



**Governing Council
of the
United Nations
Development Programme**

Distr.
GENERAL

DP/PROJECTS/REC/39
22 March 1990

ORIGINAL: ENGLISH

Thirty-seventh session
28 May-22 June 1990, Geneva
Item 5 (b) (iv) of the
provisional agenda

PROGRAMME PLANNING

COUNTRY, INTERCOUNTRY AND GLOBAL PROGRAMMES

Assistance for a global project

Fertilizer Strategies for Sustainable Agriculture and Environmental
Protection - The International Fertilizer Development Centre (IFDC)
(GLO/90/005)

Recommendation of the Administrator

Estimated UNDP contribution: \$5,700,000

Duration: Five years

Executing agency: UNDP in association with World Bank and FAO

I. BACKGROUND

1. The use of fertilizer has increased total food production by approximately 30 per cent in developing countries. Its increased use in the future is perhaps the most important means through which developing countries can increase crop production and work towards food self-sufficiency. Improving the efficiency of fertilizer utilization and attacking the constraints that prevent its use go hand in hand with the availability and use of complementary inputs such as water, pesticides, and quality seeds. Fertilizer use is often accompanied by an improvement in cultivation practices, tools, etc., and therefore can be the spearhead of agricultural development. Thus, it has the potential of improving the food supplies and income of the smaller farmers. The training of personnel from

developing countries as well as developed countries is important in identifying fertilizer problems, in transferring technology and in overcoming constraints in production, supply, distribution, marketing and use.

2. The International Fertilizer Development Centre (IFDC) was established in October 1974 on the initiative of the United States Agency for International Development (USAID) and the International Development Research Centre (IDRC) of Canada. By July 1975, IFDC was a functional, private, non-profit organization with headquarters in Muscle Shoals, Alabama. IFDC's buildings constructed with funds from USAID consist of offices, laboratories, a modern training centre, two greenhouses, and space for pilot plants. USAID also furnished grant funds for specialized capital equipment and five pilot plants. IFDC now has the capability for research, development and training in all aspects of fertilizers. In 1977, the United States Government accorded IFDC all of the privileges and immunities granted to international organizations. The Board of Directors of IFDC, which has 13 members at present, includes people from both developing and developed countries, and its members are outstanding in world development efforts, agriculture and fertilizers.

3. Since its inception IFDC has served the fertilizer needs of more than 80 countries around the world and helped to develop the human resources of more than 100 countries by training over 3,500 people in fertilizer production, marketing and use. Through its work, the Centre has helped countries like India, Colombia, Mali, Burkina Faso, Togo, the Niger, Uganda and Zimbabwe find ways to develop their mineral resources to manufacture fertilizers needed to produce more food. Sometimes these resources can be used naturally as they come from the earth while, in other cases, they may need to be improved to make them more effective.

4. IFDC's activities can be divided into three broad categories: (a) collecting and disseminating information on agrominerals; (b) conducting research and development in all phases of fertilizer production, marketing and use; and (c) providing training, advisory services and technical assistance in the planning, organization and implementation of fertilizer production, marketing and use practices. Support from the United Nations Development Programme (UNDP) and other donors has enabled IFDC to become a world-recognized centre on fertilizers with specialists to provide knowledge on various aspects of the fertilizer sector to developing countries. Generation of information is the prime output of IFDC. This information takes many forms: technical bulletins, workshop proceedings, journal publications, training materials and visual aids, special project study reports, and reports to donors. One successful component of information transfer is training provided by IFDC through support from UNDP. From 1979 to 1989 a total of 3,816 participants were trained in all aspects of fertilizer production, marketing and use. Beginning in 1982, there has been a significant increase in the number of women participating in these programmes. UNDP has helped to support agronomic research on nitrogen fertilizer effectiveness in the semi-arid tropics. This has led to a much better understanding of the fate of nitrogen and management conditions under the soil and cropping conditions of the semi-arid tropics area. This work was in collaboration with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).

5. Assistance from UNDP and other donors has enabled IFDC to achieve:

(a) Development of the urea supergranule, which can increase rice production from 30 to 50 per cent above production levels attained with nitrogen fertilizer applied in the conventional manner;

(b) Improvement in the efficiency of nitrogen fertilizers used on upland and lowland crops (rice, sorghum, maize, millet, wheat);

(c) Investigations on means of increasing the potential value of multi-nutrient fertilizers through improvement of their physical and chemical characteristics;

(d) A study indicating means of conserving energy in fertilizer production, distribution and use;

(e) Preparatory work for the African Fertilizer Centre based in Togo.

6. IFDC has been developing strategies for improving the efficiency of fertilizer use so as to minimize the potential harmful effects that high levels of fertilizer use may have on the environment. This is of special relevance to many developing countries because of the anticipated increases in fertilizer prices in the 1990s and the drain that this might cause on the limited foreign exchange resources of these countries. These issues are addressed in the project proposal now submitted by IFDC to UNDP.

7. The project now proposed would take advantage of past achievements but would focus on issues that are emerging as a result of major changes in the fertilizer sector. This new project addresses sustainable agriculture and the role that fertilizers can play in helping to feed a growing population, while at the same time protecting and improving the environment. Both farmers and consumers will benefit from increased food production, and society in general will benefit from a safer environment.

II. THE PROJECT

8. The objectives of the project are to:

(a) Enhance the skills of scientists and policy makers so they are more qualified to make decisions in their respective countries in regard to strategy for producing and using fertilizer for sustainable agriculture on an environmentally sound basis;

(b) Conduct research to develop and evaluate fertilizer use strategies (products and practices) in terms of this potential impact on sustainable crop production and the benefits and costs that such technologies will have for farmers, consumers and the environment;

(c) Generate data through research on potentially hazardous elements in fertilizer raw materials, products and by-products.

9. The project can be viewed as having two major components: (a) human resources development and industrial assessment, and (b) research related to sustainability and environmental issues. Through a series of training workshops, the role of the fertilizer industry in relation to the environment will be assessed. Experiences among developed and developing countries will be shared. Specialized training programmes relating the fertilizer sector to the environment will be provided to representatives from developing countries. Using a network system, the research component will focus on development and evaluation of fertilizer products and management practices as to their impact on sustainable crop production, including benefits and costs for farmers, consumers and the environment. Using data generated, IFDC-developed crop models will be validated and refined. Computer-generated maps will indicate the regions where the technologies have greater potential for adoption and use. IFDC scientists will determine the types and amounts of potentially hazardous elements in fertilizer raw materials and products. The information will be made available to developing countries in workshop proceedings, journal publications, training materials, and other forms as appropriate.

10. In summary, the methodology for implementation of the project consists of the convening of training workshops and group training programmes for participants from developing countries at IFDC headquarters or overseas; one training workshop and up to nine training programmes will be held each year. Special effort will be made to provide professional development opportunities for women in these activities. Fertilizer products and management methods will be field tested, and data will be compiled in relation to use efficiency and environmental impact. Using IFDC-developed models, the regions where the technology is indicated to be appropriate will be delineated. Samples of phosphate fertilizer raw materials and products will be analysed to determine the level of potential harmful elements; the data will be placed in a data base. A publication on the environmental impact of fertilizer production, handling and use will be developed.

11. Close collaboration with national institutions will be a key to implementing this project. Joint programmes will be established with the public and private sectors in Brazil, Colombia, Egypt, India, Indonesia and the United Republic of Tanzania. The activities in these countries will be stipulated in a memorandum of understanding between IFDC and national institutions concerned. The project will also collaborate with agencies of the United Nations system such as the Food and Agriculture Organization of the United Nations (FAO), the United Nations Industrial Development Organization (UNIDO) and the United Nations Environment Programme (UNEP). These organizations as well as UNDP and the World Bank will become part of a steering committee to advise IFDC on research, human resources development and related activities of the project.

12. The project will complement several programmes that IFDC is conducting in the developing regions of the world through the inclusion of a "sustainability and environment" perspective. For example, in Africa the project will complement the objectives and activities of other projects such as:

(a) The West Africa Fertilizer Management and Efficiency Network (WAFMEN) involving collaborative research in 14 countries;

(b) The Soil Fertility Restoration Project (SFRP) involving farm and village-level research in Ghana, the Niger and Togo;

(c) A fertilizer evaluation and adoption project in Mali and Nigeria;

(d) Fertilizer policy and marketing research currently conducted in several countries of East and West Africa;

(e) Agromineral resource documentation and evaluation in east/south-east Africa and west Africa done through a network of collaborators in these regions. These projects are funded by UNDP, USAID, IDRC and the Governments of the Netherlands, France and the Federal Republic of Germany.

13. The project will also complement:

(a) IFDC's basic and adaptive research that is being conducted to enhance fertilizer use efficiency and the utilization of indigenous resources for fertilizer use in developing countries;

(b) IFDC's collaborative research with international centres such as the International Rice Research Institute (IRRI), the International Centre for Tropical Agriculture (CIAT) and ICRISAT.

14. The research and training programmes described above, for which full descriptions and detailed requirements will be made available to UNDP on project approval, will be implemented by IFDC in collaboration with appropriate organizations in the developing countries (e.g., national and international centres of agricultural research). Special conferences, seminars and workshops will be arranged as needs arise. Participants in those events as well as training courses will be carefully selected by IFDC in consultation with the national and international agencies.

15. The project will be an integral part of the international and regional programmes of IFDC, supported by various donors. The Centre has in place the facilities for execution of the project. IFDC has established the necessary contacts within the national and international community to allow it to complement the project. The project fits into the overall mandate of IFDC, namely, to transfer fertilizer-related information and technology to developing countries for agricultural development.

16. The Administrator intends, through contractual arrangements between IFDC and UNDP, to entrust the implementation of this project to IFDC, with the clear understanding that the Director-General of IFDC will seek the advice of FAO, UNIDO, UNEP and the World Bank. As in the past, UNDP will follow closely all the developments in this global project and, together with FAO, UNIDO, UNEP and the World Bank, will participate in the project advisory committee which will be established for the project. A concerted effort will be made to link the training and research activities with field-work being undertaken at the country and intercountry levels. Close collaboration will be maintained at all times with the international agricultural research centres participating in the project. The

committee, which will include representatives of selected national agricultural research centres, will normally meet once a year to appraise the ongoing training and research programmes and advise on their future direction. In order to assess the impact of the project activities, two evaluations will be undertaken, one midway in the course of the project and one at the end. These assessments will be carried out by teams of 2 to 3 independent consultants appointed by UNDP. The findings and recommendations of the mid-project evaluation might necessitate the reorientation or modification of project goals, budget and work-plans for the remainder of the project.

17. The proposed UNDP contribution is \$5,700,000 of which \$5,500,000 will be for sub-contracts, while direct costs will account for the remaining \$200,000. Direct costs will be used for participation of United Nations agencies in the project, mid-project and end-of-project evaluations and UNDP project monitoring. The expenditures under the project through 1991 will be contained within the indicative planning figure (IPF) for global projects established by the Governing Council for the fourth cycle. The expenditures covering the remaining period of the project will be subject to approval of the fifth cycle IPF commencing 1 January 1992.

III. RECOMMENDATION OF THE ADMINISTRATOR

18. The Administrator recommends that the Governing Council approve this project.
