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I. BACKGROUND

In the preamble to the Esquipulas II agreements (Procedure for the establishment of a firm and lasting peace in Central America (see A/42/521-S/19085, annex), the Presidents of Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua declared: "We have our own approaches to peace and development, but we need help in making them a reality. We ask for an international response which will guarantee development so that the peace we are seeking can be a lasting one."

The agreements envisaged actions applicable to those societies in which advances must be made towards national peace and reconciliation: an end to hostilities; democratization; the holding of elections in each country; the termination of aid for irregular forces and insurrectionist movements; a ban on the use of national territory to prepare acts of aggression against another state; programs for refugees and displaced persons; and negotiations on security, verification and the limitation of weapons. The agreements also include an explicit recognition of the link between peace and development. In this connection, the Presidents stated their intention of creating "a system of economic and social well-being and justice" and, to that end, agreed that they would "jointly seek special economic assistance from the international community" (Section 9 of the Procedure for the establishment of a firm and lasting peace in Central America (A/42/521-S/19085, annex)). This special plan of economic co-operation for Central America is a response to that peace initiative signed by the five Presidents of the subregion.

In fact, the General Assembly, in response to the central American accords, adopted resolutions 42/1 of 7 October 1987 and 42/204 of 11 December 1987, in which it expressed its unanimous support for them. It urged the international community to increase technical, economic and financial assistance to the Central American countries, and requested the Secretary-General to promote a special plan of co-operation for Central America.

For this reason, a technical mission was carried out to Central America at the end of January 1988, with the purpose of determining the economic and social priorities of the countries of the region. The members of the mission held interviews with the Vice-Presidents and with the technical teams of each country, with a view to specifying the projects and programmes which, in conformity with Central American priorities as contained in the Secretary-General's report, constitute components of the special plan of co-operation for Central America. In order to ensure the broadest possible participation by subregional institutions, a working meeting was held at San Jose, Costa Rica, on 30 January 1988 with representatives of Permanent Secretariat of the General Treaty on Central American Economic Integration (SIECA), Central American Bank for Economic Integration (CABEI), the Executive Secretariat of the Central American Monetary Council (CAMC), the Institute of Nutrition of Central America and Panama (INCAP), the Central American Institute of Public Administration (ICAP), the Central American Research Institute for Industry & Technology (ICAITI), Action Committee in Support of the Economic and Social Development in Central America (CADESCA), and the Inter-American Institute of Agricultural Sciences (IICA).

The Secretary-General also requested the collaboration of all agencies of the United Nations system in the drafting of the special plan of co-operation. The technical input of the various agencies was an important contribution which will facilitate the implementation of the plan.

II. JUSTIFICATION AND OBJECTIVES

A. The Central American crisis: background

From the early 1950s until the second half of the 1970s, the economies of the Central American countries enjoyed fairly vigorous growth. The annual growth rate of Central America's gross domestic product was 4.6 per cent for 1950-1960, 5.9 per cent for 1960-1970 and 5.7 per cent for 1970-1977. During the period 1950-1977, there was a marked increase in per capita gross domestic product, which grew at an annual rate of 2.2 per cent. The initial impetus for this growth was provided by external demand for commodities, particularly coffee, bananas, cotton, sugar and, more recently, meat. The expansion of markets and the conclusion of subregional integration agreements led to the

establishment of the second source of economic growth: regional industrialization. The favourable economic situation made it possible to expand and improve a public and private institutional infrastructure which played a vital role both at the national and at the Central American level.

Although this kind of growth constituted a good basis for economic development and institution building, it did not bring sufficient benefits to broad segments of the population. Marginalization and severe social inequalities prevailed in most of the Central American countries. Since the middle 1970's, a series of economic, political and social phenomena, caused both by internal and external factors, replaced the dynamic model of growth in the area, converging into the so called "Central American crisis".

This crisis has various manifestations, among which some significant constraints should be pointed out:

(a) Contraction of the subregional common market: As external imbalances and the burden of foreign debt service have grown, the unpaid balances of subregional trade have become the main obstacle to reversing the contraction of reciprocal commercial exchanges. Owing to the shortage of foreign currency, the maintenance of industrial plant and physical infrastructure has been neglected. Serious differences in situations and economic policy approaches have also arisen, as is demonstrated by divergent inflationary processes or different foreign exchange strategies;

(b) Capital flight and the brain drain: Large amounts of capital have left Central America as a result of economic and political instability and more attracting financial investment abroad. The loss of skilled and semi-skilled human resources is also substantial and reduces the possibilities for development in the subregion;

(c) Contraction of investment: The crisis has led to a deterioration in the process of capital formation. Part of the foreign financing which might have been channelled towards productive investment has instead been diverted to external debt service or to purchases of a non-productive nature;

d) Political and military conflicts: Political instability has led most of the Governments to devote increasing resources to defense

expenditures, postponing economic and social objectives. Armed conflicts have caused damage to infrastructure and the productive sector, especially in El Salvador and Nicaragua. In the case of Nicaragua, this has combined with the trade restrictions imposed for the past three years, which have caused export and supply difficulties that have yet to be overcome;

(e) Displaced persons and refugees: Population displacements within individual countries, emigration from one Central American country to another and emigration to areas outside the subregion have reached alarming proportions in terms of the human costs and the social and economic dislocations they cause;

(f) Increased external vulnerability: As the integration process has weakened and the crisis of foreign indebtedness has grown worse, there has been an increased degree of dependence on outside countries. Moreover, the conditions imposed by foreign co-operation have in some cases reduced the room for manoeuvre in national economic policies. To varying degrees, almost all of the countries are receiving considerable external co-operation which in some cases has come to represent a significant percentage of fiscal expenditure, even current expenditures. However, the external co-operation channelled to Central America has exhibited serious deficiencies. First, it has led to the consolidation of warring groups and to the continuance and intensification of military activities; secondly, it has been directed towards projects which have intensified the differences between countries; moreover, in recent years it has generally not been aimed at strengthening the integration process; lastly, multilateral financial co-operation has been accompanied in some cases by conditions which require recessionary adjustments.

Depressed economic activity has caused high unemployment or underemployment rates, in spite of the emigration of huge segments of the population. Indeed, per capita gross domestic product in 1987 for the subregion as a whole was the same as it has been two decades earlier. Costa Rica has fallen behind the least (11 years), in contrast with El Salvador and Nicaragua (more than a quarter century). This has led to a deterioration in per capital consumption and other indicators of the population's well-being. In real terms, wages and salaries have been greatly reduced in almost all the countries, notwithstanding the fact that restrictive policies have scarcely relieved fiscal imbalances and balance-of-payments disequilibria.

To sum up, the recent evolution of the Central American economies illustrates the close interaction between peace and development. Political turbulence considerably aggravates economic problems, while recession, with all its social costs, fosters political tensions. As a result, the two crises - one political, the other economic - reinforce each other in a vicious circle. The attainment of peace would enable Central America to emerge from this vicious circle, opening the way to the reactivation of its economies

III. PRIORITY AREAS OF ACTION

The special plan of economic co-operation for Central America has three characteristics. First, it concentrates on those economic and social aspects which are directly linked to the preservation and consolidation of peace, and this is what makes it "special". Secondly, it is intended that the co-operation and support mobilized for this purpose should be additional to and distinct from those already being received by the Central American countries from the international community and that they should, if possible, be furnished on more favourable terms. Thirdly, it seeks to ensure that its actions are consistent with the priorities of the Governments of the region and supplement their national development efforts.

To significantly increase the extent of external co-operation in benefit of the nations of the Central American isthmus, would undoubtedly chart the course for new rules of economic and political co-existence between industrialized centres and the third world.

Central American Governments and public bodies are seeking to improve their efficiency and effectiveness. They are facing obstacles which result in slow disbursement of loans already contracted, slow project preparation, and difficulties in the management, administration and application of development programmes. This kind of problems cannot always be solved through transfers of financial resources. On the contrary, such institutional and organizational deficiencies make it more difficult to absorb foreign savings.

Thus, this would be a particularly promising field for international technical co-operation, where an equally important activity would be to strengthen Central American integration institutions in order to help promote

co-operation for development. The support given to subregional institutions to improve their administration and implementation capacities should be oriented in such a way as to facilitate the tasks dealt with in this plan.

SUPPORT TO INSTITUTIONAL ASPECTS

Technological Development

The implementation and future development of the special plan for Central America require the creation of a number of institutional mechanisms which will make it feasible to co-ordinate international assistance on the basis of Central American relations. In this connection, it should be reiterated that efforts should be made to mobilize additional technical and financial resources which would be allocated to promoting regional programmes of common interest. The plan, as stated earlier, marks the beginning of a process which will require enormous efforts in order to ensure the continuity and follow-up of the work done. Thus, it will be necessary to identify the many tasks and factors involved in the attainment of common objectives.

With respect to developing, adapting and upgrading technological capabilities, ICAITI was established as the institutional mechanism in which national and regional viewpoints would be harmonized and priorities would be established for regional action programmes.

During the last years ICAITI has been carrying out some technology development, transfer of technology and research activities but they do not fully respond to the real requirements of the region. Also, its activities in other basic elements of a technological system such as standardization, quality control and metrology, industrial technical information and technology policies have not had sufficient impact in the area. Strengthening capabilities in these fields would enable the Central American industrial sector to have more efficient production systems and to promote these activities to the rest of the Latin American countries. It becomes necessary to carry out studies on technological trends in the region and also to determine needs and priorities in each country, as well as the attention to the building of a technological system such as Standardization, Quality Control and Metrology, industrial property, Research and Development and technology information that might include the mobilization of international co-operation.

Therefore, to make Central American countries develop their technological capacity and their support elements, it would be required to have ICAITI's research and industrial technology capability improved and oriented to the needs of these nations.

In assisting them to improve their technology development and technology transfer as well as utilization capabilities, special consideration will be given not only to the conventional technology but to advanced technologies as well.

ICAITI would also play a role in the establishment/strengthening of technological centers for SSI and in the implementation of proposed activities in the field of Standardization, Quality Control and Metrology, both programmes submitted by UNIDO to support the development of the Central American Region.

Thus, within the framework of a technology development programme for Central America, which implies the transformation of ICAITI into a highly efficient institution which will respond to the real needs of the industrial sector in Central America, the following aspects define the main components of the programme and activities to be undertaken:

- Promotion and strengthening of ICAITI's Capabilities so as to satisfy the need for technological services in the region. One of the most basic problems ICAITI faces is the lack of own financial resources. The contributions corresponding to each government should be increased in order to provide ICAITI with basic operational funds.
- The national technological institutions should also be strengthened in order to establish a regional assistance network in technological services to the industrial sector.
- To improve and increase linkages among integration institutions involved in research and development (R&D) and support to industrial technology development, including universities, and research centers, both at national and regional levels.

Appropriate Technology for Poverty in Central America to Meet the Needs of the Poor in Urban as well as in Rural Areas

In approaching the question of technological advances the human being must continue to remain at the centre of our concern, both as the user of technology and as its beneficiary. High intellectual inputs are needed to solve the ground-level problems of the rural poor in the Central American region, since technological advances offer great promise, opening alternate pathways for industrialization, for greater employment, equity, productivity, rural development and for improving the quality of life for people.

As mentioned before, the Central American region is experimenting the social and economic impact of constant war and political upheaval, where not only the population of the rural areas but also refugees and people migrating to urban areas - where they usually concentrate on the slums on the outskirts - must find a new way of living.

Although advances in technology can and do have many applications, there is a tendency for them to be centered in the industrial sector, where the advance first occurred. Therefore, specific policies and measures need to be taken to widen the scope of application of many of the advanced technologies. Connected with this issue, of course, is the whole question of access to technology, both in legal and practical terms.

The application of modern technology to the needs of the urban and rural poor requires just as much innovative thinking, if not more, than the application of modern technology in the modern industrial sector. The rural areas in Central America are usually cut off or have very limited access to information and other basic facilities necessary for the development and application of technology. The manpower available in rural areas may be vast and willing, but the level of literacy, education and training is low, especially among the Indian population. There is a general lack of financial resources necessary for bringing in modern technologies. Therefore, explicit policies are required for these countries for the stimulation and application of modern technology for rural industrialization, which is really the only long-term answer to meet the needs of the urban and rural poor and contribute to the endeavours of Central American governments to achieve lasting peace in the region.

Within this programme area, pilot activities have already been initiated by IPCT covering: upgrading the nutritional value of fermented cassava food, the industrial-scale manufacture and distribution of improved woodstoves through ICAITI, and an international roster of scientists and technologists.

For this programme to be undertaken though, it requires inputs from both the module on advanced technology and those related to conventional technologies and small-scale industries. In addition, the module on transfer of technology would have an important role to play. As indicated earlier, the transfer and application of advanced technology to meet the needs of the rural poor would undoubtedly need specific policy directives in all Central American countries and, therefore, this programme would feed in to that on the promotion on technology policy formulation, specifically on issues related to rural industries development, development of appropriate resource-based technologies and artisan/entrepreneurial training.

Therefore, training efforts shall include two levels of activities. At one level, efforts shall aim at developing entrepreneurial skills and expanding consciousness among rural population. At the other level, the efforts shall be addressed to technical and managerial levels of state and private enterprises, research institutions and government agencies.

So far, government policies in Central America have put the accent on strengthening scientific literacy neglecting to undertake a parallel program oriented to simultaneously develop technological literacy among the population at large. Scientific literacy, although a necessary condition for the progress of a society, is not a sufficient condition for the improvement of that society's economy. Economic development requires in addition technological literacy. People endowed with intuitive entrepreneurial talent need to understand how the technical and commercial markets operate. They need to know which among the available technologies are the most appropriate for translating their ideas into a business reality; where and how to buy or rent those technologies when they are under commercial appropriation, how to make use of them when they are free and how to operate at its optimum the installations where those technologies have been applied.

Generally speaking, the technologies that have been selected in most Central American countries for both types of production, that is, previously imported products and new exports, require large amounts of foreign inputs. These are the results of misconstruing import substitution and export

promotion. For instance, the concept of non-traditional exports was misread as denoting modern high-technology products. Their production exacted huge amounts of capital from the low local endowment, increased the need of foreign exchange and had few connections with the countries agricultural base. If the idea had been interpreted as the promotion of exports based on natural products for which these countries have comparative advantages and to which value may be added through technological change and well organized marketing efforts, the results would have been quite different. For instance, the processing of plantation crops (coffee, coconut, sugar cane) has been allowed to stagnate without aggressive measures to introduce technological changes in the nature of the products, such as new flavors, new blends, and new physical textures, in the case of coffee, new products in the case of coconut and sugar. The innovations in presentation and packaging of the processed crops are few, if any, and advertising efforts in foreign markets are poor. Hence, while value is added abroad to the natural products of the region, Central America adds value to imported materials.

Policy-makers cherished the illusion that under the Caribbean Basin Initiative, an association of imported high technology and local low wages would allow the region to repeat the Asian "miracle". This was an illusion because:

- i. the markets became increasingly saturated;
- ii. the advanced industrial countries were reluctant to abandon the protection bestowed upon their own production;
- iii. even under optimum conditions of international markets, foreign investments that make use of sophisticated technology cannot solve the problem of fast growing local unemployment;
- iv. the commercial advantages derived from low wages are, sooner or later, destroyed by the course of affairs that those low wages lead to, a course that impairs the worker's physical and psychological well-being and creates social unrest; and,
- v. low wages do not stimulate local demand which, in the long run, establishes the most genuine base for a sustainable industrial development.

The promotion of small scale rural enterprises was thought to be effected by mandating the commercial banks and the national development banks to set aside a certain amount of their portfolio for soft loans to that sector. This did not make an appreciable difference for the potential and existing

low-income, rural entrepreneurs. The banks lacked experience in dealing with them and staff for helping them to develop their intuitions. The banks waited for the rural poor to knock their doors as the shrewd urbanites were doing. This seldom happens, hence the funds end in larger operations of crop financing. And, when it does happen that rural poor apply for the soft loans, the rate of default is usually large.

The provision of tax relief up to one third of the assessable income of any investor in companies which establish new labor-intensive production units in areas close to the capital cities was neither very effective in inducing a solid rural industrialization process.

Neither of the two measures helped to create new small-scale enterprises that would make use of low-cost, but modern and efficient equipment and that would aim at producing with costs that withstand competition. Those measures neither helped existing enterprises to grow and become the missing middle that, as UNIDO suggests, would increase the degree of subcontracting by the large industrial firms.

When visiting the region, it is easy to observe that most of the small industrial units are operating under conditions of poor productivity, high risk for its labor, scarce possibilities of capital formation and almost no opportunities of improvement through technological change.

Proposals for a New Science and Technology Project

Previous efforts to develop science and technology (S&T) were conducted in a way that considered scientific development over technology. These efforts were mainly addressed to the modern sector in which entrepreneurs, somehow or other, manage to acquire technology. Efforts should now emphasize technology, and focus on the needs of the rural poor.

The following global suggestions may guide the design of a project in that direction.

A. Existing and potential entrepreneurs shall participate in the design and implementation of technology development support services for the rural areas.

These services shall assist the participant entrepreneurs in the choice of technology for their investments and in the implementation and operation of these investments. The services shall also include assistance in obtaining risk-capital for launching innovations through new community-owned industries and small family business. The American non-profits and collectives provide good organizational models for this type of small-scale enterprises. With due adaptation, these models can be easily applied to the conditions of Central America.

B. The mobilization of technology and financial resources with the objective of promoting a progressive technological change in the rural productive sector shall make use of the services that existing research institutes and universities already provide. This will require actions oriented towards increasing effectiveness on the institutes and universities and introducing profit motivations among their staff.

C. In order to efficiently mobilize technology, it is also needed to assert the role that scientific research plays in the formation of skilled, open-minded professionals and technicians. Through scientific research inputs of knowledge are taken from abroad, stored in the country's institutes and universities and delivered inside and outside those institutions as needed.

The delivery of knowledge outside the research and learning institutions requires special transmitters. Vocational and technical education shall adopt and adapt to the conditions of Central America the existing models of education with production. In establishments that follow these models, students provide all the work that is necessary for the operation and maintenance of their schools and do some additional work within and for the surrounding communities and markets. This not only reduces the burden of educational costs on the budget of governments and households, it also produces a better product by counteracting social attitudes which assign to intellectual activities a higher status than to manual work and create professional and technical elites disaffected to the world of business and industry.

The technological performance of the public sector can be improved by using existing R&D institutions linked with ICAITI, and universities as sources of technical and managerial support and advice to the management of the state enterprises.

On the other hand, the privatization process initiated by the governments may include opportunities for the transformation of some units into worker-owned enterprises. The experience with similar transformations in advanced industrialized countries teaches that these transformations are often accompanied by a technological change that shifts the use of the equipment and installations to productions with better markets and higher profit margins.

The improvement of the modern sector and the development of the rural sector will both require training efforts to heighten the perception of social and economic reality among managers, owners and workers of industrial enterprises.

The industrialization process shall be oriented towards the development of industries that will, by adding value to natural products, link industrial development with the expansion of agriculture. This orientation will probably lead to mainly small enterprises which will require special efforts for adapting technologies to their scale of production in order to produce at competitive costs. Some times it will be a local traditional technology up-dated with modern equipment, other times it will be sophisticated technology transferred from abroad.

The above are all global recommendations for the design of a new science and technology project in the region. The following specific actions can be implemented immediately. They include the organization of

- i. technological service stations;
- ii. a scheme for financing innovation in the rural areas; and
- iii. training efforts on choice and management of technology.

Service Stations

Multilateral and bilateral aid institutions shall convince the governments of Central America to join efforts with private initiatives to support and enable the awakening entrepreneurial spirit of its poor people. These people can make valuable contributions to economic development and the solution of pressing social problems.

It is proposed to experiment with the creation of a new type of private knowledge transmitters and development agents whose own economic and social development shall be linked to the progress they can effect in the communities they will be serving. This new type of developer would organize service stations in different areas of Central America to advise poor communities, on the technologies required to implement entrepreneurial initiatives and on techniques for the organization of those enterprises, the management of their stocks, the quality of their products, their marketing, and, when justified, their export activities.

Financial support shall be provided to young technicians and engineers for the organization of these stations. They shall own them and, through their operation, earn their livelihood. Once an appropriate area is identified for the location of one of these stations, its ownership shall be adjudicated by organizing an equity fund.

The number of villages to be served by each station shall provide a sizable market for the profitable operation of the enterprise and at the same time be small enough so as to make possible their being serviced by just one person, at least initially. Later on, this person may associate other technicians and administrative officers, depending on the development of the operation, a development that, to a large extent, will depend on the initiatives deployed by the initial owner. Yet, the service station may benefit from some "free labor", and make at the same time a social contribution, by providing a training ground for one or two young persons from a nearby vocational or technical school.

Service stations shall promote initiatives of the following type:

- i. the development of processing facilities for agricultural products and other natural resources of the area as well as handicrafts;
- ii. the opening of marketing channels for the commercialization of surplus from the area;
- iii. the introduction of new designs in potential surplus products, such as clothing, leathers, wooden accessories and jewelry, in order to follow the trends of affluent markets.

iv. the introduction of new local communication and energy production or utilization devices;

v. the organization in the countries, where safety allows it, of "bed and breakfast" forms of tourism with high local folk and cultural content which are appealing to the lifestyle and interests of many foreigners; and,

vi. the increase in agricultural productivity and sustainability through crop diversification, improvement of existing crops and regenerative soil management.

It may seem too much for just one person, but we should remember that this person is just an intermediary who will make use of the S&T infrastructure which already exists in the country. For information, advice and help the operator of a service station can and shall make use of national research institutions including universities.

A basic monthly fee shall initially be paid by the communities in the area. In exchange for this fee, the operator of the service-station will provide trouble-shooting services for the businesses that already exist in the area. But it is through the identification, promotion and organization of new ventures that the operator will generate substantial benefits and make relevant contributions to the socio-economic development of the region.

Another helpful activity that owners of service-stations shall perform is the organization of the training efforts aimed by the project. These efforts at the level of the rural households shall increase awareness among the peasants, who will be entering the world of business and industry, of such aspects of that world as the following:

- i. the mechanisms of capital investment and formation;
- ii. the benefits that derive from a sound maintenance of the equipment;
- iii. the costs associated with and profit opportunities derived from marketing the surplus from the area;
- iv. the connection of the economic activities in the area with the capacity of nature to renew the raw materials used as inputs for those activities and to clean the wastes that the activities originate; and,
- v. personal health and safety issues which also relate to those activities.

Co-operation with other UNIDO Department and outside organizations

The application of modern technology for rural needs is a key component in the wider question of rural industrialization which involves UNIDO as a whole. In carrying out many technical assistance projects in rural areas, UNIDO has the possibility of including the application of modern technology.

All UN agencies and the development community as a whole are seized with the problem of the rural areas and, therefore, the application of modern industrial technology to assist in rural development cuts across all sectors. In particular, ILO and FAO have major programmes directed towards upgrading skills and equipment in the rural areas through the application of improved technology and, of course, our programmes would be co-ordinated with these organizations and others.

Timeframe and resources required

Although this programme area has been included in past work under another rubric, it is clear that the concept has still not been well established and further time will be required in bringing in both countries and institutions vital to the success of this programme. In this topic, UNIDO plays a catalytic role because for this programme to be successful, the whole development community, the developing countries and some of the enterprises "owning" advances in technology have to be involved. Therefore, this activity has to be seen in a timeframe stretching at least into the next medium-term plan. As to resources required, in addition to funds for studies, pilot projects, etc., it will be necessary to involve a number of top scientists and technologists as UNIDO ambassadors in this venture.