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Regional Consultation on the
Phosphatic Fertilizers and
Pesticides Industries in Africa

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12-16 December 1988

Issue Paper III

CURRENT SITUATION OF AND PROSPECTS FOR
THE PESTICIDES INDUSTRY IN DEVELOPING COUNTRIES,
WITH SPECIAL EMPHASIS ON AFRICA*

1/63

*This document has not been formally edited.

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1. Background

The Fourth Consultation on the Fertilizer Industry held at New Delhi, India, in January 1984 has, inter alia, recommended that in recognition of the importance of pesticide industry to developing countries, the issue of pesticides should be referred to the Industrial Development Board. It also recommended that the issue of pesticides should be discussed in a future consultation meeting.

The Industrial Development Board, at its second session in October 1986, decided to include the Regional Consultation on the Phosphatic Fertilizers and Pesticides Industries in Africa in the programme of Consultation meetings for the biennium 1988-1989.

To gain a better understanding of the sector, particularly with respect to (a) pest and pesticides management practices; (b) production, handling, storage and application of pesticides; (c) selection of pesticides materials and formulation; and (d) procurement of pesticides, UNIDO has undertaken a number of in-depth studies on the subject for the consideration of the Regional Consultation, highlighting in particular the following:

- (a) The role of pesticides and related plant protection agents in agriculture;
- (b) Main factors influencing pesticides consumption;
- (c) Constraints limiting the development of the pesticides sector in developing countries;
- (d) Formulation and application technologies;
- (e) Current supply-demand situation and prospects for the global industry;
- (f) Possibilities for increasing the role and share of the developing countries in the pesticides industry;
- (g) Safety, health and environmental protection;
- (h) Strategies for the development of the industry.

2. The documents

2.1 Global outlook for pesticides

Objectives

The immediate objectives of this study are as follows:

- (a) To review and assess the available statistical sources on the pesticide industry;
- (b) To provide basic information on the demand and supply of pesticide fine chemicals at regional and global levels;
- (c) To develop methods for studies of alternative futures for the pesticide industry in developing countries and, more specifically, to generate different global scenarios for the development of pesticide demand in 14 geographic regions by the years 1990 and 2000;

(d) To describe the main criteria for the establishment of a domestic-market oriented pesticide industry;

(e) To identify major issues affecting the growth of the industry at national, regional and global levels.

The long-term objectives are as follows:

(a) To promote the establishment and expansion of the domestic production of pesticides both in the public and private sectors of the economy in developing countries;

(b) To foster international co-operation for the implementation of sectoral industrialization strategies.

Market

Although natural and man-made products were used in agricultural production even in pre-historical times, the general and systematic use of products to fight weeds, insects, fungi and other pests, in order to protect both the quality and quantity of the crops, started only in our century. Indeed, the pesticide industry began to take shape only during and after the Second World War. Since then, pesticides have become an indispensable factor in agriculture and an important subsector of the chemical industry.

The study reviews the development of the pesticide markets in the last ten years and is based by necessity on incomplete and not always fully reliable statistics. The global picture shows that after explosive growth, the last ten years were marked by a slow-down in growth. The total active-ingredient market rose only modestly, from 2 million tonnes in 1975 to 2.4 million tonnes in 1985. The main reason for this slow development was the general agricultural situation, over-production in industrialized countries and a lack of purchasing power in the developing countries. Some other important factors, e.g. environmental protection, safety and health considerations, contributed to this trend but only to a minor degree.

Demand

The demand situation on a regional basis reveals the dominant role of the industrialized countries. Seventy per cent of all pesticides was by these countries in 1975; in 1985, the proportion rose to 75 per cent. In terms of specific pesticide consumption (kg/ha agricultural land), all industrialized regions fall in the categories of high (over 4 kg/ha) or medium (3-4 kg/ha) demand, while all developing regions fall in the category of low (around 1 kg/ha) demand, except for North Africa, which falls in the category of medium demand.

Herbicides represent the largest segment of total pesticides consumption, but the share of the developing countries remains very low (9 per cent in 1975, 8 per cent in 1985), mainly because it is cheaper to substitute man-power for herbicide use. Insecticides are the most important segment for the developing countries: roughly 50 per cent of their total consumption comes from this group and their share of the global insecticide market is also around 50 per cent. Fungicides are the biggest group in quantity, but with a slow growth rate; developing countries consumed around one fifth of the global demand.

Trade

Roughly half of the pesticide products are destined for interregional markets. Exports originate nearly exclusively in the industrialized countries, with imports into the developing countries accounting for only one third of the global total (and that proportion is declining). This reflects both the economic difficulties of the developing countries and the high degree of specialization of this industrial sector.

Production

Production continues to be concentrated in the industrialized countries, but the share of the developing world is growing, from 10 per cent in 1975 to 20 per cent in 1985.

Scenarios

An econometric model developed by UNIDO related pesticide use to the general level of agriculture, as characterized by the number of tractors, fertilizer consumption and the extent of the agricultural area. Two scenarios were elaborated for 1990 and 2000, based on the Food and Agriculture Organization of the United Nations study Agriculture Towards 2000. 1/ Scenario A forecasts a 25 per cent growth in consumption (3 million tonnes) by 1990 and a further 25 per cent by 2000 (4 million tonnes), with a substantial shift towards the developing countries, raising their share from 25 per cent to 35 per cent. Scenario B foresees slower growth, to 2.75 million tonnes in 1990 and 3.35 million tonnes in 2000.

Environment, health, safety, research and development

In view of the serious concerns expressed world-wide about the negative environmental impact of agro-chemicals and the hazards presented by their production, distribution, handling and application and in view also of the publicity being given to the so-called biotechnical methods, the study prepared by UNIDO investigated these phenomena and their possible effects on the future of this industry. The results of this investigation came to the following conclusions:

(a) The current state of technical and scientific knowledge can provide the necessary tools for safe production, storage, transport, handling and application;

(b) Concerted efforts will be needed to turn this possibility into reality, and international organizations have a crucial role to play in this context;

(c) The scientific and technical potential of alternative agricultural methods will not permit the substitution of pest control by other means at a significant level before the first decades of the next millenium;

(d) Research activity is at present directed at developing safer, more efficient, and environment friendly compounds, both in production and application. Even most biological methods, tend to enhance the role of the pesticides (attractants, repellants, herbicide-resistance etc.), so the outlook for the pesticide sector is in general favourable.

1/ Rome, 1979.

Industrial strategies for developing countries

From the standpoint of technical feasibility and at raw materials and intermediates there is room for industrial production of pesticides in the developing countries, particularly of products and processes of a generic nature. A classification of developing countries into several groups according to level of development allows the elaboration of appropriate industrial strategies for each group.

2.2 Cost effectiveness of pesticides production and application in developing countries

Analysis of present and future trends in world agricultural production, especially in the developing countries, the impact of the various inputs (mechanisation, fertilizers, seed, pesticides and others) on the productivity, and the cost-effectiveness of the different pesticides on different crops, taking into account direct and indirect costs of application, demonstrates beyond any doubt the economic advantages of the pesticide application. Furthermore, the higher the agricultural level, the greater the advantage, to the point where pesticide use is of such vital importance that without it no economic result is possible.

Analysis of the economics of the different production steps in the developing world - packaging, formulation, manufacture of active ingredients - indicates that every step shows profitability if the necessary conditions are provided and if the activity is organized in the right manner.

3. The issue

The two studies demonstrate that pesticide use in the agriculture of developing countries is vital for the solution of the food problem and is well-justified on an economic basis. However, it remains limited by the lack of purchasing power and know-how and the generally low level of agriculture.

Pesticide use can be rationally promoted by the stepwise development of local production facilities from packaging to active ingredient manufacturing. First, however, the necessary preconditions for this purpose must be created.

Co-operation among developing countries and between industrialized and developing countries is essential for the success of this process.

The information system for pesticides is in its infancy. International organizations should aim to establish a reliable and complete information system.

Participants at the Consultation are thus invited:

(a) To examine the possibility of developing a pesticide data base similar to that worked out jointly by the FAO-World Bank-UNIDO working group for fertilizers;

(b) To examine the pesticide market situation and advise on further steps to be taken by all parties concerned to develop the use by and manufacture of pesticides in the developing countries;

(c) To examine the causes of the low utilisation rate of the existing pesticide formulation plants in the developing countries and to propose adequate measures;

(d) To discuss the advisability of training programmes for pesticide utilization for interested parties in the developing countries;

(e) To discuss the possibility of an internationally accepted registration system for pesticides;

(f) To identify areas where international organizations could develop programmes to promote the production and efficient use of pesticides in developing countries.