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DEVELOPMENT OF COOPERATIVE ARRANGEMENTS  
AMONG DEVELOPING COUNTRIES  
IN THE CONSULTANCY AND ENGINEERING FIELD

FEASIBILITY REPORT

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(i)

### EXECUTIVE SUMMARY

Cooperation in the consultancy and engineering (C/E) field should be considered as a strategic instrument of development cooperation, given the critical role that consulting and engineering design organizations (CEDOs) play in project conception/design/realisation/maintenance and in related processes of acquisition of technology, equipment and other investment related goods and services.

The fact that traditionally developing countries (DCs) are the major international market for C/E services, representing over 80% of international demand, and the fact that only 10% of this demand is presently covered by DCs' CEDOs, should be considered as a key opportunity / strategic factor in the efforts of DCs to promote mutual cooperation in the C/E field.

Considering the demand and supply characteristics in the C/E area in DCs, advantage could be taken through closer cooperation of CEDOs, of both - their heterogeneities as well as similarities. There exist numerous advantages of South-South cooperation in the C/E field as compared to traditional North-South arrangements, but there are also important barriers to entry of DCs' CEDOs into these markets. The planned initiatives of DCs should accelerate the process of CEDOs cooperation by building on advantages/opportunities and by eliminating the avoidable constraints.

The promotion of local CEDO capacities and providing an appropriate role to domestic CEDOs in development process of their home countries is an essential pre-condition before cross boarder cooperation among CEDOs can be contemplated.

Policies and measures for promotion of mutual cooperation among DCs in the C/E field have to be designed parallelly - as an integral part and as a complementary element to national efforts to strengthen local C/E sector, and as an essential component of the collective effort of DCs to strengthen joint capacities and DCs position in the international C/E market.

DCs government and different national/regional and international financing agencies play a critical role in providing favourable environment for DCs CEDOs cooperation. The cooperative arrangements have however to be built on the direct interests and with active participation of CEDOs. Such inter-CEDOs cooperation can range from activities promoting direct business contacts to joint efforts to develop needed supportive systems and for lobbying for favourable policy measures.

The creation of institutional support system for such inter-CEDOs cooperative activities at the national/regional/interregional level is of critical importance for facilitation and promotion of such cooperation.

(ii)

The review of current institutional arrangements and initiative to strengthen DCs CEDOs cooperation at the national, regional and international level is pointing to the need to set up an inter-CEDOs cooperation forum at the interregional level and focus on the operational-business aspects of CEDOs cooperation.

The consultative meeting of CEDOs in Ljubljana (May-June 1989) has recommended that some existing joint institution of DCs, active in the inter-enterprise TCDC/ECDC area, assume this role and proposed that ICPE and ASTRO, be the interregional Focal Point for DCs' CEDOs cooperation.

It is proposed that ICPE/ASTRO in cooperation with interested DCs' CEDOs and other institutions immediately initiate work on three subjects of direct relevance to DCs' CEDOs interested in entering the international C/E market and in cooperation with CEDOs from other DCs. These "immediate actions" include joint activities in the areas of information, registration of CEDOs with funding agencies/project sponsors and selection criteria and procedures for procurement of CED services.

The proposed medium term activities to be initiated by ICPE/ASTRO include more structured forms of CEDOs cooperation, like establishment of a Business Development Service which would comprise four main areas: Organizational Development Service, Business Opportunities Service, Technology Maintenance and Renovation Service, and Sub-Contracting Exchange. It is also proposed to initiate CEDOs cooperation in areas of countertrade, project financing and human resource development.

The cooperative activities in the framework of ICPE/ASTRO should be started on a project basis and with the participation of those DCs' CEDOs and other institutions directly interested in joint activities and ready to second their experts and make other contributions to joint activities. ICPE/ASTRO will initiate the establishment of a programming committee for inter-CEDOs cooperation and will invite DCs to designate national Focal Points for inter-CEDOs cooperation. The funds for joint activities will be basically provided by participating CEDOs and other institutions on a project basis. Cooperation will be sought with regional/international organizations active in this field, like IBRD, Regional Development Banks, UNIDO, UNCTAD, UNDP, CCC, FEAC, FELAC, ASPAC-FIDIC.

The Feasibility Report is submitted to G-77 and its member countries for consideration and appropriate follow-up action. ICPE and ASTRO would be ready to follow the advice of G-77 and carry on the proposed activities in cooperation with DCs' CEDOs and other interested institutions and with the assistance from G-77 and other relevant international/regional agencies.

## INTRODUCTION

Following the recommendations made by the UNCTAD/UNDP/ASTRO/ICPE/ PEC Asian Symposium on "Cooperation among Developing Countries' Engineering and Consultancy Organizations for Technology Transfer" (New Delhi, April 1987), the G-77 Perez Guerrero Trust Fund for ECDC/TCDC with technical support by UNDP approved a preparatory assistance project for formulating a Feasibility Report on "Development of Cooperative Arrangements among Developing Countries in the Consultancy and Engineering Field" (INT/88/KO3/A/95/99). Primarily, the objective of the preparatory assistance was

- i) to conceptualize the options for enhancing the contribution of the developing countries' (DC's) consultancy and engineering (C/E) sector to national development, mutual cooperation among DCs as well as for strengthening the position of DCs in the international market of goods and services, and
- ii) to elaborate and place at the disposal of the Chairman of G-77 a feasibility study on activities which could be undertaken by DCs in order to accelerate mutual cooperation in C/E field.

Based on the approved work programme, ICPE/ASTRO discussed extensively with concerned organizations and resource persons in selected developing and developed countries about the various opportunities and options available for consultancy and engineering-design organizations (CEDOs) cooperation amongst developing countries. In this framework technical assistance was also received from UNCTAD. The ideas generated by these interactions were further crystallized at an Expert Group Consultative Meeting (May - June 1989) on the subject. These cumulative efforts have helped in developing this Feasibility Report for the consideration of the G-77 member countries, UNDP and other related agencies.

### I. THE CONSIDERATIONS

A critical institutional element in the development efforts of DC's are CEDO's (a classification of CED services is given in Annex I). They play a strategic role in developing national technological and industrial capabilities in general, and in technology transfer in particular. The C/E capabilities in the DC's (except in a few countries) are still in their early development stages (see Annex II) and cooperation amongst them would help to accelerate the building-up of these capabilities both to receive and offer technology and related services. South-South cooperation amongst the consultancy/engineering organizations of the developing countries could therefore become an effective instrument for consolidating their position in national and international technology market and particularly in the market of other DC's.

To respond to technological changes and changes in the industry in the 1990's DC's will need more than ever before substantial technological, financial, organizational, managerial and intermediation/negotiation resources and capabilities which go beyond the capabilities of single

national C/Es and often single countries. A pooling of resources and sharing of experience are required in many areas to both coordinate and enhance national efforts.

Some of the critical elements in the development of cooperative arrangements among DCs in the C/E field are:

- Policies and measures for promotion of mutual cooperation among DCs in the C/E field have to be designed parallelly - as an integral part and complementary element to national efforts to strengthen local C/E sector, and as an essential component of the collective effort of DCs to strengthen joint capacities and DCs position in the international C/E market.
- The relevant framework for technology transfer should address broader perspectives of building a society's capabilities to produce goods and services rather than mere transactive business mechanism. It should also provide a framework for initiating remedial measures for failures in technology transfer.
- Cooperation in the C/E field should be considered as a strategic instrument of developmental cooperation. In this context, CEDOs play a vital role as objective facilitators, impartial advisors/advocates, national memory of technology applications and a major medium of adapting imported/local technologies and for promoting the use of local resources.
- The fact that DCs are the major international market for C/E services (see Annex II) should be considered as the key factor for promotion of DCs cooperation in this field, and a major part of promotional activities should address the actors on the "demand" side (governments, clients, financial institutions).

## II. OPPORTUNITIES AND CONSTRAINTS

Considering the demand and supply characteristics prevailing in potential partner DC's advantage could be taken through closer cooperation of both - their heterogeneities and similarities. The heterogeneities (like development stage, priority development areas, specific resource endowments, size, scientific and technological capacities, sectorial specialization, etc.) provide numerous opportunities and immense possibilities for exploiting the complementarities. The similarities in their development setting (needs, development objectives, modest domestic scientific and technological potentials, dependence on foreign technology, lack of adequate technological infrastructure, priority given to maximum use of domestic resources, supply/demand characteristics, etc.) create on the other side a great compatibility of project design philosophies and methodologies and operation/maintenance approaches.

Besides opportunities for CEDO's from exporting countries to facilitate the entry into international C/E market, there are numerous potential advantages

of cooperation among developing countries CEDOs for the host country and local partner, as compared to traditional North-South arrangements, like:

- availability of technology/technical services better adapted to local needs and conditions/scale, level of sophistication of technology, climatic conditions, working and cultural environment, etc.,
- experiences in scaling-down, re-training, material substitution, tropicalizations and other adaptations of technologies to specific conditions prevailing in developing countries (adaptive innovation),
- experiences in working on "greenfield sites",
- specific experiences derived from preparing, negotiating and implementing similar projects in their home country (avoiding repetition of mistakes and learning from successful experiences),
- availability of developing countries specific technologies not available from industrialized countries,
- design and project management philosophy based on the principles of maximum involvement and utilization of local human and material resources (participation in project management, developmental approach),
- more unpackaged forms of technology transfer and less wasted interests,
- more balanced bargaining position,
- greater willingness to provide for a real transfer of technology,
- follow-on presence in the country and lower project maintenance cost
- availability of training and other "labour intensive" technical services (like detailed design) at lower cost,
- greater geographical and cultural proximity and interpersonal sensitivity; greater sensitivity concerning environmental, cultural, social effects,
- political considerations (regional groupings, etc.)

There are also a number of important barriers to entry for developing countries CEDOs into developing countries' market of CED services. This market was traditionally and is still today strongly dominated by firms from industrially developed countries, which are also controlling most of supportive systems (like information systems, finance, insurance, etc.). Such barriers include:

- attitudinal barriers against consultancy and engineering services from other developing countries (lack of adequate information, lack of confidence, image problems, risk syndrome, etc.)

- information systems which do not adequately inform about developing countries' consultancy and engineering potentials,
- inadequately developed market-intelligence systems on project demand for potential suppliers of CED services from developing countries,
- problem of reference lists and established reputation for new entrants into the consultancy/engineering field,
- selection procedures and financing mechanisms which are biased in favour of "reputed", "qualified" consultancy and engineering firms,
- "tied"-project finance,
- inadequate support from the governments on the export as well as on the import side for consultancy/engineering cooperation among developing countries (inward looking strategies, commodity oriented export policies, costly bureaucratic procedures established as protection against TNCs),
- constraints of historical nature, like historical links with former metropolis (education, mass media and technical literature, technical standards, metrology, legal systems, etc.),
- small markets and unstable demand resulting into lack of work continuity and possibility of specialization,
- modest research and manufacturing capacities and associated problems of keeping pace with technological developments.

The existence of such constraints should not obscure the fact that DCs face more or less similar development problems and have often adopted common elements in their economic policies and strategies. What may have contributed to a common approach to development and expansion of south-south trade is the fact that there is some similarity between the domestic demand for goods and services including CED services in the DCs. It has often been mentioned that CED services provided by a DC's firm seem to be more tailored to the requirements of DCs, particularly as regards infrastructure, type of industrial projects which tend often to be of the small scale type, involving the use of conventional technology, etc. This appropriateness criterion relates to the similarities in the social economic environment across the DCs. What remains to be done is to accelerate this process of cooperation by a planned initiative by building on opportunities and by eliminating the avoidable constraints.

### III. FRAMEWORK

The promotion of development of local CED capacities and providing an appropriate role for CEDOs in the development process<sup>1</sup> of their home countries represents an essential pre-condition before cross boarder cooperation of any sort can be contemplated. These CED capacity/capability building activities require one set of initiatives and solutions, mainly at the local level like: creating training and work opportunities for local CEDOs; providing preferential treatment and mandatory reservations for local CEDO's; setting of adequate fee rates for local CED services; building up supportive infrastructure; establishing adequate regulatory measures in the area of foreign trade/investment/transfer of technology; setting of professional standards and codes of conduct for CED profession, etc. This set of measures is the focus of a number of national, regional and international initiatives<sup>2</sup>.

The focus of the present study is however on the actions required by DCs CEDOs and DCs governments to facilitate and promote trade and cooperation among developing countries in the CED services field. These policies and measures have to be designed parallely - as an integral part and complementary element of national efforts to strengthen local CED sector, and as a component of South-South development cooperation and collective effort to strengthen joint capacities and developing countries position in international CED market<sup>3</sup>.

To create a favourable environment for promotion of cooperation among CEDOs the main responsibility lies with DCs governments and DCs CEDOs. Lending institutions and international/regional organizations play also an important role in this field.

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1 Ramesh S. Tyagi, "Consulting and engineering services in DCs", ASTRO/ICPE, 1989, CRP.12

2 See as example Information by the World Bank on the project "Development of consultancy capacities in Africa", ASTRO/ICPE, 1989, CRP.4

3 Report of consultative meeting on "Development of cooperative arrangements among DCs in the CED field", ASTRO/ICPE, Ljubljana, 1989

A. Measures by governments of developing countries

Governments and related institutions should initiate actions and measures, like:

1. Consider the CED services sector as a strategic sector whose development, growth and exports could generate significant externalities including additional construction contracts, sales of machinery, and equipment and raw material in developing countries individually or through trading among themselves.
2. Design their development policies particularly monetary, fiscal, investment, credit and trade policies taking into account the direct and indirect effects in both the medium and long term on the development of technological capabilities, in particular CED capabilities.
3. Consider establishing credit facilities that have foreign exchange components at the national, regional and interregional levels with a view to providing support to the development of local CED capabilities and expansion of CED services trade between developing countries.
4. Subsidize the initial efforts of CEDOs to explore new markets. This is emphasized because business promotion and tendering in a highly competitive international market is a costly and risky undertaking which is often not within the means of developing countries' CEDOs. As part of the promotional measures to increase exports, these subsidies may provide incentives for CED firms to venture into new markets and/or diversify into new sectors in markets where they have a certain presence.
5. Use a variety of financial and fiscal measures such as tax-concessions and export incentives to promote developing countries' exports of CED services.
6. Give preference to local CEDOs and whenever local competence is not available to qualified and competitive CEDOs from other developing countries, for assuming the prime responsibility for the overall design and initiation of public investment projects; and establish procedures for encouraging subcontracting work to local and other developing countries' CEDOs.
7. Make more frequent use of bilateral agreements and technical assistance activities to promote trade among developing countries in CED services including various forms of countertrade.
8. Include the development of CED capabilities as one additional criterion governing project evaluation procedures in developing countries.
9. Through public research institutes in developing countries and in cooperation with national associations of industry and/or chambers of commerce, compile periodically information on the size, location and other characteristics of newly approved industrial and infrastructure projects and make this information periodically available to regional and national associations of CEDOs in developing countries.

10. Individually and/or collectively extend support to developing countries CEDO's to enable them to provide as and when required the completion and performance guarantees required by the project owner. This is suggested because very often such guarantees together with "the reputation" criterion may be determinant factors in the selection of the consulting and engineering design firm; and developing country firms are not always able to compete with foreign firms in providing such guarantees and/or in offering comparable reputation.
11. Consider giving incentives to commercial banks to take more active role in supporting various forms of collaboration between developing countries' consultancy and engineering design organizations including joint ventures, sub-contracting arrangements and cooperative forms between CED firms, and trading organizations.
12. Encourage the establishment of trilateral joint ventures involving two developing country CEDOs and a technology supplier from the developed countries, particularly in the conception and design of industrial projects. Such a cooperative arrangements could help the acquisition of foreign technology by both developing country firms, enhance the negotiating capacity of the joint venture with financing institutions and give some support to facilitate the marketing of its products at home and in export markets.

B. Actions by financing agencies

Countries and institutions which provide aid or lend money to DCs for investment and technical assistance projects seek to influence the process of selection of consultants and generally adopt a short-term oriented, risk-averting attitude of favouring well established CED firms with impressive track record. Such attitudes and practices of project-financing agencies can play a decisive role in preventing of use of DC's CEDO's and of cooperative arrangements among them. Some actions which may be initiated by financing agencies in support of DCs CEDOs cooperation, could be the following:

1. Ensure an adequate representation of DCs CEDOs in the respective Rosters of consultants and provide for registration of data which have a specific relevance for efficient conceptualization and implementation of projects in DCs, like knowledge of and experience with DCs operating environment (infrastructure, skill level, cultural factors).
2. Promote the short-listing of qualified CEDOs from DCs and the adaptation of evaluation and selection criteria in such a way as to give a better chance to "new entrants" and a greater waitage to some "socio-cultural" factors in comparison to purely "technical" factors.
3. Undertake some positive, "affirmative" actions in order to break the "vicious circle" preventing DCs CEDOs to obtain contracts and gain the needed references.
4. Encourage the unpackaging of CED services packages and the engagement of local or other DCs inputs.

5. Stimulate different cooperative arrangements with more experienced CEDOs from other DCs or industrialized countries (subcontracting, joint ventures, consortia, etc.).
6. Stimulate and provide financing for additional costs of transfer of knowledge and learning efforts in different CED arrangements.

#### IV. COOPERATIVE ARRANGEMENTS

##### A. OBJECTIVES

The objectives of promoting cooperative arrangements among developing countries' CEDOs may be manifold and may inter alia include objectives like:

- direct inter-CEDOs information exchange on technology availability, on TT processes, etc.,
- ensuring "privileged" information on planned investment projects in partner countries,
- pooling and exchange of information among CEDOs and their technical partners on availability and on experiences in dealing with specific partners, utilizing specific technologies, equipments, technological services and the terms and conditions of their acquisition,
- cooperation in planning, organizing and strengthening local consultancy and engineering organizations and in providing different training and staff exchange opportunities (institution-building support),
- grater market access, joint marketing, and joint promotional improvement in market positioning in partner countries,
- subcontracting, joint ventures, consortia with local consultants participating in planning and implementing projects in host countries,
- investment related trade arrangements (equipment, construction services, counter-trade and compensation arrangements, etc.)
- joint supportive mechanisms, like information systems, financial mechanisms, standardization, joint market research, etc.,
- improvement of efficiency of transfer of technology transactions in the framework of co-operative arrangements, etc.,
- lobbying for supportive measures and preferential treatment of cooperative arrangements in home and host countries,
- changing the negative cultural bias against developing countries consultancy and engineering services and enhancing their acceptability.

## B. SCOPE OF COOPERATIVE ACTIVITIES

The "menu" of possible cooperative activities among DCs in the CED field can range from activities facilitating and promoting direct business contacts among developing countries' CEDOs to joint development of supportive systems and lobbying for favourable measures on the national and international level.

### 1. Promotion of direct business contacts

The first group of activities which can be implemented by the cooperating CEDOs themselves and are directed towards promotion of direct business contacts could include:

- 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, etc.), and trade promotion,
- training (at home office, in the host country, on-the-job training, training in operating plants/equipment manufacturers, joint refresher courses, mutual exchange of fellowships, etc.),
- twining arrangements and institution building support,
- exchange of information and experiences on performance record of already utilized technologies, types, sources and terms and conditions of acquisition of equipment/technical services, training facilities,
- associations in provision of consultancy and engineering services in host countries and in third countries (sub-contracting, consortia, joint ventures),
- promotion of cooperation in "triangular" arrangements (including suppliers from industrialized countries),
- division of labour and specialization, and subsequent joint project work
- mutual support in planning and negotiating projects (strengthening bargaining position vis-a-vis suppliers from industrialized countries),
- joint projects for development of specific knowledge/skills (economies of scale),
- mutually agreed code of ethics and guidelines/principles of mutual cooperation.

## 2. Development of supportive systems

The second group of activities, which require an active cooperation of governments and other national/regional/international institutions, could be directed towards establishing/strengthening and influencing the back-stopping facilities and supportive systems for cooperation in the consultancy and engineering field. These activities can include activities in the following areas:

- information systems, mass-media, technical literature, etc.,
- project finance facilities,
- trading arrangements, integrated trading companies,
- project development facilities,
- rosters of consultancy and engineering organizations,
- catalogues of equipment manufacturers, construction firms,
- focal points, associations, networks and federations of consultancy and engineering organizations (sector-wise, regional, international),
- harmonization of standards, testing, quality certification systems, etc.,
- arbitration courts, etc.

## 3. Promotion of policy measures

The third group of activities could be directed towards active management of interlinkages with other actors in the TCDC scene and towards lobbying for policy measures and instruments (on the national level of home and host developing countries, on the regional and international level) which would facilitate and promote cooperation and transfer of technology among DCs CEDOs. These activities could be directed towards development / strengthening of support measures, such as:

- financing of project preparation, marketing and acquisition activities (subsidized tender bids, etc.),
- financing of project implementation activities,
- financing of extra costs of additional training and transfer of technology activities,
- financial and fiscal incentives, foreign exchange allocations, and other promotional measures at levels comparable to commodity export promotion,
- intergovernmental trade and cooperation agreements/protocols (national treatment, double-taxation agreements),

- market reservation/national-buying policies, preferential treatment of TCDC, compulsory associations, public procurement policies,
- procedural simplifications for TCDC activities,
- technical diplomacy (inclusion of consultancy and engineering organizations in ODA and "non-commercial" technical assistance programmes, etc.),
- preference for use of developing countries consultants in projects sponsored by international organizations,
- inclusion of a special chapter on consultancy/engineering services in future rounds of GSTP negotiations.

#### 4. Establishing principles of cooperation

An essential element of proposed cooperative arrangements are the specific principles of cooperation which should distinguish this type of South-South cooperation from the traditional North-South relations in technology matters. The new quality of cooperation should be based on a project design and management philosophy which is emphasizing the cooperative and developmental elements and is, in the area of technology transfer supporting the transition from "commercial" towards a "developmental" approach to transfer of technology<sup>4</sup>. The fear that the proposed South-South cooperation would just change the direction and duplicate the traditional North-South pattern of trade in technology and technological services and thus reproduce the existing system - only at a lower level, can be eliminated by codifying some basic behavioural principles which should guide the cooperation among developing countries' CEDOs. Adopting such principles of cooperation could be an important competitive advantage of DCs' CEDOs and may also become the main basis for granting preferential treatment to such cooperation.

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4 A conceptual presentation of proposed transition is given in Annex III.

C. INSTITUTIONAL SUPPORT

CEDOs of developing countries should initiate the establishment of institutional support mechanisms for cooperative activities, like:

1. CEDO's should establish or strengthen national and regional associations of CEDO's<sup>5</sup> and examine the feasibility and desirability of setting up an inter-regional network of developing countries' CEDO's<sup>6</sup>.
2. These associations and networks should prepare and update periodically a directory of consulting and engineering design organizations in which a brief description of their experiences including their specialization and local and international operations and circulate it to potential clients in the private and public sectors, including associations of industrialists and national chambers of commerce and industry.
3. These associations and networks should be mainly supported by their members and to play an active role in strengthening the CED profession and promoting the sharing of experience among their members at the regional and interregional levels. More specifically they should facilitate the exchange of scientific and technical information among developing countries' CEDOs in specific sectors and at the level of projects. They should also promote the diffusion of new technology in the industry including computer aided design and drafting systems, information on new construction methods and construction materials.
4. These associations and networks should organize training programmes and periodic refresher courses aimed at upgrading the technical and managerial skills of CEDO's and develop and maintain an up-to-date rosters of developing countries CED capabilities and make this information periodically available for the use of public and private CEDO's in developing countries.

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5 Information on Federation of African Consultants, ASTRO/ICPE, 1989, (CRP.7)

Information on ASPAC, ASTRO/ICPE, 1989, (CRP.8)

Information on FELAC, ASTRO/ICPE, 1989, (CRP.13)

6 Proposal of the Association of Consulting Engineers of Yugoslavia on "Cooperation among non-aligned and other DCs in the field of Consultancy", ASTRO/ICPE, 1989, (CRP.14)

5. These associations and networks could play a catalytic role in the formation of joint ventures between developing countries CEDOs. Other sources of information on joint venture partners that could be tapped are the World Bank, the Regional Development Banks, the other financial institutes at the regional and subregional level, UNDP, UNIDO, and the International Federation of Consulting Engineers (FIDIC). They should also attempt to promote trilateral cooperation involving cooperation among developing countries CEDO's and a technology supplier from the developed countries <sup>7</sup>.
6. These associations and networks associations should also cooperate to elaborate some general principles and guidelines that should govern South-South cooperation in CED services. These principles and guidelines should be designed to help promoting trade among developing countries in CED services with mutual benefits for both importers and exporters and any intermediaries involved be they commercial banks, development banks or trading organizations.

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7 Information on International Consulting Consortium for Africa (ICCA), ASTRO/ICPE, 1989, (CRP.2)

## V. INTERREGIONAL FOCAL POINT FOR DCS' CEDOs COOPERATION

### A. INSTITUTIONAL FRAMEWORK

Among action points discussed in Chapter IV above it is suggested, for immediate initiation, the setting up of a focal point for facilitation and promotion of C/E trade and cooperation among DCs at the international level. The Consultative Meeting<sup>8</sup> recommended that some existing joint institutions of DCs, like ICPE and ASTRO assume this role.

In order to avoid duplication of efforts which are already being taken care of by national and regional organizations of CEDOs and by some international institutions (IBRD, UNIDO, UNCTAD, UNDP, FIDIC, etc.)<sup>9</sup> the accent of activities of the proposed Focal Point should be on assisting the business end of CEDOs cooperation.

The International Center for Public Enterprises in Developing Countries (ICPE) is a joint inter-governmental organization of DCs devoted primarily to management development activities and promotion of inter-enterprise TCDC. ICPE has done important work in the area of management of transfer and development of technology and is looking specifically into the role which CEDOs play in this area. The International Association of State Trading Organizations of Developing Countries (ASTRO) has already developed a well defined system of Trade Contact Service in the area of general trade among trading organizations of DCs. It is also mandated to assist enterprises involved in technology trade and trade in investment related services.

It is against this background that Consultative Meeting suggested that ICPE and ASTRO be the Focal Point for inter-regional cooperation among DCs' CEDOs.

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- 8 Report of Consultative Meeting on "Development of cooperative arrangements among developing countries in the consultancy and engineering field", ASTRO/ICPE, Ljubljana, May 29 - June 2, 1989, para 21
- 9 - Lamberto Un Ocampo "Asian experiences, problems and initiatives for intensifying C/E services, trade and cooperation", ASTRO/ICPE, 1989, (CRP.11)  
- A. Mendez-Arocha "Engineering consulting and construction services in Latin America", ASTRO/ICPE, 1989, (CRP.1)  
- Information by Federation of African Consultants, ASTRO/ICPE, 1989, (CRP.7)  
- Rocky Wong "Development of Malaysian engineering consultancy organisations", ASTRO/ICPE, 1989, (CRP.2)  
- Information on IBRD activities to strengthen the use of DCs' C/E services, ASTRO/ICPE, 1989, (CRP.5)  
- Information on UNIDO's activities on strengthening CED capacities in DCs, ASTRO/ICPE, 1989, (CRP.16)

## B. ACTION PLAN

The main areas that are amendable for strengthening CEDOs cooperation at the international, regional and national level, include,

- information services
- business development
- cooperation among national and regional CEDOs' associations / networks / groupings
- joint activities to strengthen the position of DCs' CEDOs in the international C/E market and in ECDC/TCDC

The cooperative arrangements on the above mentioned areas may have to be initiated on a phase-wise basis with the support of the interested CEDOs, and national and international institutions contributing to this cooperative building blocs.

### 1. Immediate actions

ICPE/ASTRO should immediately and in cooperation with interested CEDOs and other institutions initiate work on the following subjects relevant for DCs' CEDOs mutual trade and cooperation:

#### (a) Information area

Timely and relevant information plays a vital role in strengthening cooperation among CEDOs of DCs. There is a need to establish an effective method of interlinking data bases and sub-networks at national levels to information systems at regional and international levels.

Strengthening South-South information networks should enable CEDOs to exchange scientific, technical and business information amongst DCs in specific sectors and at the level of projects. The information networks should provide for linkages and communication with the end users in DCs and should help to enhance their capabilities in the systematic handling of industrial information and in providing quick and easy access to selected, analyzed and annotated information and manufacturing process and know-how, equipment and machinery suppliers, criteria and parameters for selecting technology.

Associations and networks of CEDOs should assist their members to become more acquainted with and make better use of existing information systems within UN or worldwide on specific matters such as developing countries' experts, expertise, research, technologies, production capabilities, investment opportunities, etc. Special attention should be given to South-South information systems and networks such as TIPS, ISTP, INRES, INTIB, and others<sup>10</sup>.

The combination of national and international information sources could enable CEDOs to be currently informed on what is happening in the field of their interest: science & technology, research and business around the world and in the South in particular.

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10 Marko Verbic "Information and CEDOs", ASTRO/ICPE, 1989, (CRP.10)

Taking into account that local CEDOs can provide the best information on local conditions in their respective countries, they should be encouraged to systematically collect and share these information with interested parties from other developing countries. The direct exchange of information among CEDOs who are willing to cooperate amongst themselves should be the starting point and the basis for other forms of CEDOs cooperation.

ASTRO/ICPE should consider to provide the institutional framework for such inter-CEDOs information exchange and to play a coordinating role in collecting Directories and other information on DCs' CEDOs and in providing information on and access to relevant information systems.

Proposed action:

ICPE/ASTRO should initiate the elaboration of an Inventory of existing information systems/data banks and assess their relevance for CEDOs of DCs and promotion of their cooperation.

(b) Registration of DCs' CEDOs

The registration of DCs CEDOs with major project financing/sponsoring agencies and the inclusion of data into CEDOs rosters which reflect the specific "advantages" of DCs CEDOs (see Chapter II of this Report) is one of the basic preconditions for greater participation of DCs CEDOs in international market for C/E services, particularly in DCs. Different agencies, like IBRD, Regional Development Banks, UNDP, UNIDO use different forms and collect different data for registration of CED firms or/and individual consultants (like DACON, DICON, INRES-South, etc.). ICPE/ASTRO should initiate action to compare different registration forms and procedures and give initiatives for harmonization of data bases of CEDOs/individual consultants of relevance to DCs.

Proposed action:

Elaboration of an analysis and proposals for harmonization of Rosters of CEDOs/individual consultants of different international/regional institutions (IBRD, UNDP, UNIDO, Regional Development Banks).

(c) Selection criteria/procedures

The transparency of the selection criteria and procedures used by different multilateral/bilateral funding agencies and project sponsors and the adaptation of these criteria/procedures in such a way as to give a fair chance to "new entrants" and a greater waitage to some "socio/cultural/environmental" factors and operating experiences relevant for DCs as compared to purely "technical" factors, is of prime importance for promotion of greater participation of DCs ' CEDOs in the international C/E market.

Proposed action:

ICPE/ASTRO should initiate an analysis of selection criteria/procedures used by major funding agencies/project sponsors for procurement of CED services and propose such modifications which would promote the participation of DCs' CEDOs in such projects.

Implementation of proposed immediate actions

ICPE/ASTRO will prepare corresponding project proposal for consideration and support of G-77 PGTF for ECDC/TCDC and will initiate the establishment of project teams for each of the above subject areas. The project teams will be composed of experts seconded to the project by interested DCs' CEDOs and their national and regional associations. Coordination and administrative support will be provided by ICPE/ASTRO.

The following main activities are planned:

- formation of project teams for each area composed of 4-8 experts;
- collection and systemization of existing documentation;
- conceptualization of project tasks;
- consultations with relevant regional/international institutions;
- elaboration of a discussion paper;
- consultations with DCs CEDOs and their national/regional associations;
- elaboration and validation of a position paper;
- discussions/negotiations with relevant institutions to implement the proposals;
- briefing of DCs representatives in the relevant institutions;
- circulation of papers to DCs' CEDOs.

The direct outputs of the project will be "position papers" containing a critical review of the present situation in the specific area (information systems, rosters, selection criteria) and proposals/initiatives for adaptations/changes reflecting the needs and interests of CEDOs in DCs.

2. Medium Term Programme

The medium term programme will basically focus on developing support systems for enhancing inter-CEDO cooperation. They may take the following forms:

(a) Business Development Services (BDS)

For assisting the CEDOs in public and private sectors in developing countries in acquisitions, adoptions and modifications of technology for industrial reconstruction and development, technical and professional assistance would be required. Such assistance would cover the areas of national development of CEDOs and perhaps augmenting their functional competence, business information provision, capability in enhancing technology renovation and maintenance, and development of a subcontracting exchange. Broadly the profile of such Business Development services would comprise:

- i) Organizational Development: CEDOs in developing countries are at different levels of development and capability. In very few developing countries, comparable CEDOs with required competence similar to the existing in the developed countries have emerged; very often, they are still at developmental stage; they need to be nurtured and built-up in skills, in market development and in negotiating capability. Development of such nationally oriented CEDOs with well equipped organizations' professional competence require assistance, both in hardware and software, be they sectorally oriented CEDOs or multi-technology CEDOs. Such a development may also require exchange of experiences and skills across developing and developed countries, as well as channelling support from international agencies/institutions. National surveys have to be undertaken in this regard and on the basis of such study findings appropriate advice has to be offered in the development of national CEDOs; for skill enhancement, relevant and periodic training programmes may have to be developed and offered.
- ii) Business Opportunity Service: The other and more important form of BDS would be to develop systems and support facilities to exchange relevant information amongst CEDOs and manufacturing sectors about business possibilities. The Business Development Service will provide access to information or sources of information among CEDOs for enhancing new technology trade and investment opportunities that will lead to concrete business transactions. Development of such a business oriented service assumes a system of networking that will continually inform CEDOs about offers/purchases/turnkey projects and technology requirements, funding sources, etc. This will also require establishment of speedy system of electronic communication among the networking members.
- iii) Technology Maintenance, Rehabilitation and Renovation Cooperation: There is an important backlog of maintenance, rehabilitation and renovation projects in DCs, due to low priority usually attached in DCs to maintenance and due to deterioration of existing installations and shortage of funds for new investments. Important opportunities for cooperation among DCs' CEDOs exist in these non-traditional C/E areas in which experiences in working with similar technologies and in similar operating conditions are of greatest relevance. It is proposed that one of the priority areas of cooperation in the proposed Business Development Services would be the promotion of inter-CEDOs cooperation in the area of maintenance, rehabilitation and technology renovation.
- iv) Sub-Contracting Exchange for C/E Services: A basic characteristics of C/E markets in most DCs is great fluctuation of demand for C/E services which creates problems of availability of qualified staff during pick investment periods on one side, and the problems of idle capacities, dismantling of experienced expert-groups and losses in institutional experiences / memory, etc., during slack periods on the other. Subcontracting and other cooperative arrangements among DCs' CEDOs represent a major possibility to mediate negative effects of demand fluctuation. Sub-contracting is also an important instrument to facilitate and reduce the costs of entry of

DCs' CEDOs into international C/E market, to implement the local content policy, to acquire knowledge and experience through team work with other CEDOs and for building up the credibility and performance record.

It is proposed that ICPE/ASTRO develop a clearing house facility for facilitation / promotion of DCs C/E services sub-contracting which could be used on the South-South and North-South level.

(b) Support through Countertrade and Buy-Back Arrangements

Countertrade is increasingly being used for industrialization purposes. Countertrade arrangements can be either commercial or industrial; commercial countertrade arrangements - barter, counterpurchase, clearing arrangements and government-to-government trading arrangements - are traditional in nature and deal-based which means, short lived. Industrial countertrade arrangements - buy-back, compensation arrangement and joint venture production sharing - involve exchange of technology, plant and equipment for industrial development and export promotion programmes. For developing countries, both types of countertrade arrangements are important and, in fact, one supports the other. Provision of information, training, countertrade business contacts, institutional arrangements for countertrade, etc., are all important; there is a need for broadening such activities to include countertrade facilitation support to CEDOs embracing advisory services such as consultancy, market assistance, organizational development and policy formulation in the area of countertrade. They would involve,

- Generating and transmitting countertrade business opportunities for CEDOs/trading houses of DCs through its various variants;
- Provision of identifying countertrade potential partners in the products/commodities offered and established communication links;
- Consultancy services on switching, leasing and countertrade financing;
- Developing guidelines for countertrade negotiations and contacts and providing assistance thereof.

(c) Project Financing

In view of the financial limitations facing consultancy/engineering organizations of developing countries, the interregional focal point should study, offer advice and elaborate alternative possibilities of financing for South-South projects encompassing consultancy/engineering operations, technology transfer and project capital inputs. Such alternative financing support may include examining and advising on,

- join ventures,
- development of subcontracting facilities,

- multilateral agreements,
- establishment of clearing houses on a joint basis,
- international leasing.

(d) Human Resources Development

On-the-job training programmes and technical training services should be extended to enhance the effectiveness of CEDOs. Specifically designed programmes will have to be developed for skill development of CEDO personnel.

C. IMPLEMENTATION PLAN

The existing facilities and professional and administrative capacities of the two joint institutions of DCs, ICPE and ASTRO, both located in Ljubljana, Yugoslavia, will be used to facilitate the interaction of interested CEDOs and other interested organizations (associations of CEDOs, regional/interregional organizations). ICPE and ASTRO will provide secretarial support and will initiate cooperative activities by launching the proposed "immediate actions" (para V, B, 1) and will gradually develop, in consultations and with the participation of interested CEDOs and other organizations, more structured cooperative arrangements as proposed in para V, B, 1. It is proposed to start the cooperation on the project basis and with those DCs' CEDOs / associations / groupings which are interested in mutual contacts (information sharing, joint business development, human resource development, etc.) and in joint work on specific projects (like proposed "immediate actions") and are willing to second for that purpose their experts and make other contributions to joint activities. ICPE and ASTRO will also initiate the establishment of a programming committee composed of interested CEDOs/their associations and other institutions and will invite DCs to designate national Focal Points for inter-CEDOs cooperation. The initial contacts with DCs CEDOs will be established through national/regional associations of CEDOs and using existing Directories and Rosters of CEDOs.

The financing of cooperative activities will be provided basically by participating CEDOs/other institutions on the project basis. Support for initiation of joint activities and for coordination of work will be sought from national/regional/international agencies which are promoting TCDC and ECDC.

Representatives of DCs' CEDOs participating at the Consultative Expert Group Meeting in Ljubljana <sup>11</sup> have already expressed interest to participate in the proposed cooperative scheme and launch the cooperation through proposed "immediate actions".

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11 Report of the Consultative Meeting on "Development of cooperative arrangements among developing countries in the consultancy and engineering field", ASTRO/ICPE, 1989.

Two Yugoslav institutions, the Association of Consulting Engineers of Yugoslavia and the Center for International Cooperation and Development, Ljubljana, are ready to provide professional support to the cooperative scheme in the areas of their special expertise (information area, OD and HRD). In implementing joint activities active support and cooperation will be sought from national/regional/international institutions working in the field, like IBRD, Regional Development Banks, UNIDO, UNCTAD, UNDP, CCC, FEAC, FELAC, ASPAC-FIDIC.

## VI. CONCLUSIONS

Taking into account the strategic role of CEDOs in project conceptualization, design, realization and maintenance and particularly in the processes of selection, negotiation, unpackaging, adaptation and absorption and development of technology and in the efforts to maximize local content and development impact of investment project and considering the specific demand and supply characteristics prevailing in DCs in this area, great opportunities for intensified cooperation among DCs in the C/E field have been established.

The review of present activities, institutional arrangements and initiatives for strengthening cooperation among DCs in the C/E field at the national, regional and international level is pointing to the need to develop a DCs inter-CEDOs cooperation forum at the interregional level which would focus on the operational and business aspects of international activities and DCs' CEDOs cooperation.

It is proposed that some existing institutions of the South, active in the area of TCDC/ECDC, provide the institutional framework for the intensification of cooperative arrangements among CEDOs and their associations/groupings on the interregional level and facilitate the interaction with international institutions, active in this field.

A feasible solution which would not involve important extra costs may be the utilization of two existing joint institutions of DCs, ICPE and ASTRO, as an interregional focal point for DCs' inter-CEDOs cooperation and to start cooperative activities immediately by proposed "immediate actions" in three areas: information systems, registration of DCs CEDOs and selection criteria and procedures for procurement of C/E services in DCs. The proposed medium term cooperative activities to be initiated in the framework of the proposed Focal Point include more structured forms of cooperation in the area of business development (organizational development, business promotion, technology maintenance and renovation, and subcontracting exchange), countertrade, project financing and human resource development.

The Feasibility Report is submitted to G-77 and its member countries for consideration and appropriate follow-up action. ICPE and ASTRO would be ready to follow the advice of G-77 and carry on the proposed activities in cooperation with DCs' CEDOs and other interested institutions and with the assistance from G-77 and other relevant international/regional agencies.

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CLASSIFICATION OF CONSULTING AND ENGINEERING DESIGN SERVICES

There are various definitions given to consulting and engineering design (CED) services. Different terms have been used interchangeably to refer to similar types or categories of those services. For the purpose of this paper, CED services are defined as the essential activities needed to optimize investment in all its forms, in its choice, in the technical process of its realization and in its management. The design and specifications that these services produce should in principle be the least-cost and highest productivity solutions which are consistent with the economic and social conditions of individual markets.

Those services which are required to bring an investment project from conception to realization may be classified according to the stage of development of an investment project. They could then be grouped under pre-investment services, project execution services and services for operation and maintenance. This grouping is by no means universal and the demarcation line between the three categories is not always a clear-cut one. Furthermore there is continuous interaction between CED services in the three categories reflecting the interdependence that exists between them and the interrelationship between the different stages of the project implementation. Those services produce different outputs such as pre-feasibility and feasibility studies, preliminary and basic engineering design, tender documents, evaluation of bids, operating manuals, training reports, etc. Many of these services are multidisciplinary in nature and technology-intensive. They require general and specialized engineering and other skills to produce the requisite outputs.

CED services are produced by different types of consulting and engineering design organizations (CEDO's) ranging from independent to captive organizations. The latter could be part of a construction firm or tied into a manufacturing facility or simply operate as a department or division in a public organization responsible for specific infrastructure related projects such as highways, power plants, etc. Independent CEDO's are organized groups of skilled persons which perform in an autonomous manner and within an institutional framework be it a private or state-owned company. Captive CEDO's are often difficult to identify as they are often labelled "technical realization", engineering", "marketing" or "technical sales" departments. Those of them that are integrated into manufacturing facilities have their work usually but not exclusively confined to the activities of the manufacturing firms. Their activities often fit within the manufacturing firms' corporate strategies. The CEDO's that are tied to construction companies handle projects that are fairly large and offer a range of CED services that are often industry specific particularly in infrastructure-related work. CEDO's in developing countries can also be of different size, small, medium or large, specialized or diversified, including minority or majority-owned foreign firms depending on national government policies and regulations governing the establishment and functioning of foreign enterprises in different developing countries.

POSITION OF THE DEVELOPING COUNTRIES IN THE INTERNATIONAL MARKET FOR  
CONSULTANCY AND ENGINEERING DESIGN (CED) SERVICES

Very few developing countries that have established a domestic capability in CED services<sup>1</sup> have succeeded in building up an export capacity and penetrating international markets. Among these countries are Lebanon, the Republic of Korea, Yugoslavia, India, Brazil, and Mexico. Nearly 100 % of the developing countries' exports of CED services go to the other developing countries. What could explain, at least partly, the direction of those exports, is the fact that the international market for CED services (excluding domestic contracts) is mainly in the developing countries where markets are much more open to international competition than in developed countries.

The international market for CED services is not very large, particularly when compared to the corresponding market for construction services. The value of construction contracts awarded to the top 250 international contractors amounted to USD 74 billion in 1986 as compared to only USD 3,5 billion for international CED services. However, international CED contracts often have a multiplier effect on exports of construction service, equipment and other manufactured goods.

In order to give an impression of the magnitude of the international CED services market, use is made here of statistics compiled by Engineering New Record on the top 200 international design firms. This market as measured by the foreign billings of the top 200 international design firms had an estimated value of USD 3.5 billion in 1986 compared to USD 3.8 billion in 1983. Over 85 % of this international market is in the developing countries.

This market continues to be dominated by firms from the developed countries. Between them they control over 90 % of the market with the United States remaining in a leading position but with its share declining from 31 % in 1983 to 26 % in 1986. It is worth noting that the competitive position of the United States has been eroding in all geographical regions, particularly in the Middle East and Latin America.

Among the European countries, the United Kingdom has managed to capture the largest share averaging to about 14 % during the period 1983 - 1986. Scandinavian firms have also proven to be a strong competitive group in the international design market. Their combined share stood at 6.5 % in 1986 decreasing from 7.5 % in 1985 and 8.4 % in 1984.

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1 A classification of CED services is given in Annex I.

There is an increasing number of developing countries 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 developing countries. Significant efforts of a number of developing countries 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 consultancy and engineering organizations have equipped a dozen of developing countries to successfully enter into technology export market (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 industrialized countries"). The major part of developing countries technological assets is, however, not "codified" and organized in a form of a business proposition which can be attractive to other developing countries.

The position of developing countries in the international CED market continues to be very weak. Their share of this market varies from 5 to 10 %. While a handful of developing countries have made some impressive inroad into international market for construction services, they have not been very successful in developing a competitive advantage in the relatively technology-intensive CED services sector. This is, for example, the case of the Republic of Korea which succeeded in controlling about 10 % 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 design firms. They come from Brazil, India, Yugoslavia, Pakistan, and Lebanon. Their market share, however, remains very small.

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

Brazil has also emerged as an important exporter of consultancy 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 CED services has been directed mainly to infrastructure - related CED services.

A number of factors could explain the weak position of developing countries in the international market. There is, first, the characteristics of the CED services. CED 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 organizational and managerial ability that would allow the integration of the different techno-economic inputs to produce these services. These services can also be very specialized and often industry - specific, requiring fairly detailed technical knowledge and operating experience, that developed country firms are generally better equipped to assemble due to their industrial tradition and manufacturing base.

A second factor that may have made it difficult for developing countries 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 the awarding of CED contracts.

Some developed country firms that have longer and diversified experience in a wide range of sectors and in different countries have built up an international reputation that make them more attractive for project owners in developing countries. Related to this factor is the ability of firms from developed countries to provide these project owners with attractive completion and performance guarantees that can be rarely matched by developing country firms.

The third main factor is project financing. Consultancy and engineering design organization's in developing countries are rather weak in arranging project financing at competitive rates along with the provision of CED services. In contrast, developed country firms are well equipped in tapping international financial markets and other sources for proposing alternative 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 developing countries, particularly in Africa and Latin America, project financing is becoming an important determinant of trade in CED services.

The fourth main factor is the direct and indirect support which the governments of many developed countries provide to exporters of CED services in different forms, like project development support through technical assistance, tied aide or credit, etc.

Another important factor is the utilization of new technology in the CED 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 CED service, and enabling quick adjustments in the conception and design of the projects to suit the requirements of the clients. The development of utilization capabilities and further perfection and diffusion of this technology in CED services, occurring mainly in the developed countries, would tend to improve the competitive advantage of firms from those countries and make it more difficult for developing country firms to compete in some of traditionally labour intensive CED service areas.

Since the early 1980's, fierce competition has raged among engineering design firms in a declining 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 other third markets.

This changed international environment including the new corporate strategies poses additional challenges for developing countries' CEDOs in their efforts to cooperate and improve their export competitiveness in international market.

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Transition from "commercial" towards "developmental" approach  
to transfer of technology

"COMMERCIAL" APPROACH (TT)

"DEVELOPMENTAL" APPROACH (TDT)

(a) Strategic framework

economic growth	- economic development
productive capacities	- productive capabilities
short-term efficiency	- long-term viability
project optimization	- systems optimization
static optimization	- dynamic optimization
transplantation of technology	- assimilation of technology

(b) Regulatory framework

defensive attitude	- promotional attitude
ex-post TT contract screening	- promotional/advisory activities
legal instruments	- techno-managerial support
financial/legal evaluation	- technical/economic/social evalu.

(c) Negotiation framework

sales transactions	- cooperative arrangement
bargaining issues	- preparatory activities
direct costs	- indirect costs, appropriateness
restrictive practices	- guarantees
formal guarantees	- preventive measures, monitoring
formal rights	- positive obligations

(d) Scope of Transfer

packaged deals	- unpackaging, local content
commodity, blue prints	- systems, training
hardware	- software
ready made technology	- adapted technology
know-how	- know-why
frozen technology	- dynamic elements, improvements
trade mark licences	- own trade marks

(e) Political framework

technological dependence	- technological self-reliance
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Annex IV

LIST OF TECHNICAL SUPPORT PAPERS

- CRP 1 - Engineering consulting and construction services in Latin America - a Report, by A. Mendez-Arocha with collaboration of L.B. Soux
- CRP 2 - Development of Malaysian engineering consultancy organisations, by Ir Rocky Wong Hon Thang
- CRP 3 - UNFSTD information on International Consulting Consortium for Africa (ICCA)
- CRP 4 - Information by the World Bank on the project "Development of consultancy capacities in Africa"
- CRP 5 - World Bank's information on Bank's activities to strengthen the use of developing countries' consultancy services
- CRP 6 - Experiences/approaches of RNAM in promoting technical co-operation among developing countries in Asia and the Pacific region, by Zia Ur Rahman, Project Manager RNAM
- CRP 7 - Information by Federation of African Consultants
- CRP 8 - Information on ASPAC - an Asia/Pacific regional group within FIDIC
- CRP 9 - Information on Action Committee for collaboration on consultancy, construction and engineering (CCC)
- CRP 10 - Information and CEDOs, by Marko Verbic
- CRP 11 - Asian experiences, problems and initiatives for intensifying C/E services, trade and cooperation, by Lamberto Un Ocampo
- CRP 12 - Consulting and engineering services in developing countries, by Ramesh S. Tyagi
- CRP 13 - A panoramic view of the Latinoamerican consultancy and cooperation within the region, by J.C. Hiedra-Lopez, President of FELAC

- CRP 14 - Proposal of Association of Consulting Engineers of Yugoslavia on "Cooperation among Non-aligned and other developing countries in the field of consulting"
- CRP 15 - Experiences of Energoprojekt Consulting and Engineering Company in the field of consulting and engineering services, by Arsenije Lazic
- CRP 16 - UNIDO's activities on strengthening engineering design and consultancy in developing countries, by J. Rueppel, UNIDO

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