ROAD TRANSPORT
			2302 RAILWAY TRANSPORT
			2303 AIR TRANSPORT
			2304 SHIPPING
			2305 COMMUNICATIONS
			2306 TOURISM
			<b>2400 CONSTRUCTION (civil engineering) PROJECTS</b>
			2401 AIRPORTS
			2402 BRIDGES
			2403 DAMS
			2404 HARBOURS (and facilities)
			2405 HOSPITALS
			2406 HOUSING COMPLEXES
			2407 INDUSTRIAL BUILDINGS
			2408 IRRIGATION AND DRAINAGE
			2409 LABORATORIES
			2410 OFFICE AND ADMINISTRATIVE BUILDINGS
			2411 PIPELINES
			2412 RAILWAYS
			2413 RIVER AND CANAL PROJECTS
			2414 ROADS
			2415 SCHOOLS, UNIVERSITIES, etc.
			2416 TUNNELS
			2417 WAREHOUSES



15(c) COUNTRIES IN WHICH WORK PERFORMED

In respect of those projects/assignments for which references are given under Section 14, indicate the total number of times your firm/organization has worked in each of the following countries (Member and non-member\* states of UN/UNIDO).

**N.B. WHERE NO REFERENCES CAN BE GIVEN UNDER SECTION 14, INSERT "X" AGAINST THOSE COUNTRIES IN WHICH WORK HAS BEEN PERFORMED.**

<input type="checkbox"/>	AFGHANISTAN	<input type="checkbox"/>	DOMINICA	<input type="checkbox"/>	LIECHTENSTEIN*	<input type="checkbox"/>	SAUDI ARABIA
<input type="checkbox"/>	ALBANIA	<input type="checkbox"/>	DOMINICAN REP.	<input type="checkbox"/>	LUXEMBOURG	<input type="checkbox"/>	SENEGAL
<input type="checkbox"/>	ALGERIA	<input type="checkbox"/>	ECUADOR	<input type="checkbox"/>	MADAGASCAR	<input type="checkbox"/>	SEYCHELLES
<input type="checkbox"/>	ANGOLA	<input type="checkbox"/>	EGYPT	<input type="checkbox"/>	MALAWI	<input type="checkbox"/>	SIERRA LEONE
<input type="checkbox"/>	ANTIGUA AND BARBUDA	<input type="checkbox"/>	EL SALVADOR	<input type="checkbox"/>	MALAYSIA	<input type="checkbox"/>	SINGAPORE
<input type="checkbox"/>	ARGENTINA	<input type="checkbox"/>	EQUATORIAL GUINEA	<input type="checkbox"/>	MALDIVES	<input type="checkbox"/>	SOLOMON ISLANDS
<input type="checkbox"/>	AUSTRALIA	<input type="checkbox"/>	ETHIOPIA	<input type="checkbox"/>	MALI	<input type="checkbox"/>	SOMALIA
<input type="checkbox"/>	AUSTRIA	<input type="checkbox"/>	FIJI	<input type="checkbox"/>	MALTA	<input type="checkbox"/>	SOUTH AFRICA
<input type="checkbox"/>	BAHAMAS	<input type="checkbox"/>	FINLAND	<input type="checkbox"/>	MAURITANIA	<input type="checkbox"/>	SPAIN
<input type="checkbox"/>	BAHRAIN	<input type="checkbox"/>	FRANCE	<input type="checkbox"/>	MAURITIUS	<input type="checkbox"/>	SRI LANKA
<input type="checkbox"/>	BANGLADESH	<input type="checkbox"/>	GABON	<input type="checkbox"/>	MEXICO	<input type="checkbox"/>	SUDAN
<input type="checkbox"/>	BARBADOS	<input type="checkbox"/>	GAMBIA	<input type="checkbox"/>	MONACO *	<input type="checkbox"/>	SURINAME
<input type="checkbox"/>	BELGIUM	<input type="checkbox"/>	GERMAN DEMOCRATIC REP.	<input type="checkbox"/>	MONGOLIA	<input type="checkbox"/>	SWAZILAND
<input type="checkbox"/>	BELIZE	<input type="checkbox"/>	GERMANY, FED. REP. OF	<input type="checkbox"/>	MOROCCO	<input type="checkbox"/>	SWEDEN
<input type="checkbox"/>	BENIN	<input type="checkbox"/>	GHANA	<input type="checkbox"/>	MOZAMBIQUE	<input type="checkbox"/>	SWITZERLAND *
<input type="checkbox"/>	BHUTAN	<input type="checkbox"/>	GREECE	<input type="checkbox"/>	MYANMAR	<input type="checkbox"/>	SYRIAN ARAB REPUBLIC
<input type="checkbox"/>	BOLIVIA	<input type="checkbox"/>	GRENADA	<input type="checkbox"/>	NAURU *	<input type="checkbox"/>	THAILAND
<input type="checkbox"/>	BOTSWANA	<input type="checkbox"/>	GUATEMALA	<input type="checkbox"/>	NEPAL	<input type="checkbox"/>	TOGO
<input type="checkbox"/>	BRAZIL	<input type="checkbox"/>	GUINEA	<input type="checkbox"/>	NETHERLANDS	<input type="checkbox"/>	TRINIDAD AND TOBAGO
<input type="checkbox"/>	BULGARIA	<input type="checkbox"/>	GUINEA-BISSAU	<input type="checkbox"/>	NEW ZEALAND	<input type="checkbox"/>	TUNISIA
<input type="checkbox"/>	BURKINA FASO	<input type="checkbox"/>	GUYANA	<input type="checkbox"/>	NICARAGUA	<input type="checkbox"/>	TURKEY
<input type="checkbox"/>	BURUNDI	<input type="checkbox"/>	HAITI	<input type="checkbox"/>	NIGER	<input type="checkbox"/>	UGANDA
<input type="checkbox"/>	BYELORUSSIAN SSR	<input type="checkbox"/>	HONDURAS	<input type="checkbox"/>	NIGERIA	<input type="checkbox"/>	UKRAINIAN SSR
<input type="checkbox"/>	CAMEROON	<input type="checkbox"/>	HUNGARY	<input type="checkbox"/>	NORWAY	<input type="checkbox"/>	USSR
<input type="checkbox"/>	CANADA	<input type="checkbox"/>	ICELAND	<input type="checkbox"/>	OMAN	<input type="checkbox"/>	UNITED ARAB EMIRATES
<input type="checkbox"/>	CAPE VERDE	<input type="checkbox"/>	INDIA	<input type="checkbox"/>	PAKISTAN	<input type="checkbox"/>	UNITED KINGDOM
<input type="checkbox"/>	CENTRAL AFRICAN REP.	<input type="checkbox"/>	INDONESIA	<input type="checkbox"/>	PANAMA	<input type="checkbox"/>	UNITED REP. OF TANZANIA
<input type="checkbox"/>	CHAD	<input type="checkbox"/>	IRAN (ISLAMIC REP. OF)	<input type="checkbox"/>	PAPUA NEW GUINEA	<input type="checkbox"/>	UNITED STATES
<input type="checkbox"/>	CHILE	<input type="checkbox"/>	IRAQ	<input type="checkbox"/>	PARAGUAY	<input type="checkbox"/>	URUGUAY
<input type="checkbox"/>	CHINA	<input type="checkbox"/>	IRELAND	<input type="checkbox"/>	PERU	<input type="checkbox"/>	VANUATU
<input type="checkbox"/>	COLOMBIA	<input type="checkbox"/>	ISRAEL	<input type="checkbox"/>	PHILIPPINES	<input type="checkbox"/>	VENEZUELA
<input type="checkbox"/>	COMOROS	<input type="checkbox"/>	ITALY	<input type="checkbox"/>	POLAND	<input type="checkbox"/>	VIET NAM
<input type="checkbox"/>	CONGO	<input type="checkbox"/>	IVORY COAST	<input type="checkbox"/>	PORTUGAL	<input type="checkbox"/>	YEMEN
<input type="checkbox"/>	COSTA RICA	<input type="checkbox"/>	JAMAICA	<input type="checkbox"/>	QATAR	<input type="checkbox"/>	YUGOSLAVIA
<input type="checkbox"/>	CUBA	<input type="checkbox"/>	JAPAN	<input type="checkbox"/>	REPUBLIC OF KOREA*	<input type="checkbox"/>	ZAIRE
<input type="checkbox"/>	CYPRUS	<input type="checkbox"/>	JORDAN	<input type="checkbox"/>	ROMANIA	<input type="checkbox"/>	ZAMBIA
<input type="checkbox"/>	CZECHOSLOVAKIA	<input type="checkbox"/>	KENYA	<input type="checkbox"/>	RWANDA	<input type="checkbox"/>	ZIMBABWE
<input type="checkbox"/>	DEMOCRATIC KAMPUCHEA	<input type="checkbox"/>	KUWAIT	<input type="checkbox"/>	SAINT CHRISTOPHER AND NEVIS	<input type="checkbox"/>	
<input type="checkbox"/>	DEM. PEOPLE'S REP. OF KOREA *	<input type="checkbox"/>	LAO PEOPLE'S DEM. REP.	<input type="checkbox"/>	SAINT LUCIA	<input type="checkbox"/>	
<input type="checkbox"/>	DEMOCRATIC YEMEN	<input type="checkbox"/>	LEBANON	<input type="checkbox"/>	SAINT VINCENT AND THE GRENADINES	<input type="checkbox"/>	
<input type="checkbox"/>	DENMARK	<input type="checkbox"/>	LESOTHO	<input type="checkbox"/>	SAO TOME AND PRINCIPE	<input type="checkbox"/>	
<input type="checkbox"/>	DJIBOUTI	<input type="checkbox"/>	LIBERIA				
		<input type="checkbox"/>	LIBYAN ARAB JAMAHIRIYA				

OTHER (please specify)

<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____

15(d) PRIORITY TYPES OF SERVICES AND PROJECTS

From Section 15(a) and 15(b), select the types of Services and types of Projects in which your organization has a particular interest and for which you consider yourselves especially qualified. List these below according to the appropriate symbols and codes in descending order of priority.

PRIORITY	TYPE OF SERVICE Use symbols, AA, etc. as per Section 15(a)	TYPE OF PROJECT, FACILITY, ACTIVITY Use Code, 0101, etc. as per Section 15(b)
1.		
2.		
3.		
4.		
5.		

15(e) WORKING LANGUAGE CAPABILITY

Check as many as appropriate

CHINESE     ENGLISH     FRENCH     RUSSIAN     SPANISH

OTHERS (please specify) \_\_\_\_\_

16. PROVISION OF SHORT-TERM EXPERT ASSISTANCE

Indicate whether your firm/organization is prospectively interested and able to provide individual staff members/experts for short-term (up to six months) technical assistance assignments in the developing countries.

YES     NO    IF "YES", PLEASE SPECIFY:

(a) the field of activity and type of assistance that could be provided:

(b) whether the staff member/expert would be available:

- FOR APPOINTMENT AS SHORT-TERM UNIDO STAFF MEMBER
- UNDER A CONTRACT BETWEEN UNIDO AND YOUR FIRM/ORGANIZATION

17. CERTIFICATION BY ORGANIZATION'S PRINCIPAL

*I hereby certify that the information furnished in this questionnaire is accurate and true to the best of my knowledge and belief.*

Signature: \_\_\_\_\_

Name (printed): \_\_\_\_\_ Date: \_\_\_\_\_

**ANNEX A**

**BRANCH OFFICES (see Section 7)**

*List names and addresses (using additional sheets if necessary).*

N A M E	A D D R E S S (INCLUDE TELEPHONE NUMBER, TELEX AND CABLE ADDRESS)

ANNEX B

*PARENT, SUBSIDIARY AND AFFILIATE FIRMS (see Section 3)*

*List names and addresses and specify relationship (using additional sheets if necessary)*

NAME	RELATIONSHIP	ADDRESS (INCLUDE TELEPHONE NUMBER, TELEX AND CABLE ADDRESS)

**ANNEX C**

**MEMBERSHIP IN NATIONAL OR INTERNATIONAL ASSOCIATIONS (see Section 9)**

*List names and addresses*

NAME	ADDRESS

**ANNEX D**

**PRINCIPALS (see Section 10)**

*List the names and titles of principals (using additional sheets if necessary)*

NAME	TITLE

## ANNEX E

**PROJECTS AND ASSIGNMENTS COMPLETED IN THE LAST FIVE YEARS OR CURRENTLY UNDERWAY (see Section 14)**

Please give full details in respect of each project/assignment, avoiding brochure references if possible (and using additional sheets if necessary).

**N.B. ONLY THOSE PROJECTS WHERE THE SERVICES PROVIDED BY YOUR FIRM/ORGANIZATION INVOLVED FEES EXCEEDING \$25,000 AND/OR TEN PROFESSIONAL MAN/MONTHS SHOULD BE INCLUDED.**

PROJECT / ASSIGNMENT						YOUR SERVICES			NAME AND ADDRESS OF CLIENT (STATE IF CONFIDENTIAL)
PROJECT NAME/TITLE	TOTAL VALUE (\$U.S.)	BRIEF DESCRIPTION	LOCATION (COUNTRY, CITY, REGION)	DURATION (MONTHS)	DATE OF COMPLETION	DESCRIPTION Use Symbols as per Section 15 (a)	PROF. m/m	APPROX. VALUE (\$U.S.)	



**TENAGA EWBANK PREECE  
(Malaysia) Sdn Bhd (TEP)**

**REGISTRATION WITH AUTHORITIES AND AGENCIES  
(Status, May 1989)**

TEP is a professional engineering body corporate registered with the Board of Engineers, Malaysia (BEM) and a Panel Member of the Association of Consulting Engineers, Malaysia (ACEM).

It is registered with the following Malaysian Authorities and public companies amongst others:

- The Treasury, Ministry of Finance (MOF), Malaysia
- National Electricity Board of the States of Malaya (NEB)
- Sabah Electricity Board (SEB)
- Sarawak Electricity Supply Corporation (SESCO)
- The Public Works Department (PWD), Peninsular Malaysia
- Urban Development Authority (UDA)
- Petroliam Nasional Berhad (Petronas)
- Heavy Industries Corporation of Malaysia Bhd (HICOM)
- Economic Planning Unit of the Prime Minister's Department, Malaysia (EPU)
- Implementation Coordination Unit of the Prime Minister's Department, Malaysia (ICU)
- Sarawak Shell Berhad (SSB)

Internationally, TEP is registered with the following lending agencies:

- The World Bank
- Asian Development Bank
- Islamic Development Bank

TEP is also founder/chartered member of the Malaysian Bureau of Consultants (MABCON).

**INCONAS**

Servicios Profesionales de Ingeniería S.R.L.



Dr. Ricardo Rojas, 401 - Piso 12 - (1001) Buenos Aires - República Argentina  
 Teléfonos: 312-3000 / 312-5643 / 312-4830 / 311-2349 / 311-2502  
 Télex: 17223 BAINC AR / 17186 CAMAR AR  
 Filiación: Cámara Argentina de Consultores

<p><b>Personal Jerárquico:</b>  * Socios Directores:  - Ing. Rodolfo F. Arinci  - Ing. Jorge O. Guevara  - Ing. Miguel A. Yadarola  * Directores Asociados:  - Ing. Manuel H. Acuna, Dirección y supervisión de obras viales  - Ing. Néstor C. Aghemo, Proyectos eléctricos  - Ing. Juan C. Farre, Computación e ingeniería de sistemas  - Ing. Víctor Oliva, Proyectos y diseños viales  - Ing. Jorge A. Simonelli, Proyectos civiles e hidráulicos  - Ing. Marcelo A. Sobrevila, Sistemas de transmisión eléctrica  - Ing. Daniel R. Velázquez, Dirección y supervisión de obras civiles e hidráulicas  - Ing. Marcelo I. Zapiola, Organización y desarrollo de proyectos  - Ing. José E. Jauregui, Organización de proyectos  - Ing. Alfredo Oliva Fynn, Proyectos y supervisión de obras viales  - Ing. Julio R. Vázquez, Proyectos y obras hidroeléctricas  - Lic. Juan Escanes, Gerencia Administrativa  * Personal Superior, Ejecutivos, Ingenieros:  Mario E. Bocco - Armando E. Cuenca - Mario N. Ferdkin - Rodolfo Lazaro - Raúl A. Lezcano - Jesús López Breton - Miguel A. Marzinelli - Federico Ponce de León - Horacio Prevedel - Juan Venturuzzi - Dr. Domingo Díaz Terrado.</p> <p><b>Oficinas de la Empresa:</b>  * Oficina Central:  Dr. Ricardo Rojas, 401 - Piso 12 - (1001) Capital Federal  Tel.: 311-2502 / 311-2349 / 312-3000 / 312-4830 / 312-5643 / 313-4529  Interlocutor: Ing. Marcelo Tapiola  * Sucursales:  Córdoba - Río Negro - Misiones.</p> <p><b>Area geográfica de actuación:</b>  * Argentina:  Capital Federal - Buenos Aires - Provincias de: Buenos Aires - Catamarca - Córdoba - Corrientes - Chaco - Entre Ríos - Formosa - Jujuy - La Pampa - La Rioja - Mendoza - Misiones - Neuquén - Río Negro - Salta - San Juan - San Luis - Santa Cruz - Santa Fe - Santiago del Estero - Tucumán.  * República del Paraguay  * República Oriental del Uruguay</p>	<p><b>Descripción general:</b>  INCONAS es una sociedad legalmente constituida en la República Argentina, con la finalidad de suministrar servicios profesionales de ingeniería y de consultoría. Desde julio de 1960, fecha en la cual inició sus actividades, INCONAS ha ejecutado más de 220 contratos de consultoría, algunos de ellos en asociación con capacitadas empresas consultoras de los Estados Unidos, Canadá, de Europa y también de la República Argentina. INCONAS se encuentra entre las organizaciones argentinas elegibles por Organismos internacionales de crédito, como BIRF, BID, FAO, PNUD. La Organización de las Naciones Unidas, ONU, ha seleccionado a INCONAS para desarrollar programas de entrenamiento y capacitación para sus becarios, cuyo cumplimiento se lleva a cabo. En la actualidad, INCONAS esta coordinando —individual o asociadamente— 7 contratos en Argentina y un contrato binacional, facturando ponderadamente los servicios de su personal. Esta actividad le ha permitido consolidar un plantel estable integrado por especialistas que constituyen su más valiosa característica.</p> <p><b>Personal:</b>  Total: 256 - Universitarios: 121 - Técnicos y dibujantes: 65 - Administrativos: 70</p> <p><b>Servicios:</b>  Arquitectura - Compras, inspección y ensayos de materiales y de equipos - Diseños de ingeniería, presupuestos, preparación de documentos de contratos y evaluación de cotizaciones en licitaciones - Ensayos e inspección - Estudios de: evaluación - factibilidad - gerencia - planeamiento - pre-inversión - recursos naturales - tráfico - factibilidad técnica y anteproyectos - Estudios: topográficos y de suelos - geológicos - hidrológicos - Gerencia de: construcciones - proyectos - Ingeniería de suelos e ingeniería y diseño de fundaciones - Procesamiento de datos de ingeniería en computadores - Proyectos de máquinas y equipos - Servicios de: consultoría - extensión rural - informática - Supervisión gerencia de contratos de construcción y de instalación de equipos.</p> <p><b>Campos de especialización:</b>  * Recursos agrícolas y naturales:  Riego y control de inundaciones - Estudios de factibilidad terrestres e hídricos - Regulación y control de ríos.  * Transporte:  Puentes - Transporte vial y carreteras - Transporte público - Puertos y radas fluviales y marítimos - Puertos marítimos y puertos fluviales - Pasajes subterráneos - Túneles.  * Servicios públicos y esferas afines:  Diques - Desagües - Instalaciones eléctricas - Viviendas - Energía hidroeléctrica - Servicios para la industria - Facilidades de estacionamiento - Centrales eléctricas - Trasmisión y distribución de energía - Edificios - Recolección, tratamiento y eliminación de aguas residuales - Suministro y distribución de agua.  * Industria:  Instalaciones industriales.  * Arquitectura y esferas afines:  Urbanismo y desarrollo urbano.  * Planificación económica y esferas afines:  Conservación de energía.</p> <p><b>Proyectos típicos:</b>  * Argentina-Uruguay:  - Proyecto ejecutivo dirección técnica, control y supervisión del aprovechamiento hidroeléctrico Salto Grande sobre el río Uruguay, esclusa de navegación y puente internacional ferroviario. 1890 MW (1974/1984).  - Proyecto y dirección e inspección del sistema de transmisión de 500 kV de Salto Grande, 1.200 km de líneas y seis estaciones transformadoras 500/132 kV (1977-1982). Comisión Técnica Mixta de Salto Grande.  * Argentina-Paraguay:  - Proyecto arquitectónico, urbanístico de infraestructura, dirección e inspección de las obras de 3 núcleos urbanos en Ituaingó (Argentina) y 3 núcleos urbanos en Ayolas (Paraguay). Ente Binacional Yacyretá (1979-1983).  * Argentina:  - Proyecto ejecutivo y documentos de licitación de los aprovechamientos hidroeléctricos del Limay Medio: estudio de optimización y proyecto de 2 presas de 400 MW y 600 MW. Hidronor S. A. (1981-1984).  - Estudio de factibilidad y anteproyecto de las centrales hidroeléctricas La Leona, Condor Cliff y La Barrancosa, presas de 55, 85 y 50 m de altura y potencias de 500, 1.750 y 750 MW. AyEE.  - Estudio de factibilidad, proyecto y licitación y dirección de obra de la presa y central hidroeléctrica Uruguay-i. Presa de 72 m de altura, potencia 110 MW (1979-1984). Electricidad de Misiones S.A.</p>
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# TCDC-INRES Registration Form



## 1. GENERAL INFORMATION

Name of Contact Person

Title of Contact Person

Name of Institution

Previous Name of Institution (if any)

Address

City and State

Country

Telephone No.

Cable Address

Telex No.

Facsimile No.

Annual Budget (US\$)

Year Established

## 2. TYPE OF INSTITUTION

Please check one of the classifica-

- Governmental/Intergovernmental
- Non-profit/Non-governmental
- Semi-Governmental/Parastatal/State-owned enterprise
- Private Sector

## 3. MAIN PURPOSE OF THE INSTITUTION

Please provide a brief description of the main purpose of your institution in the space below:

**4. WHAT ARE THE SPECIALIZATIONS OF THE STAFF?**

(Staff)

Briefly describe the main areas of specialization of the staff, how many staff, and the principal language(s) in which they conduct training and/or consulting. Please separate each entry with a comma, for example:

Agronomists, 10, English.  
Hydrologist, 1, French, English

**5. WHAT EQUIPMENT IS AVAILABLE IN THE INSTITUTION?**

(Equipment)

Please list any *special* equipment in your institution which demonstrates its strength in the areas of training or expertise, for example laboratories, special software, sophisticated machinery, etc.

**6. ARE PUBLIC INFORMATION SERVICES OFFERED BY THE INSTITUTION?**

(Information Services)

Please list any information services which your institution provides to the public (e.g. publications issued, statistical information, reference sources such as libraries, etc.) Please specify the cost to the customer, the frequency of distribution, and the language(s) of the service, for example:

Newsletter, \$5, monthly, English.

**7. AFFILIATIONS/ASSOCIATIONS/JOINT VENTURES**

(Affiliations)

Please list institutions with which you maintain a close or regular affiliation/association and/or have participated with in a joint venture. Please do not list regional or sub-offices of your own institution.

## 8. TRAINING PROGRAMMES

Please list the principal training activities offered by your institution. Photocopy a blank page to use if you require more pages. Note that if you have many training programmes offering the same general subject and type of qualification it is only necessary to describe one.

Training Programme No. \_\_\_

(Write answer below)

Course Title:

Description:

Duration:

Number of Times per year:

Type (check one)

- Professional/Technical
- On-the-Job Training
- University Degree
- Professional Certificate

Language(s) of training:

Cost (US \$) per trainee:

## 9. PROJECT DESCRIPTIONS

Please describe each project which your institution has implemented or has contracted to implement either within your country or internationally. Photocopy a blank page to use if you require more pages. Note that if you have many projects of a similar nature describe only the major one(s) of each type which demonstrate well your institution's capacities

Expertise Project No. \_\_\_

(Write answer below)

Project Title

Description

Type of Services Offered: (Choose the one which best fits)

- Feasibility Studies/Problem Analysis/Surveys
- Bid Evaluation
- Construction/Engineering/Design
- Project Management (for client)
- On-the-Job Training/Technical Assistance
- Research and Development (applied and/or technical research)

Starting Date:

Completion Date:

Country(ies) Where Project Was Implemented:

Language(s) in Which Service was Offered:

Sponsor: (Choose one if applicable)

- UNDP
- UN Agencies (FAO, ILO, UNIDO, WHO, UNICEF, etc.)
- Bilateral Donors
- NGOs
- Development Bank (World Bank, ADB, AsDB, etc.)

Cost Range of Expert Services (in US \$):

US\$ Equivalent of the Contract: (Choose one of the following)

- Less than US\$ 100,000
- Between US\$ 100,000 and 500,000
- More than US\$ 500,000