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Proposal for a

COUNCIL DECISION

adopting a programme of research and development in the field of science and technology for development 1982-1985

(submitted to the Council by the Commission)

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SUMMARY

This proposal concerns a four-year Community programme to support and strengthen the scientific activities of the Member States for Science and Technology for Development.

The programme occupies a position in the general context of the gradual redefining of the sharing of knowhow and scientific capacity between North and South. It stands at the interface of two Community policies, viz. the Community policy for cooperation with the developing countries (Lomé II Convention, Agreements with the Mediterranean countries, Agreements with non-member countries) and the Community policy in the field of science and technology. It is not intended as a global response to the demands of the Third World countries but serves rather to stimulate and complement the national policies which it is seeking to support and strengthen.

To this end, Community action is proposed in the form of two subprogrammes. The first subprogramme concerns Tropical Agriculture and covers four research sectors : Improvement of Agricultural Production, General Areas of Research and Utilization of the Environment, Post-Harvest Techniques and Training. The second subprogramme is concerned with Medicine, Health and Nutrition in the tropics and covers three research sectors : Medicine and Health, Nutrition and Training. These research sectors, in turn, cover various research topics.

The programme is to be implemented on a indirect-action basis by means of shared-expense contracts, i.e. contracts concluded with public and private bodies in the Member States. Costs are estimated at 40 MioECU and implementation of the programme would require a staff of nine (including four Category A staff).

I. INTRODUCTION

A. International issues at stake

A.1. Over the last decade all aspects of international economic and political relations have undergone profound changes affecting not only the developing countries but also the developed ones. In a new-found awareness of the common nature of their positions, previously voiced through a large number of separate international bodies, the developing countries have been prompted to demand global negotiations with the industrialized countries aimed at creating a "new international economic order". The countries of the Third World wish to be recognized as full partners in the international community and this presupposes equality and sovereignty in the sharing and management of natural resources, in the distribution of profits accruing from growth and, lastly, in the accumulation of knowhow.

The voicing of this global demand has been accompanied by a desire for Third World unity, as demonstrated at each international meeting of the so-called Group of 77.

A.2. More recently, the countries of the Third World have become aware of the paramount importance of science and technology in the process of economic and social development and have taken the unequivocal step of giving a high degree of urgency and priority to the problems connected with progress in the field of knowhow. However, notwithstanding its attractiveness at a philosophical level, this position clashes in real terms with a number of important constraints which inevitably limit its chances of implementation.

These general themes dominated the UNCSTD II*) discussions and left a deep imprint on the final consensus, the so-called Vienna Programme, adopted by the United Nations General Assembly in its resolution (34/218) of 23 January 1980.

Starting from the supposition that the technological resources and potential necessary to enable the developing countries to catch up are already to hand, the Vienna Programme sets out two major objectives :

- strengthening of the scientific and technical resources of the developing countries;
- reorganization of existing procedures governing international relations in the field of science and technology.

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*) UNCSTD : United Nations Conference for Science and Technology for Development

A.3. The first objective is based on the responsibility of the Third World countries for taking charge of their own development. In point of fact, just as much priority is given to the effort needed to set up coherent national scientific policies and institutions responsible for their implementation as to the endogenous material and human resources which need to be mustered in order to reach the critical threshold of scientific efficiency.

The second objective, which concerns international cooperation, gives urgent voice to the call by the developing countries on the industrialized world to play its full part in the necessary task of striking a balance vis-à-vis scientific resources by responding, as a matter of priority, to the Third World's demands as regards the channelling, conception and execution of research activities. On this basis, the Vienna Programme adopts three main lines of approach to cooperation between the developed and the developing countries :

- making available to the international community the research and development activity findings obtained by the rich countries;
- significant stepping-up of research efforts by the industrialized countries to find a solution to the scientific problems of priority concern to the developing countries;
- assistance from the developed countries and from the international organizations to the efforts of Third World countries to create their own scientific potential and to train their research workers and technicians.

It is against this general background that the initiative for a Community programme should first be set.

B. Prospects for the development of scientific and technical potential between North and South

B.1. It is an undeniable fact that, in many cases, recent trends in scientific cooperation with the developing countries have occurred in advance of a general demand to that effect. An attempt has been made, in the form of numerous recent initiatives, either bilateral or multilateral, to cater individually for the major trends in demands by the Third World.

B.2. On a bilateral level there is evidence of increasingly clear trends towards scientific-cooperation policies negotiated between industrialized and developing partners. These trends are reflected both by the recent creation of original structures for scientific and technical cooperation (e.g., the Canadian RCID*) set up in 1970 or the Swedish SAREC**) set up in 1974) and by gradual changes in the methods of operation of countries where scientific and technical cooperation is based on a longer tradition. This is true, in particular, of a number of Community Member States. In addition, the industrialized countries are taking clearer note nowadays of the need to gear certain cooperation research programmes towards economic and social development objectives.

B.3. On a multilateral level a pattern has also emerged over several years indicating a desire to cater for the aspirations of Third World countries, i.e., by strengthening the institutions, infrastructures and research resources of the countries concerned. This is true, in particular, of the United Nations System whose weak overall impact on scientific promotion in the developing countries was underlined in Vienna. The realization of this lack of effectiveness is one of the factors which led to the setting-up of a United Nations Interim Fund for Science and Technology for Development which operates on the principle of direct intervention aimed at strengthening national scientific capabilities.

The European Community, moreover, can be credited with a number of important innovations in this area. The Lomé Convention exemplifies the new type of relationship which has been established between industrialized and developing countries. In this way the Commission, through its innovating action, is participating in many instances in the general move towards transferring scientific initiatives, resources and expertise to the developing countries.

B.4. This gradual transfer is certainly desirable but, more than that, it is inevitable. However, this favourable aspect must not be allowed to create an illusion and to mask, on the one hand, the global insufficiency of the efforts of the industrialized countries vis-à-vis the needs of the developing countries and, on the other, to conceal the stagnation or even decline in their human cooperation resources potential (a factor just as serious in its consequences).

In this respect, there is no magic wand for strengthening the national scientific capacity of the developing countries and, for what will probably be a lengthy transitional period, the scientific community in the industrialized countries will be urged to train their opposite numbers, to impart and perfect the appropriate methodologies and to pass on appropriate scientific data resulting from longer experience and greater resources. By such a process it will be possible to ensure the realistic and effective transfer of information and to overcome the more far-reaching constraints which have hitherto proved an obstacle.

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*) RCID = Research Centre for International Development
**) SAREC = Swedish Agency for Research Cooperation with Developing Countries

The question now is whether the scientific institutions in the industrialized countries, and in particular those in the Member States, will have the capacity over the next ten or twenty years to make an even more effective contribution to the effort involving scientific cooperation with the Third World.

B.5. It is simple to state, in reply, that science is universal and that any progress achieved in the developed world can be easily applied to the developing world. Perhaps this statement is justified in several fields of the exact sciences or certain technologies. However, it becomes infinitely more arguable in the case of the majority of disciplines involving the natural, biological and social sciences, rooted as they are in a knowledge of tangible objects, mechanisms or phenomena closely linked to environmental conditions.

This environment is specific. Most developing countries are in the tropics where the subjects and areas of investigation being researched (atmosphere, soil, oceans, flora and fauna, cultivated plants, human groups, diseases, agricultural and other technologies, social and economic organizational methods, etc.) differ profoundly from those encountered in the cold or temperate regions and also vary from one geographical situation to another.

Such specificity, coupled with this wide diversity, also represents a stimulating incentive for the promotion of knowhow for the benefit of the whole scientific community. This, in turn, presupposes some degree of specialization on the part of the teams or the research workers as well as a level of experience which is often acquired with difficulty and over a long period of time.

B.6. What is the position as regards the existing capacity of the Ten Member States in the field of tropical research ?

For a whole complex of reasons (mainly historical), the powerful research apparatus set up by certain European countries for the benefit of what then constituted their overseas possessions underwent many fluctuations during the period covering the 1950s and the early 1960s. In the majority of cases, however, the fluctuations resulted in a considerable reduction in the potential of the research apparatus.

In this way, some important scientific establishments have been relinquished to the new independent States and, at the same time, specialized scientific institutions in several Member States (i.e., the home-based back-up support for tropical research) have either had their resources cut back or, in some cases, have ceased to function altogether.

The pool of specialized scientific personnel has also suffered a certain amount of disruption owing to progressive natural wastage, aggravated by a scarcity of recruits, the lack of career guarantees, the abolition of training schemes and by diminishing opportunities for in-depth experience in the Third World context. In certain cases, it has been possible to cushion the effects of institutional shortcomings by means of economic-contingency and short-term solutions (e.g., dispersal of teams within the international scientific organizations, applied-research support for development projects).

Lastly, as a final consequence worthy of mention, the relative proportion of basic research has been whittled down in many scientific sectors, thus jeopardizing the overall quality of work and long-term prospects.

It is certainly true that during the same period other Member States which, historically, had not been active in the tropics have developed new scientific activities which go some way towards filling the vacuum seen to have been left by others. However, pending the outcome of a more subtle assessment required by virtue of the diversity of scientific effort on the part of the Member States, the general diagnosis on Europe's tropical research potential is worrying and threatens to become even more worrying as time goes by, by virtue of the particularly serious difficulties engendered by the world economic crisis.

C. A programme at the interface of two Community policies

C.1. At this stage of the analysis, attention should be drawn to certain broad lines of Community policy governing cooperation with the developing countries.

This policy, which has evolved considerably with the passage of time and which coexists alongside the policies of the Member States, is based on an objective recognition of the close and lasting interdependence of the economies of North and South.

C.2. As regards its own responsibilities, the Community has adopted a twofold approach involving, on the one hand, privileged and contractual regional agreements and, on the other, measures on an international scale.

The regional contractual policy, namely the Lomé II Convention concluded with 60 African, Caribbean and Pacific countries, the cooperation agreements concluded with the Southern Mediterranean countries and with ASEAN countries and the agreements in the course of negotiation, particularly with the countries of the Andean Pact, India etc... constitutes an unambiguous part of the effort to implement a new international economic order. Indeed, at regional level, it establishes a policy of cooperation between industrialized nations and developing countries based on an explicit recognition of the de facto inequalities between its signatories. It places at the disposal of the beneficiaries, who take their own decisions on what use they wish to make of the scheme, a set of measures capable of meeting a very wide range of development needs.

The Lomé II Convention, which is consistent, moreover, with the other measures taken to promote development by the Community, does not restrict itself merely to increasing financial aid to the Third World countries but also seeks to introduce measures designed to increase the return on those countries' own resources. It pays particular attention, in the form of more advantageous provisions, to the least developed countries and to landlocked or island states. Lastly, it seeks to ensure that the European economies assimilate the consequences of its actions in the industrial and commercial sectors.

At international level, Community policy seeks to strengthen cooperation with all developing countries by implementing a wide range of instruments and measures, e.g., various forms of technical assistance, trade promotion, financing of projects, food and emergency aid.

C.3. For a wide variety of reasons, notably the urgent need of the developing partners for infrastructures and agricultural development (which has had the effect of concentrating Community action in these areas), the scientific component has hitherto been largely absent from the Community's cooperation policy, save where it has been integrated in projects and has consequently taken on a highly applied character.

As we have seen, this state of affairs also results from the fact that the Third World has recently become aware of the importance of scientific progress in the economic and social development process. That is why, in its conclusions, UNCSTD II places such emphasis on defining national scientific policies and setting up endogenous research structures.

C.4. Moreover, as part of its scientific and technological policy, the Community is taking major steps to strengthen the activities of the Member States in certain sectors regarded by common consent as having top priority. Among these sectors, however, research for the benefit of the Third World has not been the subject of Community initiatives, despite the fact that for a number of years this matter has been studied in depth both by the Commission and by CREST. In particular, CREST set up an ad hoc Working Party in 1976 to study the framework and content of possible measures in this sector. The recommendations of this Working Party have not given rise to any tangible action, owing to the fact that this period marked the beginning of a broad debate at international level (UNCSTD) with a view to examining the whole complex of questions connected with the accelerated application of science and technology to development. This debate was to culminate in the adoption of the Vienna Programme.

C.5. In the main, therefore, the programme proposed in this paper should occupy a position at the interface of these two Community policies.

The underlying logic for this emerges from a multiplicity of complementary objectives :

- to strengthen significantly the Member States' scientific and technical cooperation potential, so as to render it capable of meeting new demands (whether in a bilateral or Community framework);
- to promote increased cooperation among scientists in the various Member States; to facilitate the complementarity*) of research and methodologies and to ensure easier access to the different networks of scientific relationships established by the Member States with their Third World partners;
- to help ensure that the entire scientific community in the Member States becomes aware of the importance of the problems of the developing world and, in this way, ensure the improved distribution and more effective application, for development purposes, of the scientific results obtained;
- to facilitate the introduction of the scientific and technical dimension, either in its own right or within the integral framework of the development projects supported by the Community;
- to ensure that the Community and the Member States can be represented at international level in the relevant scientific policy making bodies.

Accordingly, this programme does not purport to be a global response to the demands of the Third World countries but serves rather to stimulate and complement the national policies which it is seeking to support and strengthen.

The programme is a sequel to the preliminary examination carried out in 1976 by the CREST ad hoc Working Party. As such, it adopts the main recommendations set out in the report of this Working Party, while updating and broadening its deliberations by placing them in their new international context.

D. Preparation and implementation of the programme

D.1. The need to relocate the programme precisely at the interface of the two Community policies referred to above served as the main guideline during the formative stage.

Briefly, the object was to promote the selective and lasting reinforcement of those sectors of European research considered most likely to provide solutions to the economic, social and health development problems of the countries of the Third World.

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*) In its resolution (doc. 11453/1/80, rev.2 of 28.11.1980, Annex III, §5), the Council stresses the importance of developing research capacity geared in particular to food agriculture in the developing countries and of ensuring complementarity between the activities of research centres in the Community and the efforts undertaken in this area by developing countries.

The choice of scientific sectors which should receive priority support naturally took account of two of the basic principles of the Community's general development policy :

- the first, which is geographically selective, concerns the promotion of cooperation on behalf of the poorest developing countries;
- the second, arising from the first, places emphasis on those sectors directly concerned with particularly serious and pressing problems, i.e. those associated with the most fundamental needs of the developing countries.

On the basis of these principles, the following four priority areas of scientific activity were identified :

- the first concerns the general problem of foodstuffs and involves research aimed at improving agricultural production in its broadest sense, including live-stock, fishing, aqua-culture, forestry and techniques for enhancing the value of agricultural products;
- the second sector, relating to the general problem of human health, involves research into transmissible tropical diseases and related nutritional sicknesses;
- the third, concerned with the energy shortages which have become increasingly serious for a large number of poor or landlocked countries, involves research into the diversification of energy sources;
- the fourth sector relates to the problem of the unexploited potential of the tropical environment and involves research designed to promote the exploitation of natural and mineral resources.

Even a superficial examination of these sectors quickly reveals that it would be impossible to make a significant contribution in all these areas in view of the extent of the measures required, so that priorities must be defined more clearly in order to limit these sectors further.

This could only be achieved by promoting the areas of research which relate most directly to the tropical environment.

This is why it was considered necessary to include in the proposed programme the sectors of agriculture and health, which have special characteristics associated with climatic and ecological conditions and in which there is no scientific activity at Community level.

It must also be pointed out that the specialized laboratories and research institutes of the Member States in these sectors have considerably reduced their activities in recent years and have consequently limited the access of young European scientists to specialization in these fields. Furthermore, the developing countries are endeavouring to undertake their own agronomical and medical research with the help of bilateral aid and of international organisations.

The situation is different, however, in the sectors of energy and mineral and other natural resources, where the research effort in the industrialized countries has been undiminished.

Furthermore, these technologies, which are covered by activities at Community level, do not have the same specific character as tropical agriculture and tropical medicine; in many cases, admittedly, the techniques are unsuited to the geographical, economic and social context of developing countries.

Thus, instead of launching a new programme, it seems advisable to consider adapting and developing suitable industrial technologies on the basis of recent knowledge, and in particular of the results of current Community programmes.

Lastly, in addition to the choice of priority research sectors, a final dimension must be added to the general programme outline by the inclusion of a future objective. As far as possible, the Community programme should contribute to the attainment of a better balance between pure and applied research and should strengthen the research training resources of the Member States in each priority sector in order to ensure the long-term existence of the facilities for scientific cooperation.

D.2. The programme was prepared in two successive stages. Initially, a group of independent experts was asked to analyse each of the scientific sectors selected. A list of research institutes and teams in each Member State was drawn up in order to evaluate cooperative programmes from the standpoint of their significance and scientific value; in some cases, it proved necessary to carry out a corresponding examination of extra-Community research (conducted by other developed countries or international organizations) in order to define the terms of reference of European research more accurately and avoid the duplication of activities.

At the same time, in each sector an attempt was made to evaluate the main development problems facing the countries in question bearing in mind the geographical differences, varying urgency and economic and social effects associated with these problems. In addition, the possible economic consequences for the Member States of research programmes in certain scientific fields were identified.

The experts were essentially required to provide objective clarification of the available options, so that selective priorities could be defined at one or more levels in each sector.

This task was undertaken during the second stage at several consultative meetings attended by experts in each of the fields concerned from all the Member States. As a result, after discussion and on the basis of investigative documents, a number of general recommendations or specific priority proposals were made concerning support for a particular research topic or line of scientific inquiry.

This combined approach, reflecting broad agreement among the scientists consulted, forms the general background to this programme proposal.

II. MANAGEMENT OF THE PROGRAMME AND MACHINERY FOR IMPLEMENTATION

1. The Commission is responsible for the management of the programme. It will set up a small internal team headed by an official to be designated "Programme Coordinator", which will be concerned with the scientific and administrative implementation of the programme.

In addition, in order to carry out the programme, the Commission feels the need for the assistance of the "Advisory Committees on Programme Management" (ACPM). It is therefore proposed to set up two committees, one responsible for the subprogramme on "Tropical Agriculture" and the other responsible for the subprogramme on "Medicine, Health and Nutrition in the Tropics". The tasks and composition of these committees are defined in a Council Resolution of 18 July 1977*).

It follows from article 2 of this resolution that the Advisory Committees' principal tasks will be to help the Commission define priorities, taking into account national policies and Community policy in development matter.

Further, in order to avoid any duplication and to ensure the necessary complementarity of actions to be launched with actions already under way, it would be desirable for representatives from the "Standing Committee on Agricultural Research" (SCAR), the "Committee for Medical Research and Public Health" (CRM) and the "Technical Centre for Agricultural and Rural Cooperation" (CTA) to participate in the work of these ACPM's.

2. It is proposed that this first programme on "Science and Technology for Development" should cover a period of four years with effect from 1 January 1982. A review is scheduled before the end of the third year.

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*) OJ n° C 192/1

3. As regards the dissemination of results, the Commission believes it advisable, in view of the specificity and the objectives of this programme which is carried out in the interest of the developing countries, to lay down special provisions for the transfer of the research results. These provisions should thus permit the dissemination of results of Community research to the developing countries particularly to those with whom the EEC has cooperation arrangements (agreements and conventions). In particular within the framework of the Lomé Convention this dissemination can be implemented with the aid of the Technical Centre for Agricultural and Rural Cooperation (in the process of being created), which is charged with facilitating access for ACP countries to information on research and innovation in the sector of agricultural and rural development.

4. The staff necessary for the management of this programme is estimated at four A-grade officials, two B-grade and three C-grade.

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III. THE PROGRAMME

The proposal of the Commission covers two subprogrammes which relate to the following sectors :

- Tropical Agriculture,
- Medicine, Health and Nutrition in the Tropics

A description of the projects proposed in these two sectors is given in the following pages.

A. Tropical Agriculture

- In view of the two basic principles of the Community's general development policy referred to in the introduction, namely :

  . the need to promote cooperation for the benefit of the least developed countries, and

  . emphasis on sectors dealing directly with particularly serious and pressing problems, i.e. those relating to the most fundamental needs of the developing countries,

- and in view of the scientific measures taken in a bilateral and multilateral framework (CGIAR - Consultative Group on International Agricultural Research, FAO),

- and in view of the scientific approach adopted at expert level and of the conclusions and recommendations arising from the consultative meetings between scientists and the Member States,

tropical agriculture would appear to be the sector to which the Community effort must be directed first and foremost.

Potential lines of priority research were examined on a product-by-product basis, since this seemed to be the most efficient approach and the best way of defining gaps in the existing knowledge and requirements connected with development questions.

Nevertheless, a number of topics which have been described as "general areas of research" and which form the basis of product-related research, must be examined so that the latter can have the desired effect on economic and social developments.

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Moreover, post-harvest techniques were examined separately because of their significance for the economies of developing countries, particularly at the level of small rural holdings. It is estimated that products preserved by using these techniques could feed approximately 10% of the world's population if losses resulting from poor conservation measures could be eliminated.

As a result, the proposed subprogramme in the field of tropical agriculture comprises four research sectors :

- improvement of agricultural production,
- general areas of research and utilization of the environment,
- post-harvest techniques,
- training.

These four research sectors are divided, in turn, as follows :

1. Improvement of agricultural production

   - food crops and industrial crops,
   - protein products of animal origin,
   - forestry products

2. General areas of research and utilization of the environment

   - water resources and use,
   - soil protection, stabilisation and regeneration
   - crop protection,

3. Post-harvest techniques

   - product conservation
   - processing of products

4. Training

A.1. Improvement of agricultural production

The implementation of research projects designed to increase food production in the developing countries remains one of the principal objectives to be attained if their poverty is to be reduced and food supplies guaranteed. For a large number of these countries, however, industrial crops represent one of the fundamental ways of ensuring the inflow of currency required for trade. As a result, the group responsible for implementing this programme will have to make a more thorough examination of priorities which are laid down only for guidance.

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Food and industrial crops

a) Among food crops, the framework programme should give priority support to cereals. Absolute priority will, therefore, be given to rain-fed rice, maize and sorghum, although other crops such as triticale will not be neglected.

Research relating to tubers and roots and to legumes has been given a second-priority classification. In the first group, special attention will be paid to manioc, whereas in the case of legumes research should be characterized by a certain diversification going beyond the limits of traditional crops.

The priority research topic relating to these crops will, essentially, be concerned with genetic improvement since, notwithstanding the efforts of the international scientific community, the potential for genetic improvement among these food crops, is, in general, far from exhausted. The variety and scientific importance of the problems to be solved warrants a significant increase in the Community's contribution to the research already undertaken (genetic pool, genetic structures of species, increase of existing variability, selection, hybridization, etc.).

Two other topics are considered as being of importance : crop plant physiology (photosynthesis, utilisation of solar radiations and other environmental resources...) and fertilization (Nitrogen fixation, mycorrhiza...).

b) If specific priority should be attached to food crops, special attention should equally be given to industrial crops and export crops, in spite of the objections sometimes raised by foreign interests. In developing countries which lack natural resources (minerals, power, etc.), these crops represent the only source of the foreign currency which is essential for the development of their economies, and particularly for the modernization of their crop production system.

Moreover, the scientific advances achieved by the Member States in the area of industrial crop production warrant the continuation of research in this sector.

Among industrial crops, emphasis should, in general, be given to cotton, ground nuts and soya. Research should also be conducted in respect of a second group of crops comprising gum plants and other oil-producing varieties (coconut palm, oil palm) in view of the benefit which they offer to both the developing countries and the Community.

The priority research topic relating to industrial crops is similar to that already mentioned in respect of food crops, particularly as regards genetic improvement (prospecting, genetic pool, selection, hybridization, etc.).

Protein products of animal origin

Products of vegetable origin make up the greater part of the food resources of the Third World populations; they must, however, be supplemented by protein products of animal origin.

For many developing countries, moreover, stock-farming is the only way of utilizing acreages unsuited to crop production and is the only activity which provides the populations of these regions with protein foods and the income required for trade.

For other countries, fishing (river, sea or lake) provides the main source of protein.

Although there are opportunities for Community action in these fields, research will initially be limited to the following subjects :

- Stock-farming
  - Improvement of fodder-crop production
  - Research in veterinary medicine (trypanosomiasis, theileriasis and resistance to ticks)
- Fishing
  - Better utilization of the total production through the reduction of after-catch losses and through optimum use of "by-catches"
  - Aquaculture (improvement of tropical species)

Forestry products

A great deal is at stake in research into tropical forests and timber for both the producer developing countries and the EEC raw-material importing countries.

The research requirements notified by the developing countries differ slightly depending on their geographical location.

The countries of the tropical humid zones have already largely exhausted the potential of their natural forests in an effort to achieve a rapid improvement in their trade balance. Other economic objectives have been defined more recently : local exploitation of forestry resources by the establishment of industrial facilities, and the general aim of regenerating natural resources, which are frequently endangered during the earlier phases of intensive exploitation.

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In dry or arid tropical regions, forestry development is a response to increased concern for self-sufficiency in energy and raw materials (firewood, ec.). In addition, the importance of forestry plantations in maintaining a natural balance between the factors of agricultural production has been established for several years. Desertification phenomena associated with a number of recent climatic episodes (drought in the Sahel) have given rise to vas afforestation projects requiring rigorous scientific assessment and follow-up.

Priority should be limited to the following research topics :

- General intensification of work on genetic improvement (e.g. lowland tropical pines);
- An integrated approach to the management of tropical forest ecosystems and agri-forestry;
- Intensification of research concerning the transformation of tropical forestry products into energy.

A.2. General areas of research and utilization of the environment

Priority should be given to the following areas of research relating to almost all the avobementioned problems.

Water resources and use

The general problem in this area concerns the need to achieve a reasonable balance between these resources and the growing requirements of the developing countries, resulting from the increase in population, improvements in the standard of living, the expansion of agricultural activities and rapid industrial development.

It will be necessary, initially, to evaluate water resources, seek new sources of supply and improve methods of utilizing existing reserves (particularly irrigation techniques), eliminate waste, protect water quality and, if necessary, recycle water. It is also important to work out studies on the environmental impact and the economic and social effects at irrigation projects.

Research should also deal with the problems of arid zones (adaptation of the techniques for utilization of the water available).

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Soil protection, stabilisation and regeneration

Soils constitute the basis of all agricultural activity. Priority attention should be paid to the preparation of soil inventories and soil stabilisation, evaluation of soil potential, techniques for its use in all farming systems, and preservation and regeneration.

In addition to the major works to be built on the ground, on account of the extreme diversity of the ecological conditions ,consideration could be given to the use of advanced technologies such as remote-sensing.

Crop protection

Although more than half of the world's rapid population growth areas are to be found in the developing countries, the latter account for only 30% of world food production.

The low productivity of tropical agriculture is due, in part, to the damage caused by insects and noxious plants (which is a particularly serious problem for small farmers lacking the basic means of control). For example, it is estimated that losses caused by insects and noxious plants account for more than 40% of potential cereal production in Africa and Asia. The many studies conducted on this subject have agreed on the significance of this problem and on the role which research should play in this area.

Priority research topics in this sector should relate to biological and integrated control measures, as well as to the criteria of resistance to diseases in connection with genetic improvement.

A.3. Post-harvest techniques

Post-harvest techniques are one of the sectors in which research would be of substantial benefit to developing countries. Increased production is not enough; the products must be stored under proper conditions and put to better use through processing.

Product conservation

Post-harvest losses are substantial where appropriate storage facilities are lacking, as is frequently the case in small rural farms. Under the most elementary conditions, losses may amount to 10-15%.

The priority research topics relating to the improvement of conservation facilities concern :

- drying techniques,
- storage techniques,
- products protection (mycotoxins, parasites...)

Processing of products

In the context of energy conservation measures, research should seek to improve processing techniques and yields and enhance the value of by-products and derivatives, particularly for animal feeds and for energy production from biomass.

In addition, research on the design of smaller processing units which could be used on small and medium-sized farms appears to warrant priority attention.

A.4. Training

For roughly ten years, the EEC countries have been experiencing increasing difficulty in meeting the demand for qualified scientists in the various sectors of agronomical research concerned with rural development in the Third World.*)

In varying degrees, the inadequacy of recruitment and of the numbers available affects bilateral projects undertaken by the Member States, their involvement in the international agronomical research centres, and their ability to meet the training requirements of the developing countries themselves.

If an effective scientific potential is to be maintained in Europe, assistance should mainly be given to national research workers in the Member States in the first instance, particularly in priority areas of research (genetics, crop protection, etc.); in the longer term, attempts to adapt training procedures to the requirements of the developing countries represent an equally significant objective, which should guarantee the continuity of active scientific collaboration between the Community and Third World countries.

B. Medicine, Health and Nutrition in the Tropics

This subprogramme has been divided into three sections covering :

- Medicine and Health,
- Nutrition,
- Training

In view of the research conducted at both bilateral and multilateral level, it was felt that priority in these three sectors should be given to activities for which adequate finance is not available under existing programmes.

*) It is in this context that the initiative of the Consultative Group on International Agricultural Research (CGIAR) which led to the creation of CIRA (International Course for Development Oriented Research in Agriculture) must be placed.

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B.1. Medicine and Health

Satisfactory results in the fight against transmissible tropical diseases can only be obtained by establishing a permanent balance between field studies in the countries concerned and sufficiently advanced laboratory work. At present, most of this work is conducted in the developed countries, among which the Community states play an important part.

In order to define priority lines of research in view of the great variety of potential activity in this sector, four main selection criteria have been adopted :

- The seriousness of a particular disease and its social and economic impact on the population of the countries concerned;
- Geographical range of the disease (global, continental, regional or local);
- Assessment of the scientific information obtained in respect of diseases and simultaneous assessment of the prophylactic methods currently available for their effective control;
- Funds available from other sources (WHO, etc..).

By combining these four criteria it was possible to establish two orders of priority which can be summarized as follows :

- First priority : fatal or serious illness, extremely widespread and, in certain cases, possibly recrudescent; it affects or threatens a large proportion of the population and its socio-economic impact is very considerable. Moreover, research so far conducted in this field has been unable to provide reliable prophylactic methods which could be employed on a wide scale.
- Second priority : Non-fatal illnesses having a significant socio-economic impact. Since they are less serious, some of these diseases have been neglected by researchers so that there are many gaps in the knowledge relating to them.

The following are the proposed research topics :

1. Transmissible diseases

- In parasitology*)

  . malaria,
  . human trypanosomiases, i.e. African and Amercian (Chagas' disease) varieties,
  . two forms of filariasis : onchocerciasis, Bancroftian filariasis,
  . schistosomiases,
  . leishmaniasis.

- In bacteriology

  . sexually transmitted diseases of cosmopolitan importance (particularly gonococcal diseases, non-specific urethritis),
  . infectious diarrhoea,
  . tuberculosis.

- In virology

  . haemorrhagic fevers**)
  . infectious hepatititis

The following points were taken into account in respect of each disease :

- First, research designed to fill the gaps in existing epidemiological knowledge (in respect of the pathogenic agent itself, any vector and the chain of transmission, symptoms and diagnostic methods, assessment of socio-economic consequences and prophylactic methods); these gaps vary in accordance with the different human and ecological environments and with the seasons;

- Secondly, research designed to develop prophylactic measures which can be employed at different parts of the chain, e.g. vector control, vaccination, therapy or integrated forms of treatment combining several methods;

- Thirdly, research towards the adaptation of prophylactic methods to the specific requirements of the developing countries : climate and ecology, economic and financial constraints, organizational level of health services and infrastructures, acceptability of vaccination programmes to the population, etc.

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*) All these diseases are covered by the WHO Special Programme for Research and Training in Tropical Diseases. 20% + of its budget is also devoted to strengthen the capacity of the affected countries to carry out their own research. There is however need to strengthen the capacity of Member States to contribute effectively to this global effort. While the Programme initially supported much work in Member States there is now strong pressure to spend in the Third World and Community institutions are being seriously affected.

**) There is a need for capability to put skilled teams in the field to deal with emergencies and need to be back by highly specialized laboratories for very dangerous pathogens.

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In order to implement this programme, account should be taken of the true potential offered by available information and experience. Among possible methodologies, with the exception of operational research, vector biology, chemotherapy and immunology appear to offer the best prospects of success at present in the fight against transmissible tropical diseases.

Success in this area will largely depend on the adoption of a multidisciplinary approach which assumes that a cooperative system will be established between institutions, each of which will contribute its own knowledge and experience to the programme.

It now seems appropriate to encourage the application of modern biological techniques such as genetics, genetic engineering, molecular biology and immunology to the problem of transmissible diseases together with study of the pharmacology and pharmacokinetics of the medicinal products used in tropical medicine.

2. Mother and child care

Research in the field of tropical child health with particular reference to the aetiology of gastroenteritis in infants and children.

A project in this area would require collaboration between a unit in a tropical country, and units with high expertise in microbiology, virology, and tropical child health in the Member States.

3. Genetics

In this field, studies should focus on :

- Genetic host factors which affect susceptibility to and clinical expression of communicable diseases. It has been shown in Egypt for example that certain HLA types are more susceptible to schistosomiasis mansoni infection (intestinal form of schistosomiasis);

- Genetics of parasites and vectors and work aiming to isolate specific mutants;

- New approaches (diagnostic and therapeutic) to the control of genetic disorders with high prevalence (e.g., sickle cell anaemia, thalassaemia).

Most projects in these areas will require collaboration among units capable of carrying out field work and units in the Member States having the necessary expertise in genetics and immunogenetics.

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4. Environmental hygiene

Very little expertise appropriate to the Third World in this field is available in the Member States. It could be made available by recruiting graduates from schools of engineering some of whose students could become motivated in low technology problems. A linkage with the social sciences and medical field is essential as is a career structure.

Environmental hygiene has far-reaching consequences on waterbone disease, malaria, schistosomiasis and the intestinal worm infections. Chemotherapy is a complementary practical and feasible approach.

B.2. Nutrition

The importance of dietary and nutritional factors in economic and human development has already been adequately established. In many regions, however, the activity of the inhabitants has survival as its sole objective, since the precariousness of the food resources does not allow of a more ambitious development project or of integration into the market economy. Elsewhere, on the other hand, the activity devoted to export crops competes with the food crops which would make for an improvement of supplies.

Two major effects of nutritional insufficiency, namely the low capacity for work and the physiological or mental sequelae of malnutrition at critical ages, likewise play a part in restricting initiatives and retarding participation in development projects. Furthermore, malnutrition reduces the natural capacity of resistance to transmissible diseases, and in the case of certain sensitive groups (women and children) nutritional insufficiency combined with certain socio-cultural behaviour forms and genetic factors gives rise to increased mortality or morbidity, the combination of malnutrition with diarrhoea is particularly lethal in small children.

For these reasons, the scientific approach to problems of nutrition with a view to defining the means of prevention or correction constitutes a general priority objective.

In the same way it is necessary to develop expertise in the formulation of effective food policies in Third World countries. This expertise is very scarce in Member States.

Research on the problems of nutrition in tropical environments characterized by deficiency is being conducted in at least five Member States. It is difficult to draw up the balance-sheet of this research since the subjects dealt with are highly diversified and the scientific links are relatively weak. In several countries the research activities are for the most part fragmented and are the responsibility of isolated university graduates or research workers. Action at Community level must therefore be directed primarily towards the strengthening of scientific contacts, the coordination of programmes and the adoption of common methodologies.

Two forms of deficiency, namely the overall protein-energy deficiencies and iron deficiency, have been classified as a first priority on account of their socio-economic impact and their very wide extension.

Two other forms, A avitaminosis and iodine deficiency, have been selected as a second priority.

In addition research on food toxicology (aflatoxins and cyanogens in cassava, bacterial contaminations) should also be carried out.

B.3. Training

At the meetings of experts the need to train young people in the Member States of the Community was emphasized in every field discussed. This covered improved opportunities for overseas experiences for Community scientists, training in basic biomedical research e.g., immunology, pharmacology, genetics, training of technicians, training in nutrition and environmental hygiene, and operational research.

The need for more epidemiologists was underlined. It was also emphasized that training of scientists and technicians from the developing countries was essential in order for them to achieve self-reliance.

The experts agreed that assistance towards better integration of Member State institutions was required. This would depend on working together such as in the planning of joint teaching courses or involvement in complementary research programmes. Opportunities should be provided for joint discussions of problem areas by small groups of Community experts.

The experts were unanimous that training would be futile unless a career structure was available to young men interested in the general field of tropical medicine research, health and nutrition. In this context, unless action is taken at Community level, and in the Member States, the pool of expertise in these fields will not be maintained.

Teaching courses in schools in the Community should, if possible, include experience in the field in an appropriate developing country.

IV. PROPOSED BUDGET

The appropriations estimated to execute the Community programme to support and strengthen the scientific activities of the Member States for Science and Technology for Development total 40 MioECU over four years.

The subprogrammes can be itemized as follows: (*)

A. TROPICAL AGRICULTURE — 30 MioECU

1. Improvement of agricultural production — 45%

   - Food and industrial crops
   - Protein products of animal origin
   - Forestry products

2. General areas of research and utilization of the environment — 20%

   - Water resources and use
   - Soil protection and regeneration
   - Crop protection

3. Post-harvest techniques — 35%

   - Product conservation
   - Processing of products

4. Training — -

B. MEDICINE, HEALTH AND NUTRITION IN THE TROPICS — 10 MioECU

1. Medicine and health — 80 %

   - Transmissible diseases
   - Mother and child care
   - Genetics
   - Environmental hygiene

2. Nutrition — 20 %

3. Training — -

(*) The division of credits among different sub-programmes, expressed in percentages, is given for information only. It will be drawn up by the Commission in consultation with the ACPMs, as will be the financial support for each sub-programme under the training heading.

PROVISIONAL TIMETABLE OF EXPENDITURE

APPROPRIATIONS FOR COMMITMENT — MioECU

	1982	1983	1984	1985	TOTAL
A. TROPICAL AGRICULTURE	9.0	11.0	6.0	4.0	30.0
- Improvement of agricultural production	4.0	5.0	2.7	1.8	13.5
- General areas of research and utilization of the environment	1.8	2.2	1.2	0.8	6.0
- Post-harvest techniques	3.2	3.8	2.1	1.4	10.5
- Training*)	-	-	-	-	-
B. MEDICINE, HEALTH AND NUTRITION IN THE TROPICS	3.0	4.0	2.0	1.0	10.0
- Medicine and health	2.4	3.2	1.6	0.8	8.0
- Nutrition	0.6	0.8	0.4	0.2	2.0
- Training*)	-	-	-	-	-
PROGRAMME TOTAL	12.0	15.0	8.0	5.0	40.0

*) Training will be financed from the funds of the actual research sectors.

V.

PROPOSAL FOR A COUNCIL DECISION ADOPTING A PROGRAMME OF RESEARCH AND DEVELOPMENT IN THE FIELD OF SCIENCE AND TECHNOLOGY FOR DEVELOPMENT

1982 - 1985

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 235 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parliament*),

Having regard to the opinion of the Economic and Social Committee,

Whereas, under Article 2 of the Treaty, the Community has in particular the task of promoting a harmonious development of economic activities and continuous and balanced expansion in the whole Community; whereas Article 3 of the Treaty provides that, for the purposes set out in Article 2, the activitie of the Community shall include inter alia increased trade and the joint promotion of economic and social development in the developing countries;

Whereas the resolution adopted by the Council at its meeting of 18 November 1980 "underlines the importance of the development of research capacities orientated particularly towards food agriculture of the developing countries and of the complementarity between the activities of the research centres established in the Community and the efforts undertaken in this domain by the developing countries";

Whereas there is an awareness among the developing countries of the role of science and technology in the process of economic and social development; whereas this awareness dominated the UNCSTD II discussions and profoundly influenced the final consensus, known as the Vienna Programme adopted by the General Assembly of the United Nations;

Whereas one of the major objectives of the Vienna Programme consists in significantly increasing the research effort of the industrialized countries to find a solution to the scientific problems of priority concern to the developing countries;

Whereas, therefore, the research and development measures covered by this Decision relate to particularly grave and urgent problems, viz. food and health, which are bound up with the most fundamental needs of the developing countries;

Whereas the scientific institutions in the Member States require increased support in order to strengthen their scientific and technical cooperation potential and in order to enable them to respond more effectively to the type of new demands being made in a bilateral or Community framework;

*) OJ n°....

Whereas it is necessary to establish greater cooperation among scientists in the various Member States with a view to facilitating the complementarity of research and methodologies and ensuring easier access to the different networks of scientific relationships established by the Member States with their Third World partners;

Whereas it is important to facilitate the introduction of the scientific and technical dimension in the development projects supported by the Community;

Whereas the Treaty does not provide the powers necessary to this end;

Whereas the Council adopted on 14 January 1974 a Resolution on an initial outline programme of the European Communities in the field of science and technology[1];

Whereas, in view of the object and the specificity of this programme, which is carried out in the interest of the developing countries, it is consequently advisable to lay down special rules for the dissemination of the results of the programme;

Considering the opinion expressed by the Scientific and Technical Research Committee (CREST);

HAS DECIDED AS FOLLOWS :

Article 1

A programme of research and development to support and reinforce the scientific activities of the Member States in the field of science and technology for development, as set out in the Annex hereto, is hereby adopted for a period of four years commencing 1 January 1982.

Article 2

The financial requirement for the duration of the programme is estimated at 40 MioECU and the staff requirement at 9 officials. The ECU is defined in accordance with the financial regulations in force.

These figures are for information purposes only.

The internal breakdown of funds is given for information purposes at points 1) and 2) of the Annex hereto.

1) OJ nº C 7 of 29.01.1974, p. 6

Article 3

The Commission shall be responsible for the execution of the programme. Two Advisory Committees on Programme Management shall be set up, one for the sub-programme "Tropical Agriculture" and the other for the sub-programme "Medicine, Health and Nutrition in the Tropics". The tasks and the composition of the Committees are defined in the Council Resolution of 18 July 1977 on Advisory Committees on Programme Management[1]. Representatives of the Standing Committee on Agricultural Research (SCAR)[2], of the Committee on Medical Research and Public Health (CRM)[3] and of the Technical Centre for Agricultural and Rural Cooperation (CTA)[4] will participate in the work of these ACPM's.

Article 4

During the third year of the programme, the Commission shall evaluate it and if necessary propose appropriate modifications.

Article 5

The dissemination of information applicable to the present research programme shall be subject to the following conditions:

1. The information and inventions, whether or not patentable, resulting from the execution of this research programme, shall belong to the Community, on whose behalf the Commission shall ensure their protection.

2. Rules governing ownership, the obligations of the Community, and, should the need arise, of the contractor, with regard to inventions, whether or not patentable, resulting from research or work done under contract, shall be defined case by case in the contracts.

3. The Commission shall communicate the information and inventions which it has the right to transmit to the Member States as well as to persons and undertakings which pursue, on the territory of a Member State or in a developing country, a research or a production activity justifying access to such information. The Commission may also communicate this information to the developing countries, particularly those with which the Community has concluded association or cooperation agreements, and to the non-associated developing countries which benefit from financial and technical aid from the Community; it may also make communication of this information subject to conditions which it shall lay down.

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1) OJ n° C 192 of 11.08.1977, p.1
2) SCAR - created by Council Regulation no. 1728/74 of 27 June 1974 - OJ No. L 182 of 5 July 1974
3) CRM - sub-committee created by the CREST on the basis of article 5 of the Council Resolution of 14 January 1974 - OJ No. C 7 of 29 Janauary 1974
4) CTA - being created in the framework of the Lomé II Convention

ANNEX

INDIRECT ACTION

Programme of research and development in the field of science and technology for development

The programme incorporates the following subprogrammes :

1. TROPICAL AGRICULTURE

Commitments for an expenditure of 30 million Ecu are envisaged for this sub-programme.

Sector A. Improvement of agricultural production

- Food and industrial crops
- Protein products of animal origin
- Forestry products

Sector B. General areas of research and utilization of the environment

- Water resources and use
- Soil protection , stabilisation and regeneration
- Crop protection

Sector C. Post-harvest techniques

- Product conservation
- Processing of products

Sector D. Training

2. MEDICINE, HEALTH AND NUTRITION IN THE TROPICS

Commitments for an expenditure of 10 million Ecu are envisaged for this sub-programme.

Sector A. Medicine and Health

- Transmissible diseases
- Mother and child care
- Genetics
- Environmental hygiene

Sector B. Nutrition

Sector C. Training

FINANCIAL RECORD

1. RELEVANT BUDGET HEADING

CHAPTER ITEM FINANCIAL PLAN CODE

2. TITLE OF THE BUDGET HEADING

ITEM : Science and technology for development

FINANCIAL PLAN CODE : - Tropical agriculture

3. LEGAL BASIS

Programme proposal approved by the Commission on

4. DESCRIPTION, OBJECTIVE AND JUSTIFICATION OF THE PROJECT

4.1. Description

The programme topics are as follows :

- improvement of agricultural production
- general areas of research and utilization of the environment
- post-harvest techniques
- training.

4.2. Objective

Coordination and participation in the research which is conducted on the basis of contracts between the Commission and the Member State bodies specializing in tropical research.

4.3. Justification

For many countries in the Third World increased agricultural production and product preservation represent the first step towards ensuring the initiation of the necessary economic and social development to guarantee the provision of suitable food for their citizens.

In accordance with the decisionstaken by the Member States, the Commission's task is to encourage, coordinate and harmonize activities in this area so as to give a significant boost to the research efforts of the industrialized countries to find a solution to the scientific problems of priority concern to the developing countries.

5. FINANCIAL IMPLICATIONS IN RESPECT OF INTERVENTION APPROPRIATIONS (including expenditure on staff and administrative and technical expenditure).

5.1. Total cost for the expected duration — 30.0 MioECU

5.2. Proportion financed from :

- the Community budget — 30.0 MioECU
- national budgets —
- other sectors at national level —

5.3. Multiannual timetable

5.3.1. Appropriations for commitment

ECU

Type of Expenditure	1982	1983	1984	1985	-	TOTAL
Staff	271,000	293,000	317,000	342,000	-	1,223,000
Administration	61,000	66,000	72,000	78,000	-	277,000
Contracts	8,668,000	10,641,000	5,611,000	3,580,000	-	28,500,000
Total	9,000,000	11,000,000	6,000,000	4,000,000	-	30,000,000

5.3.2. Appropriations for payment

Type of expenditure	1982	1983	1984	1985	1986	1987	TOTAL
Staff	271,000	293,000	317,000	342,000	-	-	1,223,000
Administration	61,000	66,000	72,000	78,000	-	-	277,000
Contracts	2,168,000	5,000,000	7,000,000	6,900,000	4,800,000	2,632,000	28,500,000
Total	2,500,000	5,359,000	7,389,000	7,320,000	4,800,000	2,632,000	30,000,000

5.4. Method of calculation

5.4.1. Staff expenditure

Requirements have been calculated on the basis of a staff complement of five persons, i.e.

2 category A officials
1 category B official
2 category C officials

Apart from the actual staff complement, the calculations also take account of the rates of salary increases of Commission staff used to estimate the appropriations entered in the 1982 budget; the estimated overall increases for subsequent years are based on the rate of change in the general Community price index used in drawing up the triennial estimates, i.e., 8% per annum.

5.4.2. Administrative and/or technical expenditure

This expenditure specifically covers the cost of missions and the organization of meetings, seminars and receptions. It has been estimated on the basis of average requirements.

5.4.3. Expenditure on contracts

This expenditure covers the financial participation of the Community in research carried out under shared-cost contracts (studies, research, etc.) to be concluded with undertakings and specialized laboratories in the Member States. Since the specific nature of the various topics and the qualifications of the contracting parties are likely to vary, it has not been possible to devise a uniform method of calculation. Consequently, the estimate of requirements is a hypothetical one based on the number of contracts to be negotiated and on average financial participation by the Community approximating to 50 % of total costs. At all events, the Advisory Committee on Programme Management will be consulted over the allocation of the appropriations and CREST will be informed accordingly.

6. FINANCIAL IMPLICATIONS IN RESPECT OF APPROPRIATIONS FOR STAFF AND CURRENT ADMINISTRATIVE EXPENDITURE :

(see point 5 above)

7. FINANCING OF EXPENDITURE

Appropriations to be entered under future budgets

8. IMPLICATIONS IN RESPECT OF REVENUE

- Community taxes on officials' salaries
- Officials' contribution to the pension scheme.

9. TYPE OF MONITORING TO BE APPLIED

- Administrative checks by the DG for Financial Control with regard to the implementation of the budget and to ensure that the expenditure has been incurred in a regular and proper manner plus checks carried out by the Contracts Service of DG XII.

- Scientific checks : Competent officials from DG XII
  ACPM

FINANCIAL RECORD

1. RELEVANT BUDGET HEADING

CHAPTER ITEM FINANCIAL PLAN CODE

2. TITLE OF THE BUDGET HEADING

ITEM : Science and technology for development

FINANCIAL PLAN CODE: - Medicine, health and nutrition in the tropics

3. LEGAL BASIS

Programme proposal approved by the Commission on

4. DESCRIPTION, OBJECTIVE AND JUSTIFICATION OF THE PROJECT

4.1. Description

The programme topics are as follows :

- Medicine and health
- Nutrition
- Training

4.2. Objective

Coordination and participation in the research which is conducted on the basis of contracts between the Commission and the Member State bodies specializing in tropical medicine, health and nutrition.

4.3. Justification

The research work carried out to date in the struggle against transmissible tropical diseases affecting the populations of vast geographical areas have failed to produce a sure universal remedy.
An additional effort is necessary in view of the problems of genetic factors affecting predisposition to disease, mother and child care, and environmental hygiene. Lastly, the nutrition and health aspects deserve special attention with a view to defining the protein-energy deficiences and mineral deficiences which cause physilogical or mental after-effects at the various stages of development of the child and adult.

5. FINANCIAL IMPLICATIONS IN RESPECT OF INTERVENTION APPROPRIATIONS (including expenditure on staff and administrative and technical expenditure)

5.1. Total cost for the expected duration 10.0 MioECU

5.2. Proportion financed from :

- the Community budget 10.0 MioECU
- national budgets -
- other sectors at national level -

5.3. Multiannual timetable

5.3.1. Appropriations for commitment

ECU

Type of Expenditure	1982	1983	1984	1985	-	TOTAL
Staff	217,000	235,000	254,000	274,000	-	980,000
Administration	49,000	53,000	57,000	61,000	-	220,000
Contracts	2,734,000	3,712,000	1,689,000	665,000	-	8,800,000
Total	3,000,000	4,000,000	2,000,000	1,000,000	-	10,000,000

5.3.1. Appropriations for payment

Type of expen-diture	1982	1983	1984	1985	1986	1987	TOTAL
Staff	217,000	235,000	254,000	274,000	-	-	980,000
Admini-stration	49,000	53,000	57,000	61,000	-	-	220,000
Contracts	684,000	1,750,000	2,349,000	2,060,000	1,218,000	739,000	8,800,000
Total	950,000	2,038,000	2,660,000	2,395,000	1,218,000	739,000	10,000,000

5.4. Method of calculation

5.4.1. Staff expenditure

Requirements have been calculated on the basis of a staff complement of four persons, i.e.

2 category A staff
1 category B staff
1 category C staff.

Apart from the actual staff complement, the calculations also take account of the rates of salary increases of Commission staff used to estimate the appropriations entered in the 1982 budget; the estimated overall increases for subsequent years are based on the rate of change in the general Community price index used in drawing up the triennial estimates, i.e., 8% per annum.

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