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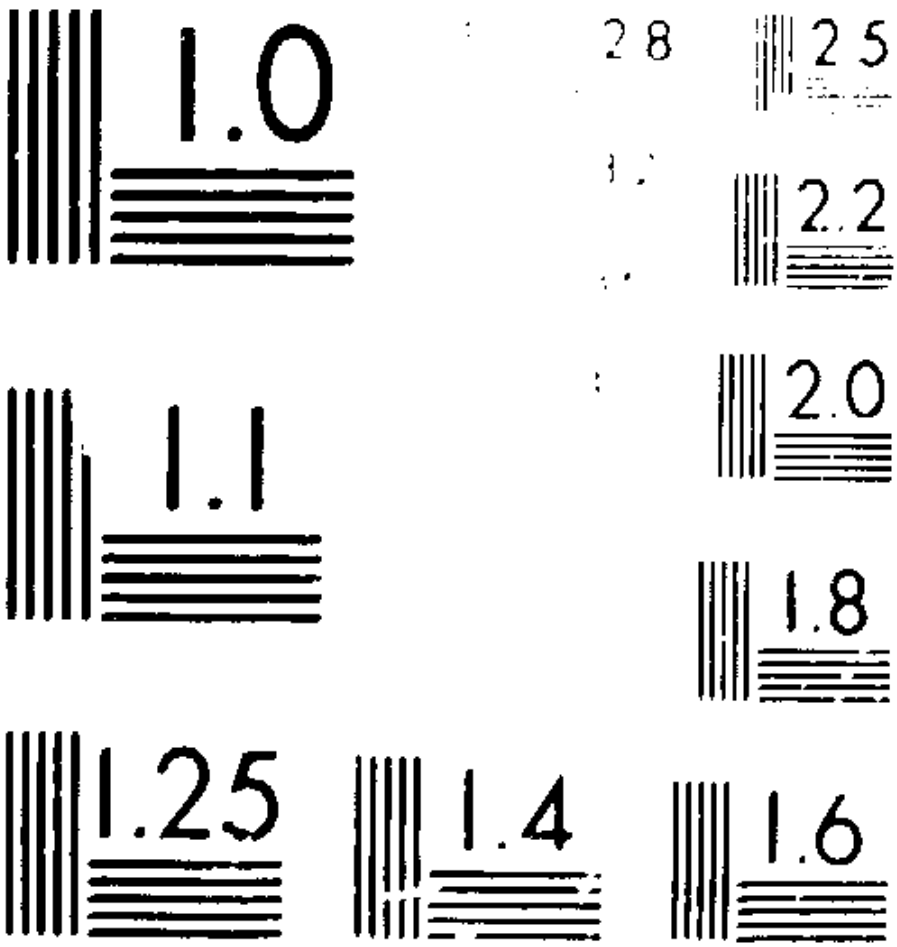
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INTEGRATION IN THE FOOD-PROCESSING INDUSTRY AND THE ROLE OF CO-OPERATIVES IN ITS PROMOTION THROUGH INTERNATIONAL COLLABORATION *

by

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I. INTRODUCTION

1. Since its inception in 1967, UNIDO has been concerned with the application of the integrated approach to the food-processing industry in developing countries.[1-5/] The reason for this concern was the many failures which met attempts to establish the industry in most developing countries due to obvious shortcomings in planning and execution.

2. One of the major shortcomings has been the dependence of the processing plant on the fresh produce market for its main raw material supplies. There was no consideration given to the fact that a viable industry cannot depend on unplanned surplus agricultural production. Consequently, processing plants had no control whatsoever over prices, quantities or suitability of the available raw material.

3. Another major shortcoming has been the establishment of processing plants without the proper identification of the markets to be served. More often than not, there has been need to find markets for the merchandise produced instead of manufacturing goods to meet existing needs.

4. Still another serious shortcoming has been the inability to supply the processing plant with its ancillary requirements such as packaging materials, spare parts, food adjuncts, etc.

5. Vertical integration of production, processing and marketing was, therefore, thought of as a first step towards the proper establishment of a food-processing industry.

1/ Integrated Food Processing in Yugoslavia. Report of Seminar and digest of technical papers. Novi Sad, Yugoslavia, 4-28 November 1968. ID/48, UNITED NATIONS, New York, 1970.

2/ Industrial Development Survey. Special issue for the Second General Conference of UNIDO. ID/CONF.3/2, UNITED NATIONS, New York, 1974.

3/ The Inter-relationship between Industry and Agriculture in the Process of Development. Second General Conference of UNIDO. ID/CONF.3/15, 14 January 1975.

4/ The Lima Declaration and Plan of Action. Report of the Second General Conference of the United Nations Industrial Development Organization. ID/CONF.3/31, 9 May 1975.

5/ AREF, M.M. The Role of Agro-Industries in the Industrialization of Developing Countries. UNIDO/IOD.1, 29 March 1976.

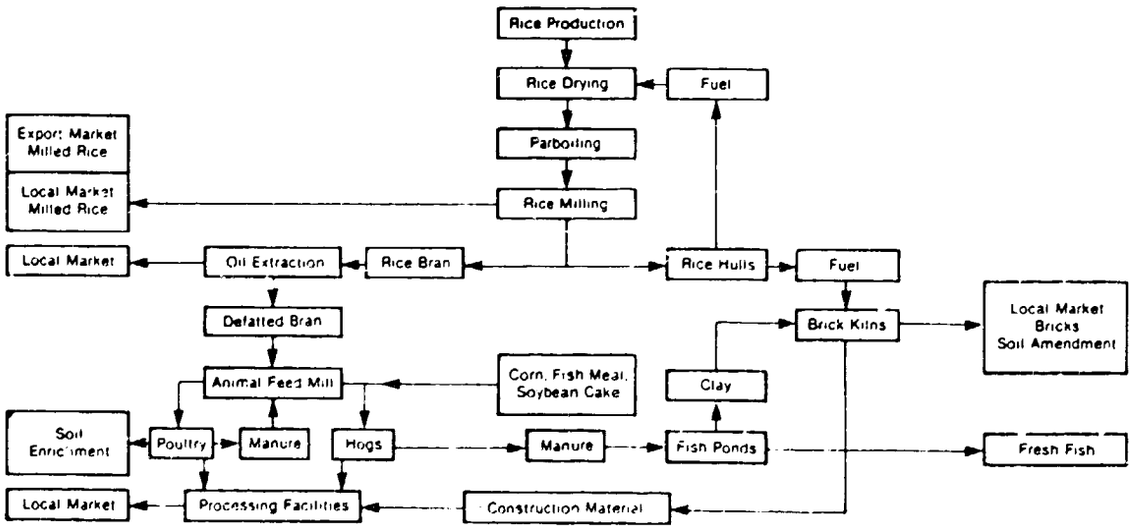
6. By vertical integration, it is usually meant that the means of raw material production, its processing facilities and the marketing of the processed products would be managed, or even owned, by a central authority whose acquired knowledge of the target market would pin-point the products to be produced, both qualitatively and quantitatively, and thus determine the processing needs as well as the land areas to be put under cultivation for specific crops taking into consideration the timing of planting and harvest and the quality and variety of the crop or produce.

It was also envisaged that vertical integration would allow optimum utilization of the crops or produce at hand so that the waste material from one process could be used, for example, as an input into another to end with useful products such as animal feed, biogas or compost.

In addition, it was thought that vertical integration would result in innovative approaches for the full utilization of the facilities in the integrated enterprise. A classical example in this connection is the Kamchai Iamsure Enterprise in Thailand 6/ where integrated rice processing includes the use of rice hulls as fuel for brick kilns while using the depressions from which the clay is taken for fish farming, as shown in Figure 1.

FIGURE 1

Integrated Rice Production and Processing at the Kamchai Iamsure Enterprise Farm in Thailand



6/ MOTT III, William PENN. New farming systems in Asia demonstrate total integration. Agribusiness Worldwide. Dec. 1981/Jan. 1982, pp.47-48.

7. It has become apparent, however, that vertical integration alone is not sufficient for most developing countries, and that horizontal integration is also necessary.

8. In all cases, there is need for a commitment by government for the development of the food-processing industry. This is commonly achieved within the framework of the national development plan through the identification of a specific target for food development, and the provision of co-ordinated measures and programmes aimed at that target. The growth of the food-processing industry is viewed in relation to the target, its composition by products and their quantities and geographical distribution, as well as markets and social groups to be served. In particular, the necessary links are reviewed, and, as appropriate, strengthened upstream between industry and agriculture so that the development of the two sectors is synchronised, and downstream so that the links with distribution and consumption are adequately assured. 7/

A good example of such commitment is the Sistema Alimentario Mexicano (SAM), which integrates food objectives from consumption back to production and has an institutional structure serving objectives from agricultural production to retailing, through processing and marketing. The Mexican authorities have been most responsive to a request from UNIDO to allow representatives from other developing countries to examine the organization of the SAM with a view to adapting some of its features to their requirements. It would be most useful if this consideration were to continue in order that other developing countries, as well as development aid bodies might benefit from the experiences being gained in Mexico.

9. Less elaborate strengthening of the links between industry and agriculture may be achieved structurally as in the case of agricultural development projects embodying food-processing plants; or by means of legislation providing incentives to the co-operative ownership of the processing plants by farmers; or by procedures safeguarding producers vis-à-vis the industry and vice versa in contract farming; or by the establishment of a government agency with monopoly powers in the sector. The choice among these alternative options will be influenced by the political and social conditions and preferences of each country. These factors will also influence the choice of the ways in which ownership and management of the processing industry may be envisaged, and to which the industry's downstream links with food marketing and consumption will be assured. 7/

10. The above alternatives are mentioned only as examples of how integration can be achieved for food-processing development, but for the purpose of this paper and this meeting, the discussion will be confined to the role of co-operatives.

7/ Anonymous. First Global Study on the Food-Processing Industry, UNIDO, ID/WG.345/3/Rev.1, 23 September 1981. Chapter II.

11. The role of co-operatives in the appropriate development of the food-processing industry in developing countries may be considered as a multi-form role involving developing country co-operatives industrialized country co-operatives, and small- or medium-scale food-processing industries in developing countries.

II. ROLE OF DEVELOPING COUNTRY CO-OPERATIVES IN THE FOOD-PROCESSING INDUSTRY

12. The role of developing country co-operatives may well be illustrated by the Kaira District Co-operative Milk Producers' Union Ltd., popularly known as AMUL. 8/

13. Kaira, a district in the Indian State of Gujarat, has a pattern of milk production typical of rural India and consisting of some 1,000 villages covering about 6,400 square kilometres. Agriculture is the mainstay of more than 80% of the population as landholdings are small with over 50% of the farmers having between 0.1 to 2.0 hectares, while about 22% are landless or tenant farmers.

Traditionally, the farmers of Kaira supplemented their income by keeping milk animals, but milk yields were low, cost of milk production high and returns poor. Scientific practices in animal husbandry were unknown.

The milk was either sold to a private dairy which converted most of it into butter, or was supplied through private contractors to the Bombay Dairy Scheme, run by the Government.

14. In 1946, the milk producers became better organized, and refused to supply milk to the city of Bombay for two weeks as a protest against low milk prices. The strike brought about an increase in milk prices which encouraged the farmers to establish a co-operative society in Anand, a small town with a population of 15,000 people, 427 kilometres from Bombay.

15. In 1948, the Kaira District Co-operative Milk Producers' Union Ltd., which started with two village milk producers' societies and covered 30 villages, began to supply the Bombay Milk Scheme with pasteurized milk. These societies handled only 250 kilograms of milk daily,but the economic betterment of the members led to the organization of more and more societies.

16. In 1950, Dr. Verghese Kurien, became the manager of AMUL and introduced gradually the concept of integration including scientific dairy farming, proper management and essential services to members.

8/ MATHUR, V.B.L. Role of Co-operatives in Food Production, Processing and Marketing in India: A Case Study. UNIDO/PC.5, May 1981.

17. Emphasis was placed on the use of qualified veterinarians, cross breeding of cattle, scientific balanced feeding and appropriate cattle management practices. Under Kurien's management, the Union grew rapidly. He concentrated on the procurement of more milk from members and the creation of plant facilities for handling fluid milk. The number of milk producers' societies rose from 64 in 1955 to 846 in 1979/80, and significant growth was recorded in the business. Share capital during the same period rose, for example, from 0.03 to 6.89 million rupees and milk procurement rose from 10 to 150 million kilograms annually.

18. The Union at present handles an average of 600,000 litres of milk per day from its 300,000 farmer members organised in some 900 village co-operative societies. It employs about 2,400 persons of which 300 are professionals, and its dairy complex is spread over 45 acres.

19. Today, AMUL's dairies and processing plants produce pasteurized milk, milk powder, butter, different cheese varieties, milk chocolate, and malted milk food, as well as cattle feed. In addition, it has set up a modern rice mill to assist rice growers amongst its members, and a lime juice plant also to help those members who produce limes.

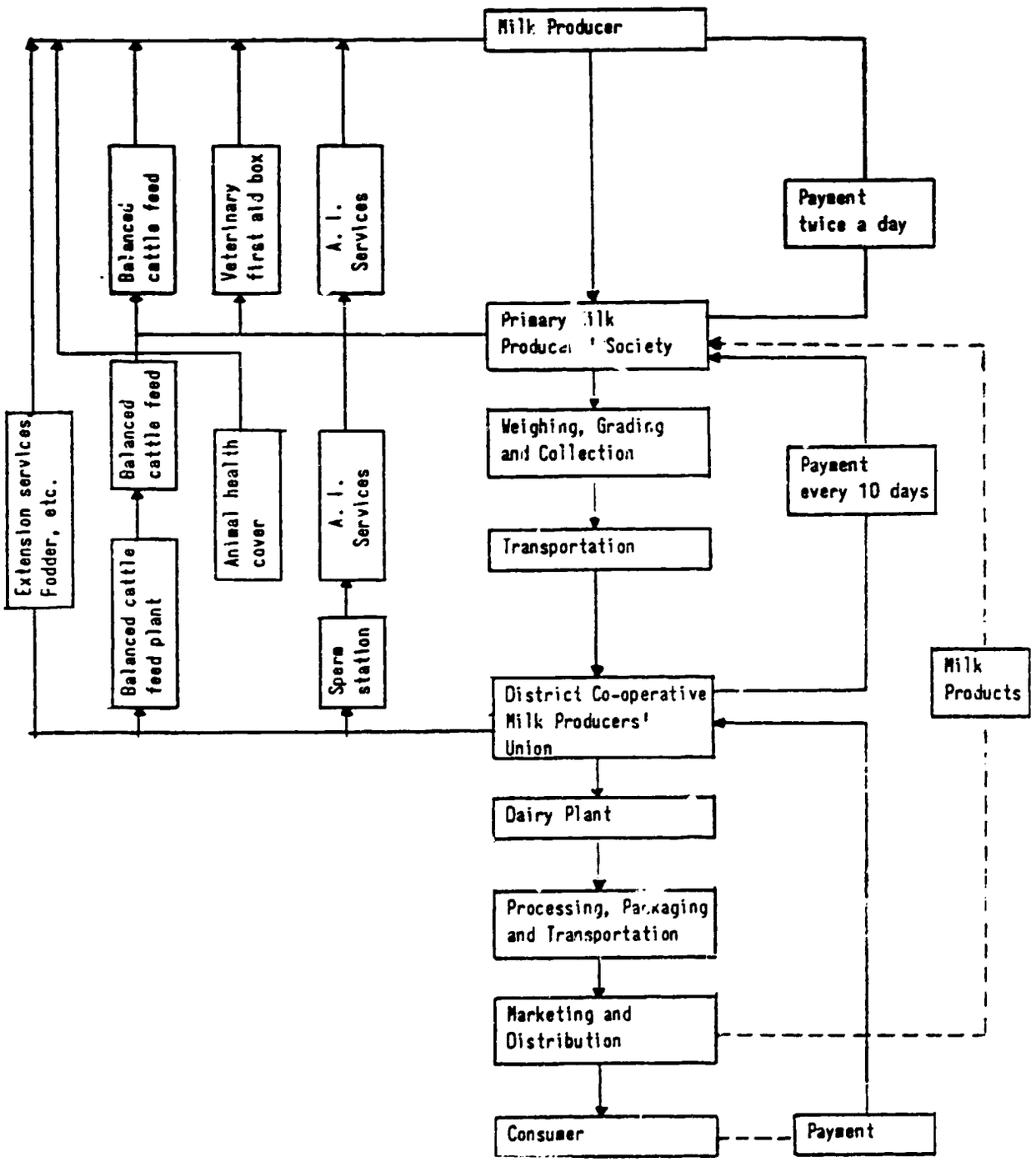
20. The success of AMUL has been obviously achieved by effectively integrating milk production, processing and marketing as can be seen from Figure 2.

21. One of the main results of this integration was a major breakthrough in milk yields which rose from 3 litres to 4.5 litres per day per head of milk cattle. Such an accomplishment was only possible as an integrated function of several inputs, namely artificial insemination, veterinary first aid treatment, balanced cattle feeding and improved cattle management practices.

22. The role of AMUL, however, has not been confined to the creation of a viable milk processing industry in the Kaira district. The Government of India, recognizing the merit of AMUL's strategy, has appointed its manager, Dr. Kurien, as Chairman of the National Dairy Development Board and launched two large projects to spread the AMUL strategy all over India.

FIGURE 2

The AMUL Pattern of Dairy Co-operatives



23. Furthermore, the Government also asked Dr. Kurien in 1977 to extend the same strategy to the restructuring of production, processing and marketing of oilseeds and vegetable oils. 9/ This was prompted by official concern over the control exercised by 13 powerful families in Gujarat State over the multimillion dollar edible oil industry. The result of that control by the so-called "oil kings" was the exploitation of thousands of small farmers who sold their crops at a low dictated price for want of an alternative. The production of oilseeds naturally stagnated, and India was importing about one million tons of edible oil annually to meet domestic needs.

24. Dr. Kurien based his oil operation in Gujarat State which is the biggest groundnut growing area in the country, accounting for about 35 percent of total production. He used experienced staff from the dairy co-operatives to form the Gujarat Co-operative Oilseeds Growers' Federation (GCOGF) which offered farmers higher prices for their crops as well as good quality seeds, fertilizers, pesticides, rhizobium cultures and modern farming equipment at reasonable prices. By the end of 1982, the co-operative owned two oil mills and was planning to construct five more processing units, two solvent extraction plants and storage facilities, at the cost of about US$ 850 million. From 34 co-operative societies with 300 members in 1980, membership of GCOGF grew to 70,500 in 946 societies by the end of 1982. The target is 1,440 societies by 1984. Procurement of groundnuts surpassed the projected goal of 100,000 tons, or 6% of total production, by the end of 1982.

25. The aim of GCOGF is to break the absolute control of traders over processing and marketing by owning and operating the processing and marketing systems. It will set up depots near the major cities from where adequate quantities of oil can be moved to major demand centres in response to market requirements and price fluctuations. A multi-pronged marketing strategy is planned for the towns and a separate one for the villages. For the urban centres, GCOGF will use tin packages, polyethylene sachets, loose vending from push-cart or cycle-rickshaw drum as well as placement in grocery stores. For the rural areas, the local oilseeds co-operatives and the existing infrastructure of the milk producers' co-operatives are to be used as marketing channels.

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9 / HAZARIKA, Sanjoy. Oilseeds Co-operatives in India. Agribusiness Worldwide. October 1982, pp.10-14.

26. It is obvious from the above description that both the dairy and oilseeds co-operatives are playing a major role in strengthening the dairy and oilseed processing industries in India. They are definitely succeeding in integrating production, processing and marketing, but this success could not have been achieved without the commitment of the Government of India to the co-operative movement. This commitment started in 1904 with the Co-operative Societies Act which gave a formal shape to the movement. At first, the emphasis was placed on credit for the increase of agricultural production. It took half a century to change that emphasis when the All India Rural Credit Survey Committee recommended in 1954 the development of an integrated approach to credit, marketing, processing and storage in the rural sector. One result of that recommendation was the establishment in 1962 of the National Co-operative Development Corporation (NCDC) for the planning and promotion of various programmes for co-operative marketing, processing, distribution of inputs, and warehousing of agricultural produce. With a subsequent modification of its charter, the NCDC is now planning, promoting and financing co-operative development programmes for production, marketing, processing, storage, export and import of agricultural produce, foodstuffs including fish and dairy products, cattle and poultry feed and other specific commodities such as fertilizers, insecticides, agricultural machinery, etc.

By 1981, NCDC had provided financial assistance totalling 3.34 billion rupees to co-operatives, of which 2.03 billion rupees were for marketing, processing and storage of agricultural produce. Such assistance is either in the shape of block finance to encourage co-operatives to borrow from term-lending institutions wherever possible, or in the shape of margin money and share capital to provide them with the requisite margin of security. The funds are normally derived from NCDC budgetary support from the Central Government, market borrowings, internal accruals to the NCDC fund, and aid from international agencies such as the World Bank and EEC, routed to it through the Central Government.

27. In addition to financial assistance to co-operatives, the NCDC maintains a team of professionals to appraise projects selected by the co-operative societies and advise on suitable production lines, choice of technology, equipment specifications and other technical matters.

NCDC also funds training programmes to upgrade the managerial competence of the staff of various co-operative societies.

28. Other co-operative organizations operate at the village, district, state and national level to cover the finance, marketing, consumer distribution, training, and administrative control and policy aspects of the co-operative complex in India.

29. At the national level, the NCDC is the leading body for term and block finance for all co-operatives involved in food processing. The National Agricultural Co-operative Marketing Federation is the organization responsible for streamlining marketing, processing and supply of agricultural commodities and agricultural inputs through the co-operative marketing system. There is also a National Co-operative Consumer Federation which is responsible for trading operations in the wholesale and retail of various items including pulses, spices, food-grains, tea and other agricultural commodities.

For training, the leading body is the National Co-operative Union of India, while the Ministry dealing with co-operatives within the Government of India is responsible for formulation of co-operative policy and administration.

30. At the State level, the top credit institution is the State Co-operative Bank, while long-term finance is undertaken by the State Land Development Bank.

The leading marketing body is the State Co-operative Marketing Society, while the State Co-operative Union identifies training needs and co-ordinates training of various co-operative staff in the State. The training itself is carried out by the National Co-operative Union.

Administration of co-operative policies and planning is the responsibility of the Department of Co-operation within the State Government through a Registrar of Co-operative Societies.

31. At the district level, there are district co-operative banks for credit services, while long-term finance is undertaken by the State Land Development Bank.

Marketing is mainly the function of regional state co-operative marketing societies, while consumer distribution is carried out by the District Co-operative Consumers' Federations and the Primary Marketing Societies. No training is undertaken at the district level, and administrative policies and control are looked after by Deputy and Assistant Registrars of Co-operative Societies.

32. At the village level, there are Primary Agricultural Credit Societies and branches of the Primary Land Development Bank for financial services. Marketing and consumer distribution are also the responsibility of the Primary Agricultural Credit Societies, while administrative policies and control are in the hands of co-operative inspectors.

33. It is quite clear from the previous paragraphs that co-operatives in India have been quite successful in the development of integrated food-processing industries. There are several examples of such success in other developing countries such as Argentina, Bangladesh, Indonesia, the Philippines, Sri Lanka and Thailand, but the scope of this paper does not allow for going into details of the achievements in those countries.

34. It is evident, however, that co-operative food processing provides the small farmer of developing countries with both the incentive and the means to increase his production. It can, therefore, play a far-reaching role in transforming traditional agriculture. Co-operative food processing has also proved to be an effective instrument of socio-economic change in the areas in which they are located. An example of such change is the fact that before the emergence of the dairy co-operatives in India, the milk contractors tested the fat content by flicking the milk with their fingers, then paid more to the relatively rich, high caste farmers. But after scientific tests were used by the co-operatives to measure the fat content, everybody was paid according to the unbiased results of the test. The outcasts who were banned from entering the upper caste section of the village now queue in the same line with everybody else to have their milk tested.

35. But perhaps the most important function of national food-processing co-operatives is their role in technology transfer, adaptation, dissemination and development. Since technology can never be applied or developed in a vacuum, those co-operatives allow technological development to take place within the context of an economic organization which ensures that it transforms whatever materials the economy has into productive, or more productive resources, and that the gains from technological progress accrue to the national economy rather than to a private enterprise.

It is evident from the India dairy example that the co-operatives facilitated the introduction of technological advances in agriculture production, animal breeding, animal health, cattle feeding, milk collection, storage, testing, processing and marketing.

36. What is not as evident is that they have in effect helped stimulate the rate of capital formation in agriculture, both at the production and processing stages, and have been instrumental in alleviating the food problem in the areas where they are located.

37. Moreover, those co-operatives have been creating more work opportunities for the rural population, and have undoubtedly helped to build a class of entrepreneurs from amongst the ordinary farmers. They have also served, as will be seen later, as focal points for receipt of innovative international aid which otherwi e would never have been possible.

III. INDUSTRIALIZED COUNTRY CO-OPERATIVES AND CO-OPERATIVE FOOD-PROCESSING INDUSTRY IN DEVELOPING COUNTRIES

38. The First UNIDO Consultation on the Food-Processing Industry which was held in The Hague, Netherlands, from 9 to 13 November 1981, recognized the need of developing countries for foreign partners to assist them in their efforts to develop their food-processing industries. One category of foreign partners identified by the Consultation has been industrialized country co-operatives. The Consultation recommended that "UNIDO should take appropriate action, including consideration of the convening of a follow-up meeting to identify and assess the capabilities of those partners and to analyse and formulate ways and means of identifying and assisting those partners, taking into account financial and other constraints and the transfer of entrepreneurial skills." 10/

39. This recommendation was based on the deliberations of an Expert Group Meeting on "The Role of Co-operatives in the Development of Food-Processing Industries in Developing Countries" which was convened by UNIDO in April 1981. 11/ The Expert Group Meeting discussed the capabilities and willingness of well-established co-operatives in several industrialized countries to collaborate with developing countries in integrated food industry development, and defined some of the forms in which such collaboration could take place.

40. One important form of collaboration would be the preparation of feasibility studies for the establishment of integrated food-processing industries. Many developing countries have suffered from overly optimistic feasibility studies which in many cases turned out to be rather promotional than factual. Industrialized country co-operatives are in a position to carry out detailed and objective feasibility analysis of proposed agribusiness enterprises to avoid financial set-backs and disappointment. One important advantage in the involvement of industrialized country co-operatives in the preparation of these feasibility analyses is their ability to identify the opportunities for marketing the products in their own countries.

10/ First Consultation on the Food-Processing Industry, The Hague, Netherlands, 9-13 November 1981. Report UNIDO document ID/278.

11/ Expert Group Meeting on Role of Co-operatives in the Development of Food Processing Industries in Developing Countries, Vienna, Austria, 22-24 April 1981. Report UNIDO/PC.8, 26 May 1981.

41. Financial assistance is also one form of collaboration which industrialized country co-operatives could undertake or sponsor. An interesting example of such financial assistance was undertaken by CLUSA, the Co-operative League of the USA, [9/] jointly with CUC, the Co-operative Union of Canada, [12/] on behalf of the Oilseed Co-operatives of India.

42. When the Government of India requested the National Dairy Development Board (NDDB) to apply its very successful dairy development technique to India's vegetable oil industry, NDDB asked CLUSA and CUC if they might donate commodities for financing as was done to finance the establishment of the dairy co-operatives. CLUSA contacted the US Agency for International Development (AID), which found the request both possible and interesting and CUC approached the Canadian International Development Agency (CIDA) which also supported the request.

43. A plan was developed based on a grant of 160,000 tons of soybean oil (or the equivalent) from PL480, Title II, commodities. These commodities represent US Government purchases of surplus domestic stocks such as milk products, wheat, rice, cotton and sugar, as well as vegetable oil. These stocks are sold to countries for their local currencies, which are then used to support US diplomatic missions in each country, or for charitable purposes. Initially, 117,500 tons of oil were granted by AID for the first phase of the project, with the remaining oil subject to a review of project accomplishments. CUC sent a 3 million dollars shipment of canola/rapeseed oil in 1981, and another 9 million dollars shipment in 1982, both financed by CIDA which was expected to continue its support for the project.

44. Refined oil is delivered at an Indian port, where title is passed to NDDB in accordance with an agreement between CLUSA,CUC and NDDB (approved by the Government of India and AID/CIDA). NDDB then handles the oil and markets it commercially, simultaneously generating funds for project financing and establishing the marketing system for project-processed oil as well. The funding covers a series of integrated elements which begin with co-operative formation and oilseed production enhancement and extend to marketing of finished diversified products.

Items funded by the proceeds of the sale of donated oil include: institution and infrastructure development, manpower development, operations research, monitoring costs, revolving operating capital for the new co-operatives, new product development, and market research.

12/ Co-operative CANADA '83 - Co-operative Union of Canada, p.5.

45. This method of financial assistance is one of the major forms of collaboration which industrialized country co-operatives could undertake on behalf of developing country co-operatives. It is particularly important since only a limited number of the former are institutionally capable of supplying equity capital and entering into joint ventures with the latter. 11/

46. Another important form of collaboration which industrialized country co-operatives could take upon themselves is the training of personnel from developing country co-operatives. Such training would cover technical specialists as well as managerial staff, and could be carried out either in the industrialised or the developing country depending on several factors such as availability of facilities and of funds and the specific requirements of the country under question.

47. Industrialised country co-operatives also possess high level technical expertise in most of the subsectors of the food-processing industry which are relevant to developing countries. They could, therefore, provide a wide spectrum of consulting services for the establishment of integrated food-processing industries including pre-investment studies, design and supervision services, technical advisory services and in certain cases even carry out needed research.

48. Most developing countries lack adequate research facilities to carry out work necessary for the proper utilization of some of their agro-food raw materials. This research could well be carried out by industrialised country co-operatives at research facilities in their own countries for later use of the results by the developing countries. One such research facility in Canada is the POS Pilot Plant Corporation in Saskatoon, Saskatchewan. 13/

The Corporation promotes the development of new methods for separating cereals, oilseeds and legumes into protein, oils and starches (hence the POS), and for further processing of these components into ingredients for food, animal feed and industrial applications.

To carry out this work, the POS Pilot Plant provides an extensive array of processing equipment, a series of well-equipped and staffed laboratories and a variety of support services.

13/ FREIVALDS, John. Marketing its agriculture: Canada educates its buyers. Agribusiness Worldwide, October/November 1981, pp. 6-7.

The Corporation was founded by many diverse members including Canadian industrial companies, trade associations, universities, provincial governments and the Federal Government. All facilities and services of POS are available to corporation members and to non-member clients on a fee-for-service basis.

Although POS is not itself a commercial processor, its equipment has sufficient capacity to perform all experimental operations, and to produce test-marketing quantities of material.

49. A much needed form of collaboration between co-operatives of industrialised and developing countries could also take place in the field of fisheries. Most developing countries, for example, have difficulties which prevent the adequate exploitation of their Exclusive Economic Zones (EEZs). Financial, technical and managerial problems affect not only the actual fishing operations, but also the storage, transportation, processing and marketing of fish. 14/

To obtain a fair share in ocean fishing, developing countries would have to organize co-operation among themselves, especially among the small island countries which are potential managers of some of the largest EEZs but which individually are not capable of developing an efficient fishing industry. Such effort would need the help of industrialised countries possibly through their fishing co-operatives.

50. In addition to the assistance which industrialised country co-operatives could render to their counterparts in developing countries, they can also be instrumental in helping small and medium-scale food-processing industries in the latter countries.

14/ BRANDT, Willy. A program for survival. Economic Impact-1980/4 No.32, pp.27-31.

IV. SMALL FOOD-PROCESSING ENTERPRISES IN DEVELOPING COUNTRIES

51. According to Meredith [15], there is no universal definition of a small enterprise; one study in the USA, for example, found 50 definitions in 75 different countries! It seems that a definition of a small enterprise in a particular country will depend upon the purpose of the definition and the environment of the small enterprise in the country.

52. It is possible to measure the size of small enterprises in terms of total assets, net worth, number of persons employed in the average enterprise, sales volume, number of customers, production capacity, or production inputs.

53. In Bangladesh, for example, Emdadul Huque and Hasan [16] identified a small enterprise as "Any industrial undertaking in which the investment in machinery and equipments do not exceed TAKA 2.5 million (US$125,000) employing family members and/or hired labour, and with or without use of motive power."

54. In Ethiopia, small-scale industry has been defined as "Any industrial activity which uses motive power and machines and which has fixed assets of a value which does not exceed 200,000 Birr excluding buildings." [17] (1 US$ = 2.07 Birr).

55. In Fiji, a small-scale industry is an enterprise that requires up to US$100,000 in initial total fixed capital investment, and utilizes small and medium range technology [18], while in India [19] it is an enterprise whose investment in plant and machinery does not exceed 2 million Rupees (ca. US$223,000). In Sri Lanka [20] the

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15/ MEREDITH, G.G. Socio-Economic Importance of Small Enterprises and Policy Programming Implications in Small Enterprises Development. A Commonwealth Heads of Government Regional Meeting (CHOGRM) Workshop-Summary Report, Sydney, Australia, 16-28 May 1982, pp.23-29.

16/ Emdadul Huque and Hasan, K.A. - An Introduction to Small-Scale Enterprise in Bangladesh, ibid 319-331.

17/ Provisional MILITARY Government of Socialist Ethiopia. Handicrafts and Small-Scale Industries Development Agency. Report on Survey of Small-Scale Industries in Twelve Towns, May 1980, p.3.

18/ RABUKA, E.V. and MAR, Gabrielle - Small Enterprise Development in Fiji - CHOGRM Working Group - Summary Report, Sydney, Australia, 16-28 May 1982, pp. 333-347.

19/ JASWAL, KAMAL KANT. Small-Scale Industries Sector in India - An Overview, ibid, pp.355-367.

20/ Kumaradasan, T. The Nature of the Small Enterprise Sector in Sri Lanka, ibid. 2/07 - 2/13.

enterprise is defined as a registered business with fixed assets not exceeding 500.000 Rupees (ca. US$25,000) and employing not less than 2 persons on a full time basis excluding the proprietor. Preference is given to enterprises with a capital not less than 150.000 Rupees (ca. US$7,500).

56. In spite of this diversion of views in defining small enterprises, it is generally agreed that these enterprises have certain characteristics in common: control and ownership of the enterprise is in the hands of a few people; day-to-day management decisions and long-term planning are undertaken by one or two owners or managers; and their individual share of the market is rather small. Whenever professional expertise is required, it is normally obtained from outside the enterprise.

57. Small enterprises are found in both urban and rural areas, and they dominate the commerce, services, maintenance and repairs, construction and excavation industries and are significant in transportation and manufacturing sectors. 15/ Numerically they dominate the manufacturing and non-manufacturing sectors and frequently represent 40 to 50 per cent of all the paid work force in the community. Thus if small enterprises' contribution is measured in quantitative terms, this contribution is seen to be significant in both industrialized and developing countries.

58. Within the small enterprise sector as a whole, however, the contribution of the food-processing industry seems to vary from meagre to substantial. In Bangladesh, in the late 1970's, there was a total of 594,004 small-scale industry enterprises of which only 17,356 units, or roughly 3%, were engaged in food and allied products including rice and oil mills. 16/ In India, the number of food processing units in 1977 was only 5% of the total number of small-scale enterprises. 21/ On the other hand, in Ethiopia 17/ over 64% of the small-scale enterprises surveyed in 23 major towns were food-processing enterprises and in Papua New Guinea the ratio was over 25% in 1979. 22/

21/ Government of India. Census of Small-Scale Industries, 1977, Vol.I and II Development Commissioner, SSI.

22/ WAUWE, John. Secondary Industry in Papua New Guinea. Small-Scale Development: Problems and Prospects. CHOGRM Workshop-Summary Report, Sydney, Australia, 16-28 May 1982, pp. 379-391.

59. It must be mentioned here that although the literature examined was mainly concerned with "small enterprises", the discussion would also apply to the so-called "medium-scale enterprises". It is not possible to obtain a definition for these latter enterprises, but it is to be understood that their requirements would be in general similar to those of the "small enterprises", and for the purpose of this paper small- and medium-scale industries(SMI's)in the developing countries will be considered together.

60. Three aspects of assistance to food-processing SMI's in developing countries seem to be relevant to the purpose of this meeting, namely, financial assistance, technology transfer and education and training.

61. Available information on financial resources for industrial projects in developing countries [23/] indicate that there are two types of national institutions from which food processing SMI's would be eligible for financial assistance.

62. One type has the basic purpose or policy of promoting the small-scale and medium-sized industry. Examples are, the Corporación Financiera Popular SA of Colombia, the Fondo de Financiamento y Garantia para la Pequena Empresa of El Salvador, the Corporación de Desarrollo de la Pequena y Mediana Industria of Venezuela, the Industrial and Commercial Development Corporation of Kenya, the Société financière sénégalaise pour le Développement de l'Industrie et du Tourisme de Sénégal, the National Small Industries Corporation Limited of India. the P.T. Bahana Pembinaan Usaha Indonesia, and the Small and Medium Industry Bank of Korea.

63. The other type comprises financial institutions whose purpose is the overall industrial development of the country but which give particular attention to SMI's. Examples of such institutions are the Development Industrial Bank of Egypt, the Banque ivoirienne de développement industriel, the Banque de Développement du la République du Niger, the Corporación Financiera Nacional of Panama, the Nacional Financiera SA of Mexico through its Guarantee and Development Fund for small-scale and medium-scale industry, and the People's Bank of Sri Lanka.

23/ Financial Reasources for Industrial Projects in Developing Countries, Third Edition, Volume 1-4. UNIDO, PI/61/Rev.2, February 1983.

64. Those financial institutions may differ in the structure of ownership, amount of resources, and lending policy, but they all have primary conditions which must be met before granting their assistance. These primary conditions include the economic and financial viability of the enterprise in question, along with the reputation and qualifications of the promoters. The association of industrialized country co-operatives with food processing SMI's in developing countries would allow the latter to better qualify with respect to those primary conditions. Such association could include equity participation, technical and managerial agreements, product marketing arrangements and other forms of collaboration.

65. As to transfer of technology, it has been indicated that well established co-operatives of industrialized countries are in a position to assist not only co-operative organizations in developing countries, but also private firms and state organizations. 11/

66. Transfer of technology seems to have already taken place mostly in the fields of milk processing, cereal processing, meat and poultry production and processing, animal feeds, fruit and vegetables, vegetable oils and fats, and fisheries.

In addition, industrialized country co-operatives provided know-how for related operations such as advisory services to farmers, organization of supply of credit and farm inputs and services like seed and animal breeding programmes.

67. CEBECO-HANDELSRAAD, the National Agricultural Co-operative wholesale society of the Netherlands, has been involved, for example, through its subsidiary bodies in consultant services and other activities in developing countries. These include consultancy services for a seed-cleaning plant for seed-rice in Indonesia, port silos in Cape Verde Islands, Surinam and Guinea-Bissau. They were also involved in design, delivery and construction of poultry houses in Tunisia, Saudi Arabia, Libya and Egypt, and of two dairy farms in Libya. Advisory services were also given to a farmers supply and marketing co-operative in

Jamaica, and to the Government of Zambia for a food strategy programme with regard to compound feedstuffs production and distribution. 24/

68. The French Dairy Co-operatives have also been involved in assisting several developing countries to improve their dairy industry, particularly Tunisia, Niger and Reunion Island. 25/

69. Canadian co-operatives have also contributed to the development of the food-processing industries in the Third World. La Co-opérative Fédérée de Québec for example, has been involved through la Société de Développement International Desjardins in support of a dairy co-operative in Nicaragua, while la Co-opérative Laitière du Sud de Québec has entered into a twinning arrangement with the federation of agricultural co-operatives of COQUIMBO in Chile. 26/ The Co-operative Development Foundation of Canada, CDF, has supported several food-processing projects in developing countries through various Canadian Co-operative Organizations which undertake implementation on behalf of CDF. Examples are several dairy projects in India, a food distribution system in Barbados, a co-operative bakery in Dominica and a cocoa dryer in Grenada. Financing of the activities of Canadian co-operatives in developing countries is normally supplied by the Canadian International Development Agency, CIDA. The CDF has recently developed in collaboration with CIDA a new programme called the Co-operative Partnership Programme (CPP). The objectives of the CPP are: to support development initiatives undertaken jointly by Canadian and Third World Co-operatives; to generate increased involvement of the Canadian co-operative community in international development activities; and to activate a more informed awareness of development issues and problems among Canadian co-operators. 27/

70. The involvement of industrial country co-operatives in technology transfer to developing countries seems, however, to have been at random and restricted. There is indeed room for expansion of this involvement through various courses. One

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24/ Agro-industrial projects. CEBECO-HANDELSRAAD. Deventer, The Netherlands, 1983.

25/ Lablanchy, A. Société d'Investissements Laitiers Outre-Mer (SILOM), Paris, France. Private communication to UNIDO, 1981.

26/ ENSEMBLEL, 31 March 1982, pp. 62 and 63.

27/ Co-operative Development Foundation of Canada, Annual Report, 1982.

course would be the enrolment of interested co-operatives with the multinational aid organizations for carrying out feasibility studies and the provision of consulting services.

71. Another course would be the contribution of industrialized country co-operatives to the continuous evaluation and up-grading of the products of food processing SMI's in developing countries. This may be accomplished through one of the annual activities of the Joint UNIDO/Yugoslavia Centre for the Development of Agro-Industries in Developing Countries. The Centre participates in the yearly International Agricultural Fair of Novi Sad, Yugoslavia, at which several developing countries exhibit their processed food products. It is possible to organise annual "Processed Food Clinics" jointly between Canadian co-operatives, Yugoslav experts and UNIDO staff to examine those exhibited products and appraise their quality, uniformity, package and other aspects with a view to making them more suitable for either the local or the Canadian market. Specific programmes could then be identified for the upgrading of the products through improved quality control, better packaging, modification or even a basic change in the processing method. Such programmes would be included either in the technical assistance of UNIDO in collaboration with Yugoslav authorities and Canadian co-operatives, or in bilateral programmes between Canada and the developing countries utilizing the know-how of the Canadian co-operatives which might ultimately undertake marketing of some of the products in Canada.

72. The third aspect of assistance to food processing SMI's in developing countries, namely education and training, is also an area where the intervention of industrialized country co-operatives would be valuable. Technical and managerial in-plant training for developing country personnel is usually not possible with private firms in industrialized countries, but opportunities do exist for the co-operatives in those countries to arrange in-plant training either in the home industries, or on-the-job in the developing countries as appropriate.

73. An important condition for the development of education and training programmes for SMI's has been identified by Nelson. 28/ The small business owner/manager must be consulted as to the courses developed as well as the venue for presentation. The provision of education must begin by relating directly to the needs of owners/managers of SMI's as reported by those owners/managers rather than attempting to develop training courses in isolation on unwanted topics.

28/ NELSON, Alber. Overseas Initiatives in Small Enterprise Development, CHOGM Workshop. Summary Report, Sydney, Australia, 16-28 May 1982, pp.31-37.

V. PROJECTS FOR POSSIBLE COLLABORATION BETWEEN INDUSTRIALIZED COUNTRY CO-OPERATIVES AND DEVELOPING COUNTRIES

74. According to the Expert Group on the Role of Co-operatives in the Development of Food-Processing Industries in Developing Countries, 11/ there were two constraints to the collaboration of industrialized country co-operatives with those countries. One was lack of financing which was referred to earlier, and the second was lack of information on suitable projects for that collaboration. The purpose of this chapter is to present some such projects on which information is available at UNIDO, and in particular at the Investment Co-operative Programme Branch (ICPB).

75. The ICPB is the special unit in UNIDO responsible for the promotion of industrial investment projects in developing countries. Those projects are identified either by private or public firms or institutions in the developing countries, or by ICPB field missions consisting of individual staff members or teams of experts. Basic information on a project is compiled on an "Industrial Investment Project Questionnaire" which is designed to contain such information as would enable the prospective foreign partner to make prima-facie judgement on the soundness or otherwise of the project. Further consideration of the project in the form of pre-feasibility or feasibility, marketing or other studies would have to be conducted separately once foreign partners interested in the project have been located and a detailed study is considered essential before final commitment of funds.

76. The ICPB brings the projects to the attention of suitable entrepreneurs in three ways: firstly, through seven Investment Promotion Services located in Brussels, Cologne, New York, Paris, Tokyo, Vienna and Zurich, whose role is to provide a direct link with entrepreneurs or enterprises in the countries where they are located; secondly, through Investment Promotion meetings; and thirdly by direct contact from UNIDO Headquarters with enterprises located in countries not covered by the Investment Promotion Services, and known to be potential partners.

77. The project ideas or project proposals described in the following paragraphs are identified either through the technical assistance programmes of UNIDO in developing countries or from actual submissions from developing countries to UNIDO's ICPB.

78. A project concept elaborated and evaluated by UNIDO, is for an integrated cassava processing factory for establishment in Zambia [29/]. Cassava processing has been quite successful in Thailand which, for example, exports millions of tons of cassava pellets to the European Economic Community countries and produces 400,000 tons of starch per year. Many countries in the tropics have been trying to imitate Thailand's success with disappointing results in Brazil, Jamaica and Venezuela. [30/]

The project concept envisages first a government action to stimulate cassava production by announcing a produce price for dried cassava chips. The National Agricultural Marketing Board (NAMBOARD) and the Co-operative Union (CU) are to buy the dried chips during the maize buying season and channel them to existing hammer mills which process them to cassava flour for sale in urban areas for use in making Nshima, the national dish, as well as bread and beer. NAMBOARD and CU buyers are to be trained in quality specifications for dried chips, while extension workers from the Ministry of Agriculture are trained to advise cassava growers on agronomic practices. If, after two years, cassava production will have responded sufficiently to the incentives, a factory is to be set up to make starch, glucose and dextrins.

It would seem that collaboration between Canadian co-operatives and the Co-operative Union of Zambia would be quite useful in testing the validity of this concept and the possibility of establishing an integrated cassava processing industry in Zambia to serve the local market. Detailed studies on this concept are available.

79. Another project is suggested by a comprehensive study organized by UNIDO and envisages the exploitation of an available raw material in the Sahelian Zone in Africa, i.e. Balanites aegyptiaca, [31/] whose kernel contains roughly 50 percent of edible oil with high stability against auto-oxidation, and up to 30 percent of

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29/ The Concept for an Integrated Cassava Processing Factory for Establishment in Zambia, UNIDO/IO/R.51, January 1983.

30/ The Feasibility Studies for Cassava Production and Processing in Espirito Santo, Brazil. Agrobusiness Worldwide, July 1982, pp.10-13.

31/ BALANITES aegyptiaca. An Unutilized Raw Material Potential Ready for Agro-Industrial Exploitation. UNIDO.IO.494, April 1983.

crude protein with a satisfactory amino acid profile and which can be used for human consumption or animal feed after simple debittering.

The study concluded that the Balanites fruits can be processed for food, feed, drug and fermentation products while the shell of the fruit can be used as an energy source within the process. Some of the products of processing such as oil, cake, ethanol, carbon dioxide and, animal slop would support existing local industries in the country of production, whereas others such as diosgenin from the mesocarp and activated charcoal from the shell present valuable commodities for export.

The Balanites aegyptiaca tree is indigenous to Sudan, Gambia, Chad, Nigeria, Tanzania, Upper Volta, Northern Guinea, Ivory Coast, Senegal, Kenya and Uganda. A primary survey carried out in the Sudan in 1979 indicates that 72,000 acres in the Blue Nile Province are covered with the tree at an average density of fifteen mature trees per acre, amounting to over one million trees in that province alone with an estimated one hundred thousand tons of Balanites fruit per year. It is believed, however, that the total wild resources of the fruit in the Sudan exceeds four hundred thousand tons per year. Only 2 per cent of this estimated total is actually traded in the Sudan.

Although no information is available on the production of Balanites in other Sahelian countries, it is obvious that sound industrial utilization of the fruit would result in organized plantations within an overall policy to combat desertification in the Sahel.

A footnote which will be of interest to many participants in this meeting is that the New Brunswick Research and Productivity Council has been deeply involved in the chemical research aspects of this project.

80. A third project for possible intervention and assistance by Canadian co-operatives deals with the improvement of the industrial castor bean processing through the removal of toxic substances present in the castor bean meal which drastically lowers its commercial value.

A pre-project study carried out by UNIDO in Brazil indicated that the castor bean production and processing industry, worldwide and particularly in Brazil, has been seriously handicapped by this very low commercial value of the meal which has resulted in the stagnation of the industry.

UNIDO therefore has initiated a project for the development of a low-cost detoxification methodology which will allow the use of the castor bean meal as a protein source in animal feeds thus increasing its commercial value and balancing the current economics of castor bean processing. The application of this new detoxification methodology as well as the organization of castor bean production, processing and marketing seem to call for a co-operative activity

81. Several projects have been identified for possible intervention of Canadian co-operatives in Peru. They have been chosen from among 16 food-processing projects submitted along with many more non-food projects to UNIDO's ICPB for an investment Promotion Meeting to be held in Peru in November of this year. Invitations to 25,000 potential partners from all over the world have been sent out and it is hoped that at least one hundred of them will be interested enough in investment in Peru to attend the meeting.

The criteria for selection of the projects to be presented here include availability of a feasibility or a pre-feasibility study, and foreign contribution desired other than equity participation or loans.

Two projects sponsored by the Tacna Departmental Development Corporation (CORDETACNA) are for the establishment of two olive oil processing plants, one costing US$311,800, the other US$263,000. Feasibility studies exist for both plants, and foreign contribution desired in addition to loans, include access to foreign markets, and technology.

It would seem that in this particular case, the role the Canadian co-operatives could play to support these two projects would be to undertake the marketing of part of the production in Canada and to assist in providing the needed technology for refining and packaging of the oil. Either way, the association of a Canadian co-operative with the projects would facilitate advancement of the required loan by foreign or local investors.

Another Peruvian project which might be of interest to Canadian co-operatives is the industrialization and trading of fresh fruits which is sponsored by the Agro-Industrial Development Institute of La Molina. The project envisages the creation of fruit gathering centres for oranges, avocados, bananas, papayas, pineapples, mangoes, sweet lemons and lemons which are claimed to be available in adequate quantities. The gathered fruits are to be sorted, washed, graded and packed for fresh distribution or processed to produce fresh and concentrated juices, sliced pineapples and essential orange oil. The project will primarily meet local demand, but exports to ANDEAN Pact and EEC countries is considered. Total cost

is US$1.8 million for which foreign equity participation and loans, as well as access to market, are desired. Here again the association of a Canadian co-operative with the project to identify some of the fruits and processed products which could be marketed in Canada, and advice on quality standards suitable for the North American market would be quite useful.

A fourth project in Peru has been submitted by a private promoter with the support of the Fondo de Promocion de Exportaciones no Tradicionales (FOPEX) and the Banco Industriel del Peru. This is a project to produce annually 6500 metric tons of rice starch and 2500 metric tons of animal feed from locally available broken rice. There is no local production of rice starch at present and 25 to 30 percent of the planned production will be marketed in Peru while the rest will be exported. A prefeasibility study completed in January 1981 is available with the promoter who is seeking foreign equity participation (maximum 49%), foreign loans, as well as technology, management assistance and market access. It is also envisaged that 25 percent of the ownership will belong to the State. The total investment cost is US$4.2 million of which foreign sources are to supply US$3.135 including US$0.835M in equity, US$1.4M in long-term loans and US$0.9M in short- and medium-term loans.

A fifth project which is also sponsored by the TACNA Departmental Development Corporation (CORDETACNA) is concerned with the establishment of a dairy plant to produce sterilized milk and cheese for the regional market. Daily production of milk is a little over 23,000 liters of which 20 percent is intended for cheese manufacture and the rest is to be marketed as sterilized milk.

Foreign contribution desired other than equity participation and loans include machinery for an estimated US$2.9M and technology.

82. Two projects in the Philippines have been identified from submissions to UNIDO's ICPB. One is for integrated pineapple production and processing to manufacture canned slices, tidbits and juice concentrate, for which a feasibility study dated 1980 is available. Four hundred and fifty hectares of farm land have been fully developed and planted to pineapples and it is expected that ultimately the plantation will reach 1,800 hectares. The firm will also accommodate interested parties wishing to sell fresh pineapples. The required cans are produced in the firm's own can-making plant from tinplate imported from Australia and Japan.

Total investment cost of the project is US$10.7M for which foreign long-term loans amount to US$3.4M. Foreign contribution desired includes equity participation up to US$1.2M and market access.

The second project in the Philippines, which is sponsored by the Board of Investments, deals with the establishment of a quick-freezing/cold storage facility in Puerta Princesa, Palawan, to increase an existing operation for the procurement, processing and export of frozen yellow-fin tuna. All the requirements of the project are available locally except for training which seems to be needed to upgrade the capabilities of local manpower. Although not specifically mentioned in the request, there seems to be a possibility to organize the fishermen into a co-operative to cater to their training and other needs.

83. Another fisheries project has been identified in Indonesia for which a pre-feasibility study dated 1976 is available with the Department of Agriculture in Jakarta. The project envisages the production of 50 tons a month each of dried bonitos and frozen fish, 25 tons of canned fish and 20 tons of fish meal all intended for the local market. The project is to be located in Ternata-Maluku where 2,700 tons of fresh fish are locally available. Although foreign contribution desired by this project includes loan, technology, management and market access, it is believed that a positive contribution by Canadian co-operatives would be to carry out an up-to-date feasibility study.

84. In Senegal, there is a small project supported by Government for the establishment of a plant to produce 10,000 bottles per day of gaseous soft drinks. The project requires several foreign inputs of which technical studies, product concept and training may be supplied by Canadian co-operatives. A much larger project proposes the manufacture of shortenings mainly for export to Saudi Arabia. A pre-feasibility study exists, and foreign partners, loans and technology are required. This is a case in point where foreign partners and loans (from Saudi Arabia) would be forthcoming if the technical expertise of a Canadian co-operative is made available to the project through some sort of an agreement.

85. In Egypt, two projects have been identified for possible intervention by Canadian co-operatives. The aim of one project is to produce high quality edible oil from imported seed, either soya or sunflower, as well as poultry feed, high-protein flour and fatty acids, all for the local market. Total investment cost is estimated at US$206M. In addition to equity participation of up to 49 per cent, the foreign contribution desired includes new technology and technical services.

The second project is for an agro-industrial complex for canned and frozen food. The project involves reclamation of land and planting various fruits and vegetables for processing into 25,000 tons of canned and frozen products of which 60 per cent will be for the local market and the rest for export to Arab countries.

Total investment required for the project is estimated at US$75M and the foreign contribution desired includes equity participation, loans, engineering services, product development work and training.

A pre-feasibility study exists for each project with the General Organization for Industrialization (GOFI).

The wide knowledge of Canadian co-operatives in both areas would be quite useful firstly in carrying out complete feasibility studies and later for technical services and training.

86. It is hoped that these projects will add to the practical tone of this meeting which is characterized by the last two full days of group tours to Canadian co-operatives' food processing facilities, which will undoubtedly contribute to maturing and broadening the relationships between some of those co-operatives and developing countries.