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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

**CONSULTATION
ON THE
FOOD-PROCESSING
INDUSTRY
WITH EMPHASIS ON
FRUIT AND VEGETABLE
PROCESSING**

Tbilisi,
Georgian Soviet Socialist Republic, USSR
18–22 September 1989

REPORT

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CONSULTATION ON THE FOOD-PROCESSING INDUSTRY WITH EMPHASIS ON
FRUIT AND VEGETABLE PROCESSING

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ReportErratum

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PREFACE

The System of Consultations is an instrument through which the United Nations Industrial Development Organization (UNIDO) serves as a forum for developed and developing countries in their contacts and discussions directed towards the industrialization of the latter countries. Participants in the Consultations include government officials, as well as representatives of industry, labour, consumer groups and others, as deemed appropriate by the Government concerned. The System facilitates negotiations among interested parties, at their request, either during or after the Consultation meetings.

Benefits deriving from this activity include the identification of obstacles to industrial development in developing countries; the monitoring of trends in world industry with a view to identifying action-oriented measures for increasing the industrial output of developing countries; and the search for new forms of international industrial co-operation in North-South and South-South relations.

Since the inception of the System in 1975, 1/ Consultations have been held on 16 sectors and 2 common topics. The System brings together sectoral decision-makers to deliberate on and propose concrete measures to accelerate the process of industrialization in developing countries. It has generated many innovations, particularly with respect to technological alternatives, integrated development and contractual arrangements. The many opportunities thus provided have led to the implementation of projects in technical assistance, investment promotion and technology transfer.

The Consultation process, by virtue of its consensual and normative character, has revealed itself to be an efficient vehicle for balancing the various interests involved in international industrial co-operation. It is eminently suited to assist member countries in the formulation of strategies and policies for industrial development.

The System operates under the continuous and close guidance of the Industrial Development Board of UNIDO. In addition to annual reviews and occasional progress appraisals, the System in 1989 was subjected to an in-depth evaluation which concluded that it was, moreover, providing a major contribution to the development and formulation of UNIDO's own policies and programmes in specific sectors through integration and interaction with the Organization's other main activities.

1/ See Report of the Second General Conference of the United Nations Industrial Development Organization (ID/CONF.3/31), chapter IV, "The Lima Declaration and Plan of Action on Industrial Development and Co-operation", para. 66.

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INTRODUCTION

1. The Consultation on the Food-Processing Industry with Emphasis on Fruit and Vegetable Processing was held at Tbilisi, Georgian Soviet Socialist Republic, USSR, from 18 to 22 September 1989. The Consultation was attended by 53 participants from 23 countries and from 4 international and other organizations (see annex I).

Background to the Consultation

2. The Industrial Development Board, at its second session, in October 1986, decided to include the Consultation on the Food-Processing Industry with Emphasis on Fruit and Vegetable Processing in the programme of Consultation meetings for the biennium 1988-1989. 1/

3. Subsequently, an Expert Group Meeting for the Asian and Pacific Region in Preparation for the Consultation on the Food-Processing Industry with Emphasis on Fruit and Vegetable Processing 2/ was held at Beijing, China, from 22 to 24 November 1988. It was organized in close collaboration with the Beijing Vegetable Research Center, the Ministry of Light Industry and the Ministry of Foreign Relations and Trade of China.

4. This was followed by a Regional Expert Group Meeting for Africa in Preparation for the Consultation on the Food-Processing Industry with Emphasis on Fruit and Vegetable Processing, 3/ held at Tunis, Tunisia, from 28 to 30 March 1989. This Meeting was hosted by the Tunisian Government with financial support from the French Government.

5. Finally, a Global Preparatory Meeting in Preparation for the Consultation on the Food-Processing Industry with Emphasis on Fruit and Vegetable Processing 4/ was held at Vienna, Austria, from 2 to 5 May 1989. Its objectives were:

(a) To discuss the present situation of the fruit and vegetable processing industry, with special emphasis on the quality of raw materials and final products, supply, storage, marketing, packaging, and potential for the expansion of production;

(b) To identify common and specific constraints which hamper the development of the industry in the developing countries, such as lack of raw materials, spare parts, training, financing and investment, as well as inadequate management and technology, especially in packaging;

(c) To propose ways and means, through international co-operation, to overcome the identified constraints;

1/ Decision IDB.2/Dec. 13.

2/ IPCT.80(SPEC.).

3/ ID/WG.483/3(SPEC.).

4/ ID/WG.494/3.

(d) To select specific issues for further elaboration and discussion at the Consultation.

6. Regional surveys and other basic documents on the fruit and vegetable processing industry, prepared by the UNIDO Secretariat and UNIDO experts, as well as national reports, were presented at these meetings.

7. In view of the complexity and the wide spectrum of the problems facing the industry, and taking into account the conclusions of the previous preparatory meetings, the experts decided that the following issues were of particular importance to the development of the sector in the developing countries and should be addressed by the Tbilisi Consultation:

Issue 1. Basic requirements for long-term viability of the fruit and vegetable processing industry

(a) National strategies and policies - integrated development objectives and instruments (government promotional and support measures such as agricultural credit, financing, infrastructure, and research and development);

(b) Rational integration of agriculture and industry (contracts between producer and buyer; supply of raw materials in terms of quantity and quality; waste utilization; by-products);

(c) Efficiency and productivity (quality assurance; equipment; technology; packaging material and machinery; transport; rehabilitation; small-scale industries; maintenance and repair);

(d) Manpower training at all levels, including training in management and organizational skills;

(e) Markets (domestic; export; international standards; need for diversification; tariff/non-tariff barriers; market promotion; market information/intelligence).

Issue 2. International co-operation

(a) Role of international organizations (technical assistance; analysis of market information intelligence; human resources development; support to research work);

(b) Financing (joint venture; investment; loans);

(c) Technology (transfer of technology and know-how; packaging from local materials);

(d) Equipment (supplies; contracts; spare parts; post-sale services; maintenance);

(e) Market information accessibility (joint formulation of international agreements and regulations);

(f) South-South co-operation (joint research work; regional institutions; development of trade relations within regions and subregions).

AGREED CONCLUSIONS AND RECOMMENDATIONS

Issue 1. Basic requirements for long-term viability of the fruit and vegetable processing industry

Conclusions

8. The Consultation agreed on the following conclusions:

(a) The fruit and vegetable processing industry has an important role to play in the economic and social development of developing countries as it contributes to the nutritional welfare of the population, to the growth of rural areas and to foreign exchange earnings and savings;

(b) In order to achieve better balance in the supply/demand prospects of the industry, and in order to reach, in quality and volume, the highest valorization of its production and the reduction of its losses, promotional measures have to be taken to better organise and improve the efficiency of the whole subsector. Suitable infrastructure at all levels is also a basic prerequisite for self-sustained development of the subsector;

(c) Government policies and strategies have to aim at full integration of the fruit and vegetable processing subsector in national agro-industrial systems. The main instruments to achieve this integration include the launching of rural development support programmes; the establishment of new productive capacities and the rehabilitation of existing ones; and the taking of measures to mobilize investment and financial resources, both domestic and foreign;

(d) The industry, in order to be able to play its proper role in the economy of developing countries, has to meet those desirable and necessary conditions that will ensure the basic requirements for its long-term viability. These include enhanced efficiency and effectiveness in the choice and application of technologies appropriate to integrating the industry into the agro-industrial system; the promotion of research and development; the introduction of quality control and standardization operations at all phases of production and processing; and the development of technical and managerial skills at all levels of production;

(e) While the fruit and vegetable processing industry has an essential contribution to make to the balanced diet of the population, and has potential for expansion in the domestic and export markets of developing countries, it must nevertheless be recognized that consumer habits and preferences, competitiveness, import restrictions and other factors represent significant constraints to its successful penetration of markets.

Recommendations

National measures

9. Governments and policymakers should pursue integrated and coherent measures to promote the development of the fruit and vegetable processing industry as an integral part of the agro-industrial system, by means of the establishment or reorientation of policy instruments, rural development programmes and promotional measures, and to that end:

(a) Define the priority to be accorded to the development of the industry and establish or enhance the strategy instruments by which it could be effectively integrated into the agro-industrial system and the overall economy, through the strengthening of backward and forward linkages encompassing agriculture and industry;

(b) Mobilize the rural community, farmers, entrepreneurs, the banking system and consumer associations - through the preparation and adoption of strategic plans - to ensure the long-term viability of the subsector. These plans could encompass rural development programmes and/or programmes aimed at decentralizing urban industry and stimulating balanced rural-urban development;

(c) Devise, on the basis of a thorough assessment of raw material resources, market research and feasibility studies, incentive measures to stimulate investment in new production facilities appropriate to local conditions and capacities and/or the rehabilitation of existing ones as well as to direct bilateral and multilateral aid to the priorities accorded to the subsector;

(d) Establish, for export purposes, mechanisms and services for monitoring global and regional trends in markets so as to facilitate the identification of market niches and consequently market penetration;

(e) Ensure that existing quality control and standardization institutions include specialized testing laboratories for the fruit and vegetable processing industry. To that end, and taking into account the work in this field of the Codex Committees of the United Nations Food and Agriculture Organization/World Health Organization, such laboratories should (i) provide extension services, in collaboration with other institutions providing similar services, in the form of drawing up of specifications, procurement of equipment and training of personnel, and (ii) disseminate information (including the results of research work carried out by specialized national, regional and international organizations) on aspects of quality and quality declarations, i.e. in respect of changes that might occur during storage periods, transportation and the shelf-life of products;

(f) Support measures and incentives for upgrading the subsector, as an integral part of the food industry, by providing the infrastructure necessary for its development. The rational and efficient organization of the subsector should be fostered by promoting the establishment of professional associations aimed at strengthening linkages among all concerned in the sector;

(g) Establish national and regional fruit and vegetable processing research and development centres to: undertake research on technologies; ensure that the results of relevant research and development activities carried out in developed and developing countries are widely disseminated for the benefit of the fruit and vegetable processing industry; provide extension services to enterprises in the choice of suitable machinery and equipment; advise on markets and marketing; compile directories of sources of equipment supply, technology and know-how; and promote co-operative arrangements among institutes. The linkages between research and development institutes and industry should be strengthened through tripartite meetings between research and development institutes, UNIDO and representatives of industry from developed and developing countries;

(h) Promote research on sources of locally available packaging material and its wider utilization, through local and regional co-operation in manufacturing, in view of the high cost of packaging material and its influence on the final price of processed fruit and vegetables. To that end, efforts should be directed to research programmes as well as to the collection of information on alternative sources of packaging materials available internationally;

(i) Promote and undertake specific studies and develop programmes on the adaptation of packaging to its functions and objectives, namely to domestic market requirements, climatic conditions, final destination, consumption, transport and intermediate products delivery. Dissemination of information on the recycling of packaging material, as well as feasibility studies on recycling plants, should be part of this strategy;

(j) Accord priority in support measures and overall allocation of resources to training programmes addressing all levels of the production process, in view of the importance of skill development and technical training in the industry, with emphasis on technology application, purchase of equipment and spare parts, as well as maintenance (including preventive maintenance). Links should also be established with training institutions dealing specifically with the fruit and vegetable processing industry. In this way, a network would be established in which institutions having recognized potential would constitute "centres of excellence" serving the developing countries in their efforts to develop human resources;

(k) Grant subsidies and other special support measures to small-scale enterprises, including the suppliers of raw material, in recognition of the key role that they play in the development of the fruit and vegetable processing industry within the agro-industrial system of the country. To that end, substantive information on practical experience already acquired in developed and developing countries should be collected, analysed and made available to policymakers, industrialists, and consumer associations. Within the same framework of rational integration, the development of small-scale freezing facilities, ideally as part of the entire cold chain, should form part of programmes aimed at the development of the sector;

(l) Promote and carry out studies on technological alternatives to develop suitable programmes for waste and residue utilization as well as on the processing of tropical fruit and vegetable by-products. These studies should deal specifically with the environmental issues associated with the fruit and vegetable processing industry, such as effluent treatment;

(m) Place emphasis on market requirements, both for local and export markets. In this respect, market studies should be carried out before plants are set up; existing studies on specific markets should be updated; and new studies formulated. The importance and potential of the domestic market should be recognized and inventories of population needs, in terms of nutrition as well as of ways and means to meet population requirements, should be prepared. Aspects of packaging products for export as well as for local markets should be taken into consideration to provide Government and industry with guidance in the choice of packaging material and design;

International measures

(n) UNIDO and other relevant organizations should render their assistance in the above priority areas, when requested. In addition, UNIDO should provide specific technical support in the following areas:

- (i) Standardization and quality control;
- (ii) Research and development in the field of packaging and packaging material;
- (iii) Training at all levels, with emphasis on preventive maintenance and maintenance;
- (iv) Waste and residue utilization;
- (v) By-products processing;
- (vi) Preparation and dissemination of checklists/guidelines/project profiles for the establishment of fruit and vegetable processing industries;
- (vii) Development needs of the fruit and vegetable processing industry in small island countries.

Issue 2. International co-operation

Conclusions

10. The Consultation agreed on the following conclusions:

Technical co-operation

(a) Although practically all developing countries have national development plans for the main economic sectors, most of them do not have subsectoral plans. This is very often the case with the fruit and vegetable subsector which, as a result, has suffered from haphazard development and lacks forward and backward linkages and integration with agro-based systems and other economic sectors in the broader context of industrialization. This results in deficiencies in the food production chain because of inadequate, poor quality and untimely supplies of raw materials; inadequate handling and storage facilities. This, in turn, gives rise to instability and idle capacities in processing industries and affects their marketing capabilities. Developing countries lack the capability and capacity to formulate policy and strategic plans in the subsector. They also lack the financial and human resources to implement such plans. Bilateral and multilateral aid is insufficient and not well oriented to benefit the fruit and vegetable subsector;

Technological co-operation

(b) Developing countries are lacking in the capability for the choice and adaptation of technologies resulting in the setting up of industries with inappropriate technologies or which are not suited to the socio-economic environment. This results in low productivity, poor quality, idle capacities, high production costs and difficulties in marketing. Government policies on technology do not address supply and demand factors and lack supporting measures for the subsector. Proper transfer of technology is impeded by the

restrictive practices of many technology suppliers. The introduction of updated or new technologies faces resistance arising from traditional attitudes towards any change, especially with regard to farmers and small processors. Developing countries need a solution to the problem of the high cost of packaging materials. Small-scale industry finds it difficult to obtain technologies suited to its size as modern technologies cater mainly for large-scale industry;

Financial co-operation

(c) Net capital flows to developing countries have been decreasing over the last decade. Many developing countries lack the capability for the promotion of investments. Tariff and non-tariff barriers have made it difficult for these countries to penetrate the markets of industrialized countries, thus earning less foreign exchange from exports. They find difficulty in locating suppliers of equipment and industrial inputs and obtain their supplies at less than the best prices and conditions;

Market development and marketing

(d) Several developing countries do not have appropriate policies and programmes to support industrial enterprises in their export marketing efforts. They also lack mechanisms and procedures for the gathering, analysis and dissemination of market information for demand prospects of industrialized countries. Investment programmes often are not based on realistic forecasts of potential market penetration;

Institutional framework and mechanisms for enhancing international co-operation

(e) There is lack of co-ordination among agencies in industrialized and developing countries which deal with investments, technical assistance and capacity building. Financial and development banking institutions operate independently in the treatment of applications for credit for the fruit and vegetable subsector. Industrialized countries, both centrally planned and market economies, have the technological and financial potential to join forces with multilateral and international organizations to assist developing countries in their efforts to promote new productive capacities and/or rehabilitate existing ones. They can also assist in the strengthening of institutional capacities for the training of industrial manpower in all disciplines and levels required for the fruit and vegetable subsector.

Recommendations

11. The Consultation agreed on the following recommendations:

Technical co-operation

(a) UNIDO, in collaboration with FAO, the International Trade Centre (ITC) and other international organizations, and with the support of donor countries, should assist developing countries in the formulation and implementation of policy and strategic plans for the development of the fruit and vegetable subsector. This should be done through a programme approach for individual countries or a group of countries in a region, and should take the following form:

- (i) Assessment of the subsector, taking into consideration natural resources, market potential, socio-economic conditions, including labour resources, physical and industrial infrastructure;
 - (ii) Formulation of a policy and strategic plan for the subsector, bearing in mind forward and backward linkages of industries within the sector and integration with other economic sectors;
 - (iii) Preparation of opportunity studies for potential industrial projects;
 - (iv) Preparation of feasibility studies for projects likely to be financially and economically viable;
 - (v) Investment promotion of bankable projects;
- (b) In the formulation of policy and strategic plans, policy-makers and planners should give due regard to:
- (i) The creation of information centres at country and regional levels to collect and disseminate information on agricultural inputs, processing technologies and industrial inputs, with emphasis on packaging materials and markets;
 - (ii) The creation/strengthening of research and development capabilities for the adaptation of technologies suited to the socio-economic environment;
 - (iii) The creation of collection and distribution centres to maintain the quality and increase the quantity of raw materials available for processing and with the purpose of reducing post-harvest losses;
 - (iv) The auditing of existing industries in order to streamline production, improve productivity, financial and general management and maintenance;
 - (v) The establishment/strengthening of national export promotion offices, or similar offices, to act as focal points for market information, packaging and labelling requirements, quality control, participation in trade fairs, export financing and export promotion;
 - (vi) The special requirements of small, island and land-locked countries in view of the disadvantages faced by these countries arising from economies of scale, low resource base, high transport costs etc.;
 - (vii) The establishment of extension services for farmers and small-scale processors to assist in the assimilation of new technologies and to overcome resistance to change;
 - (viii) The extension of the processing season through various measures, such as irrigation, glass-houses, seeds for early and late crops etc.;

- (ix) The training of industrial manpower, including the training of trainers, for general and technical management of industrial enterprises, and the selection, adaptation and assimilation of technologies;
- (x) The importance of small-scale industry in the development of the subsector, due to its flexibility and its beneficial role in creating linkages with medium- and large-scale industry;

Technological co-operation

(c) UNIDO should continue to strengthen its capabilities in advising developing countries in the selection and adaptation of appropriate technologies and technology information systems in the fruit and vegetable subsector; act as catalyst between equipment designers, technology suppliers and users; and provide training facilities for trainees from developing countries (including the training of negotiators) through courses, seminars etc. UNIDO should assist in promoting co-operation among research and development organizations dealing with the development of the fruit and vegetable subsector in developing and industrialized countries;

(d) UNIDO, with the support of other international organizations and donor countries, should assist developing countries in:

- (i) The creation/strengthening of technology information centres;
- (ii) The strengthening of research and development facilities, especially in the field of applied research, for the adaptation of technologies suited to the level of development;
- (iii) The provision of extension services to upgrade management and technical operations and to overcome resistance to new technologies;
- (iv) The creation/strengthening of specialized training institutions for managers, technicians and operators;
- (v) The provision of expertise for the mastering of technological changes in the fruit and vegetable subsector;
- (vi) The establishment of national engineering consulting services and the promotion of co-operation between these and similar services in industrialized countries;
- (vii) The safeguard of the ecological balance and protection of the environment;

(e) UNIDO and FAO, in consultation with other international organizations, should carry out research programmes:

- (i) To locate or develop alternative packaging materials and technologies for fruit and vegetable processing in order to overcome the problem of excessive costs of packaging;
- (ii) To develop alternative or adapted technologies for the specific use of industry in the fruit and vegetable subsector, with special emphasis on technologies adapted to small and medium-scale industries;

Financial co-operation

(f) The bilateral and multilateral agencies should try to increase the volume of credit granted to developing countries, paying special attention to financing in the area of fruit and vegetable processing, in view of its importance for the achievement of food security and the development of rural regions. To that end, they should disseminate information on the complex financial markets so that developing countries may be aware of the possibilities of access to those financial markets;

(g) In order to contribute to the mobilization of financial resources for funding in the area of fruit and vegetable processing, UNIDO should strengthen its co-operation with multilateral and regional financial institutions;

(h) When the industrialized countries consider the granting of export credits, they should take account of the need to export equipment meeting the fundamental requirements of the developing countries;

(i) UNIDO should draw up a directory of suppliers of equipment, technology and industrial inputs relating to the fruit and vegetable subsector, with the aim of assisting enterprises in developing countries to obtain the best quotation for their supplies;

(j) UNIDO should strengthen its investment promotion programmes, especially by increasing the number of Investment Promotion Service offices in industrialized countries, and by organizing more industrial investment programmes and investment forums to generate industrial investments in developing countries, including in the fruit and vegetable subsector. In promoting investment projects, buy-back arrangements and similar financial mechanisms should be investigated;

(k) Developing countries should strengthen/establish investment promotion centres for the identification of investment projects and of joint-venture partners and the mobilization of resources required for investment in the fruit and vegetable processing subsector. These centres are encouraged to liaise closely with UNIDO's Industrial Investment Programme;

Market development and marketing

(l) Governments of developing countries should formulate and implement adequate policies and strategies, including legislative and administrative and institutional frameworks for the encouragement of exports, covering also the special requirements of the fruit and vegetable subsector;

(m) Governments of developing countries should strengthen/establish export promotion organizations which should act as focal points for the collection and dissemination of market information, carrying out of surveys for specific products in target countries, advise on packaging and labelling, promote standardization and quality control of export products, organize participation in trade fairs abroad, facilitate export financing and undertake export promotion. Such export promotion organizations would facilitate the receipt of technical assistance in the sphere of market and product development from aid donors and international organizations;

(n) Industrial investments, particularly in the fruit and vegetable sector should be market-led, i.e. the feasibility of investment projects should be based on realistic forecasts of market potential in order to ensure successful projects;

(o) ITC, with the support of UNIDO, should make new market studies on the export potential of processed fruit and vegetables from developing countries (such as dehydrated fruits). ITC should also update the market studies it has carried out on various processed fruit and vegetables in the past, e.g. on fruit juices;

Institutional framework and mechanisms for enhancing international co-operation

(p) UNIDO should encourage the exchange of information and support the promotion of co-operation among centres of excellence in the fruit and vegetable sector which exist in industrialized and developing countries;

(q) International financial institutions and development banks should study innovative ways of providing credit to reach the small farmers and producers in the fruit and vegetable subsector, since these are normally not catered for by formal financial circuits due to problems arising from lack of adequate collateral;

(r) UNIDO should encourage co-operation among financial, technical and technological institutions in centrally planned and market economies in order to create tripartite co-operation with developing countries to increase new productive capacities in these countries and provide supporting technical assistance, including in the field of the training of industrial manpower. It would be particularly useful to prepare the necessary information for feasibility studies and projects for joint facilities capable of satisfying the demands of the partners involved.

I. ORGANIZATION OF THE CONSULTATION

Opening of the Consultation

12. The opening session of the Consultation on the Food-Processing Industry with Emphasis on Fruit and Vegetable Processing took place in the presence of His Excellency, Nodar Chitanava, Chairman of the Council of Ministers of the Georgian Soviet Socialist Republic; His Excellency Guram Mgeladze, First Deputy Chairman of the Georgian Soviet Socialist Republic and Chairman of the State Agro-Industrial Committee of Georgia; and His Excellency Georgi Javakhishvili, Minister of Foreign Affairs of the Georgian Soviet Socialist Republic.

13. The Deputy Director-General, Department for Industrial Promotion, Consultation and Technology of UNIDO, speaking on behalf of the Director-General of UNIDO, expressed the Organization's deep appreciation to the Government of the Georgian Soviet Socialist Republic for hosting the Consultation. The Consultation, he said, was a reflection of the increased focus by UNIDO on the development of the agro and allied industries - industries which were considered as priority areas of the Organization's contribution to the process of industrialization. The fruit and vegetable processing subsector, he said, was one for which huge potential existed in developing countries. Yet, despite recent improvements, the developing countries still accounted for only 4 per cent of the world's output of processed fruit and vegetables. Promotion of the subsector was warranted by the resulting value-added of agricultural production, increasing food supplies and raised farmers' income. It also had the added advantage of speeding economic growth, creating employment and improving industrial infrastructure. He concluded by stressing the importance of international co-operation in such vital areas as technology transfer, manpower training and the development of management techniques. Thus, utilization of the acquired knowledge and experience of highly competent companies could contribute to the development of this subsector in the developing countries on the basis of mutually advantageous co-operation.

14. Guram Mgeladze, First Deputy Chairman of the Georgian Soviet Socialist Republic, welcomed the participants to Tbilisi. In the modern, interdependent world, he stated, human values and needs common to all mankind were acquiring priority over the specific interests of individual nations. That humanistic approach to world affairs, he said, had recently been reiterated by Mikhail Gorbachev during a meeting with the members of the diplomatic corps in Moscow. The approach was fundamental to the activities of any United Nations body engaged in efforts to fight famine and economic and cultural backwardness. The Consultation, he went on, represented the first time that a UNIDO forum of such prominence was being held in the Georgian Soviet Socialist Republic. He expressed the hope that the event would become the trend-setter for future fruitful co-operation between UNIDO and his Republic. To that end, the Georgian Soviet Socialist Republic was considering strengthening its ties with UNIDO through the establishment of a UNIDO Centre at Tbilisi. Glasnost and Perestroika, which were currently being promoted in the country, also gave more opportunity to use more effectively the Republic's natural and economic potential, strengthen economic relations with other nations, and establish mutually beneficial business ties.

15. The Director of the System of Consultations Division joined the previous speakers in their statements on the importance of the food-processing industry. He noted that during the last 12 years, Consultations had been held on industrialization based on raw materials in the supply of which the

developing countries had comparative advantages. Within the agro-industrial system, the food-processing sectors had featured prominently. Consultations had already been held on the vegetable oils and fats and the sugar processing industries. The present Consultation drew its rationale from the role that food processing played in industrialization as an integral part of a country's agro-industrial system. As to the problems confronting the industry, he said that the absence of medium- to long-term strategies for the development of fruit and vegetable processing had often acted as an impediment to the orderly mobilization of domestic and external resources. Another main problem lay in the fact that the establishment of new production facilities was not always subjected to rigorous feasibility analyses. He noted the vital role that small and medium-sized enterprises could play in the development of the sector, although a wide range of support measures would be needed. The Consultation, he concluded, should explore these and other related issues in order to formulate conclusions and recommendations on measures needed to promote the development of the fruit and vegetable processing industries in the developing countries.

Election of officers

16. The following officers were elected:

Guram D. Mgeladze (USSR), First Deputy Chairman of the Georgian Soviet Socialist Republic	Chairman
Gladstone V. Taylor (Jamaica), Executive Director, Scientific Research Council, Kingston	Rapporteur
Sved Toufique Ali (Bangladesh), Managing Director, M. S. Netan Ltd., Dhaka	Vice-Chairman
Blanchard A. Pratt (Sierra Leone), Production Manager, Freetown Cold Storage Co. Ltd., Freetown	Vice-Chairman
Alain Jácotot (France), Chef du bureau des fruits et légumes Ministère de l'agriculture, Paris	Vice-Chairman

Adoption of the agenda

17. The Consultation adopted the following agenda:

1. Opening of the Consultation
2. Election of Chairman, Vice-Chairmen and Rapporteur
3. Adoption of the agenda and organization of the work
4. Presentation of the issues by UNIDO
5. Discussion of the issues:
 - (a) Issue 1: Basic requirements for long-term viability of the fruit and vegetable processing industry
 - (b) Issue 2: International co-operation
6. Other matters
7. Conclusions and recommendations
8. Adoption of the report.

Establishment of working groups

18. The Consultation established two working groups to discuss the issues and to propose conclusions and recommendations for consideration by the plenary. Blanchard A. Pratt (Sierra Leone), Production Manager, Freetown Cold Storage Co. Ltd., was appointed Chairman of the Working Group on Issue 1, and Alain Jácotot (France), Chef du bureau des fruits et légumes, Ministère de l'agriculture, Paris, was appointed Chairman of the Working Group on Issue 2.

Documentation

19. The documents issued prior to the Consultation are listed in annex II.

Adoption of the report

20. The report of the Consultation on the Food-Processing Industry with Emphasis on Fruit and Vegetable Processing was adopted by consensus at the final plenary, on 22 September 1989.

II. REPORT OF THE PLENARY

Presentation of the issues

Issue 1. Basic requirements for long-term viability of the fruit and vegetable processing industry

21. A member of the UNIDO Secretariat introduced the issue. He gave a brief description of the status of and outlined the problems confronting the fruit and vegetable processing subsector in developing countries in the context of both domestic and international supply/demand perspectives. He emphasized the crucial role to be played by policy instruments aimed at achieving a rational integration between agriculture and the food processing industry. The provision of incentives and the availability of the required infrastructure would promote private initiative and attract foreign investment. He also stressed the urgent need for improved efficiency in the industry, through technological innovation, manpower training, appropriate marketing strategies, better packaging etc. He concluded his presentation by inviting participants to examine closely the pertinent factors determining the future development of the subsector. These, he indicated, were systematically grouped in the final pages of the Secretariat discussion paper on this issue, under the following headings: the economic and social importance of the subsector; supply/demand prospects of the subsector; policy and institutional prerequisites for the development of the subsector; prerequisites for operational efficiency and productivity; and markets and marketing (ID/WG.488/2).

Issue 2. International co-operation

22. Introducing this issue, the member of the Secretariat stated that in spite of differences in regional priorities, the common objectives of the developing countries with respect to the subsector remain:

- (a) To derive added value from raw material resources;
- (b) To increase market shares in both domestic and export markets;
- (c) To foster the process of industrialization through integrated development of the agro-industries;
- (d) To strengthen the linkages between upward and downward allied industries (engineering, chemical, energy, small-scale industries);
- (e) To reduce losses and waste.

23. Referring back to his remarks pertaining to the first issue, he emphasized that in view of the multiplicity of types of raw materials, levels of process technologies, kinds and sizes of processing units, widely differing techniques, and sophistication of markets available, there could be no uniform or standard approach in dealing with the fruit and vegetable industry.

24. With regard to the role of international organizations within the context of co-operation, he said that these organizations routinely assumed such important tasks as the identification of basic constraints to sectoral development and the formulation of industrial policies to overcome those constraints. He then cited specific initiatives undertaken by a number of agencies within the United Nations system. The main obstacle to increasing export earnings of developing countries in this subsector, he said, stemmed from limited access to export markets due to protectionism and the instability

of prices. In general, international bodies, through active and productive participation, could make a substantive contribution in areas such as the mobilization of financial resources, productivity improvements, transfer of technology, and the provision of market intelligence and information. He then proceeded to summarize the international co-operation activities needed to overcome the constraints faced by developing countries in the fruit and vegetable processing industry. These were addressed in the Secretariat discussion paper on this issue under the headings of technical co-operation; technological co-operation; financial co-operation; market development and marketing; and institutional framework and mechanisms for enhancing international co-operation (ID/WG.488/3).

Summary of discussion

25. A number of participants described the status and prospects of the fruit and vegetable processing industry in their countries. The crucial importance of proper packaging and stocking was underlined. Weaknesses in this area often caused enormous losses and undermined the economic and financial viability of many processing plants in developing countries.

26. Participants concurred that the fruit and vegetable processing industry lent itself very well to medium- and small-scale enterprises in the private sector, which, however, continued to require supportive measures by national policymakers. The overall objective should be to aim at integration of the subsector into the agro-industrial development pattern of national economies.

27. One participant stressed the importance of manpower training in all the technologies employed in agriculture. In that context, rural and agro-industrial development should be perceived as an integrated system - a system in which the various activities interrelate and which covers both the agricultural process itself and the proper use and maintenance of the machinery and equipment used.

28. Another participant, from a developing country, stated that in examining the various constraints confronting the subsector, attention should be paid to the specific needs and peculiarities of the small and island countries, where the conventional economies of scale no longer applied.

29. Participants from developing countries identified inaccessibility to international markets for their agricultural produce as a major impediment inhibiting the growth potential of their food-processing industries. Moreover, habitual preference for fresh fruits and vegetables also limited domestic market outlays. However, it was observed, growing urbanization in the developing countries was increasing the demand for food processing. In assessing their needs in the subsector, these participants accorded the highest priority to the acquisition of appropriate process technology and access to market information and intelligence. In this context, the representatives of some industrialized countries offered access to their know-how, technology and facilities for the development of the subsector in developing countries.

30. A participant from a developed country gave a brief account of that country's vast experience in international co-operation in the subsector. He argued that successful promotion of the subsector depended, above all, on the application of an integrated approach from raw material to marketing, and on the search for case-by-case solutions, taking into consideration the specific characteristics and requirements of individual projects in developing countries.

31. Many participants underlined the desirability of developing indigenous capabilities in research and development for the creation of the appropriate technologies required by the subsector. The acquisition of foreign technologies, they said, was not always pertinent to the industrial and social realities of the developing countries.

32. Representatives of the UNIDO Secretariat described the Organization's current programmes of technical assistance, investment promotion, technology transfer, data processing etc. in the field of agro-industries in general and in the subsector in particular. UNIDO, they said, was involved at various stages, ranging from feasibility studies to the commissioning of plants in the subsector. The experience and know-how thus acquired was available to interested developing countries.

33. The representative of the International Trade Centre (ITC) also gave a brief account of the Centre's activities in the subsector and stated that particular attention was being paid to conducting market surveys and market development projects in selected developing countries. In this context, the active co-operation of enterprises in both the public and private sectors was essential.

34. The representative of the FAO, in describing the current activities of his Organization in the subsector, said that the processing of agricultural produce in general, and fruit and vegetables in particular, figured prominently in the priorities of the FAO. To this effect, the Organization was engaged in various technical assistance projects and related activities in the developing world, details of which he would provide to the Working Groups of the Consultation.

35. The plenary agreed that in order to undertake a systematic examination of all the different factors shaping the industry, it might be useful to refer to the "Final considerations" contained in the discussion papers drawn up by the Secretariat on the two issues. Those considerations provided general guidelines for the deliberations of the Working Groups.

III. REPORT OF THE WORKING GROUP ON ISSUE 1:
BASIC REQUIREMENTS FOR LONG-TERM VIABILITY OF THE
FRUIT AND VEGETABLE PROCESSING INDUSTRY

Summary of discussion

36. Many participants considered that strengthening the linkages among the different operations in the fruit and vegetable processing industry was essential to upgrading the effectiveness of the subsector. They felt that those directly concerned, namely the producers and manufacturers, as well as those responsible for storage, transport and trade operations, should take the initiative in reinforcing their relationships in order to find solutions to their problems related to financing, lack of continuity in the supply of raw materials, transportation, training, packaging, standardization, spare parts, lack of proper maintenance (including preventive maintenance) etc. This could best be accomplished through an institutionalized approach, such as through associations or federations or through chambers or councils of industry. The aim would be to create an organized structure for the subsector which would cover all operational stages. The role of the Government would be focused on supporting the above structure and providing the essential infrastructure for its development, including physical infrastructure, transportation, public services and training opportunities. In this connection, supply/purchase contracts or other forms of co-operation between the producer and the processing industries could be formulated by the responsible associations on a case-by-case basis.

37. Training and skill development at different levels (e.g. in quality control, maintaining nutritional value, food safety, shelf-life of products, packaging, transport etc.) was mentioned by several participants as being essential to the development of the subsector. Some participants mentioned that special training for small-scale entrepreneurs was needed, e.g. in applying for financial assistance as well as in the application of new technologies. The training of technicians, it was noted, was fundamental to basic operations. This should cover the more complicated aspects of mechanization, such as maintenance, as well as arranging for the purchase of equipment and spare parts. One participant stressed the importance of preventive maintenance.

38. With respect to quality control, one participant said that three main aspects deserved particular attention: namely, the quality control of agricultural products to be supplied to the processing industry; the quality control during the processing of the product at the enterprise level; and the quality control of the commercial product (including its shelf-life). The point was made that it should be the responsibility of Government to establish quality testing facilities to service small enterprises which would not normally be able to afford their own such facilities.

39. Some participants pointed out the difficulties which small-scale farmers and fruit and vegetable processing units encountered in applying technologies developed by research and development institutions. Many such units resisted applying new technologies, preferring to continue using traditional processing methods. Extension services could constitute the necessary link between research and development institutions and the small-scale operators. There was a general lack of information on existing research institutes and their activities in specific fields, and this constituted a hindrance to the processing industry.

40. Many participants spoke with concern of the high cost of packaging material, which influenced the final price of fruit and vegetable products. Most such packaging material was imported and little information existed on potential, exploitable local resources. Research had not gone far enough on the study of this important aspect, nor was information to be had on alternative sources of packaging material available on international markets. In this connection, the possibility of recycling packaging materials such as glass and tin was mentioned as a way of reducing imports.

41. During the discussion on the efficient management of raw materials, some participants referred to the problem of waste utilization and by-products processing. One participant pointed out that it was difficult to find one solution for all, given the broad range of processes involved in the manufacture of different products. Moreover, he added, there was a high cost factor involved in waste utilization. The question was raised of incorporating waste utilization systems in fruit and vegetable processing plants from the very outset. In this connection, it was noted, regulations aimed at environmental protection in some developed countries insisted on waste recycling/utilization units being part of processing plants.

42. Some participants expressed themselves in favour of the integration of the fruit and vegetable processing industry in the agro-industrial system, as well as of its integration at different operational levels from agricultural production to inputs manufacturing, industrial processing and commercialization. The question was how to initiate this integration process at either the macro or the micro economic level. Government, industry and co-operatives were mentioned as possible initiators and promoters of such integration.

43. Some participants offered their countries' assistance in the development of national programmes for the subsector, e.g. through training. UNIDO, they said, should act as a catalyst in organizing such assistance.

44. Some participants noted the importance and priority given to domestic markets by Governments in both developed and developing countries. In that respect, they stressed, the differences between packaging intended for domestic and export markets were considerable, as was the need to adapt packaging to its functions and objectives, namely, transport packaging, collective packaging for semi-finished products, and packaging for the consumer.

45. Other delegates, from developed countries, mentioned in this context that packaging and food institutes in their countries, because of their experience and specialization, were in a position to offer assistance to developing countries through training, expert advice, and tripartite co-operation aimed at solving problems related to packaging.

46. Members of the Secretariat gave short accounts of the activities of various Divisions of UNIDO. Special emphasis was given to those of the Industrial and Technological Information Bank (INTIB) and the dissemination of technical information through INTIB national focal points in various countries. The Secretariat members mentioned certain UNIDO technical assistance projects in order to illustrate specific aspects of technology and to stress the importance of product and process research as well as the need for appropriate packaging and marketing. The experience gained by UNIDO from project operations underlined the validity of some of the statements made by the participants.

47. The representative of ITC said that market studies were of vital importance. When deciding on the establishment of a new plant, such studies would, in fact, show if the investment contemplated were advisable. In that respect, he added, it was important to bear in mind that planning production should be market- rather than raw material-oriented. Market forecasts, as well as market research and market techniques, were prerequisites for developing countries intending to export, as the potential of the world market was often overestimated. In that connection also, product diversification and development were important factors in any effort to reach new markets or tackle market niches in those areas where the competition was not too strong. The representative of ITC expressed the readiness of his Centre to undertake new studies on specific markets or to update existing studies, provided that financial support could be made available.

IV. REPORT OF THE WORKING GROUP ON ISSUE 2:
INTERNATIONAL CO-OPERATION

Summary of discussion

48. Most participants stated that there was a lack of the policy and strategy needed to guide and develop the fruit and vegetable subsector in developing countries. Because of this, the subsector had developed in a haphazard manner, without due attention being paid to linkages within the subsector or its integration with the agro-based system and with other sectors of the economy, notably agriculture and the tertiary sector. As a result, they said, there were gaps in the food production chain, from the growing of produce through harvesting, storage, handling, transporting, processing and marketing.

49. Many participants stated that the main problem in the subsector stemmed from supplies of raw produce of the right quality for processing being inadequate or not being supplied on time or in a uniform manner to the processing plant.

50. Other participants spoke of the problem of marketing caused by inadequate distribution channels in the local market and the tough, often insurmountable, competition in the export markets from large, well established firms. They also pointed to the difficulties experienced by fruit and vegetable enterprises in developing countries in penetrating the markets of industrialized countries - difficulties due to the tariff and non-tariff barriers imposed by the latter countries on food imports, including strict regulations on packaging and labelling.

51. A number of participants from industrialized market economy countries described their activities in support of developing countries' efforts to develop the fruit and vegetable subsector. These activities included the provision of expertise and consulting engineering services; the preparation of pre-investment studies; the promotion of joint ventures; and the provision of technical assistance on a bilateral basis or through financing the activities of international organizations, including UNIDO. One participant presented the outlines of a joint programme being carried out by his country and UNIDO in the area of industrial investment in developing countries in the agro-food sector, with particular reference to the fruit and vegetable sub-sector. The programme mainly involved an initial survey of agro-food enterprises to give a precise indication of supply, identification missions by specialized experts in certain developing countries to ascertain sectoral potential and identify local partners for industrial co-operation projects and the possibility of financing pre-investment studies to confirm the technical and economic viability of the projects and to seek to mobilize the necessary funding.

52. Participants from centrally planned economies described the services their Governments provided to developing countries and offered assistance through their existing research, training and trade institutions.

53. A number of participants pointed to the benefits of promoting the subsector through the establishment of small- and medium-scale enterprises, as these were mostly locally owned and served as a basis for future self-sustaining development. Small- and medium-scale enterprises were also flexible with regard to changes in or difficult market conditions, and resilient at times of recession. They also provided the necessary medium for linkages with larger enterprises, thereby promoting integration within the subsector and other sectors of the economy.

54. Participants from small, island and land-locked countries stated that they faced particular problems owing to their size, which was not conducive to economies of scale; to excessive transport costs; to their small resource base, and to their lack of industrial infrastructure. One of them spoke of the problem faced in making small farmers and processors accept non-traditional technologies. The way to overcome this, he proposed, was through the establishment of extension services to be provided by people that small farmers and processors knew and trusted.

55. Many participants spoke of the problem of the high cost of packaging for processed fruit and vegetable products: up to 50 per cent of ex-factory prices. They pointed to the need for research programmes into new packaging materials to overcome the problem of costs, starting with materials available in developing countries.

56. One participant said that developing countries, before embarking on new investments, should assess their existing industry and, where feasible, rehabilitate it. It was both easier and cheaper to rehabilitate existing industry. In his view, the agro-industry was the key economic sector in practically all developing countries. Moreover, it promoted development in other economic sectors through forward and backward linkages. He also proposed the setting up of verticalized agro-industrial complexes in different localities of a region, adapted to local socio-economic conditions.

57. Many participants stressed the role played by information systems in all aspects of the fruit and vegetable subsector. They proposed the establishment of information centres on fruit and vegetables in developing countries (with UNIDO/ITC playing a co-ordinator role) to facilitate the exchange of experiences and information amongst themselves. Such centres would be a formidable tool for strategic planning of the sector and for the collection and dissemination of market information.

58. One participant emphasized the importance of using engineering consultancy services to avoid mistakes in the planning of new production facilities and to ensure the success of projects. Another spoke of the need for feasibility studies to be prepared on the basis of realistic forecasts of market potential and a sufficient supply of good-quality raw materials.

59. A participant stated that there was no lack of finance for viable, well planned and structured projects. This underscored the importance of well prepared feasibility studies which would find confidence with financing agencies.

60. Several participants made interventions concerning the need to strengthen financial co-operation in a north-south direction. They noted that net capital flows to developing countries had been decreasing over the last decade. Many developing countries, they stated, lacked the capability for the promotion of investments. Terms and conditions of trade had reduced their foreign exchange earnings. They had also difficulties in locating supplies of equipment and industrial inputs at suitable prices and terms of payment. These participants were of the view that industrialized countries should promote more direct investments in developing countries and increase official development aid. Industrialized countries could also ensure supplies of equipment and intermediate products under export guarantee schemes. UNIDO could help in this above-mentioned spheres by acting as catalyst between industrialized and developing countries, by preparing a directory of supplies of equipment and industrial inputs and by assisting developing countries in their investment promotion programmes.

61. Concerning technology, some participants pointed out that most technologies in the fruit and vegetable subsector were of long standing. It was therefore more a question of adapting existing technologies to the particular conditions of the country, and the location of the factory, than the acquisition of new technologies. With regard to choice of technology, the importance of developing technological alternatives was emphasized. In that connection, this flexibility of plants, as well as the scaling down of technologies, should be given emphasis in the setting up of new plants.

62. With respect to research and development, one participant pointed out that some research and development institutes in developing countries were producing research for publishing material rather than applied research. What was needed was research on specific products and process development of direct interest to and application by industry. Research and development institutes in the subsector should form a network for the exchange of information so that activities in developing countries would not overlap and waste human and financial resources. UNIDO, he suggested, might co-ordinate this.

63. Another participant pointed to the need for research into extending the shelf-life of fruit and vegetable produce so that it might reach processing units in better condition than at present, especially where farms were distant from factories.

64. Many participants emphasized the need for the strengthening or setting up of investment promotion agencies to promote new investments and joint ventures and to mobilize financial and other resources. These agencies should liaise with the UNIDO Investment Promotion Services in developed countries.

65. One delegate proposed the holding of an expert group meeting on several aspects of the problem of developing fruit and vegetable processing, as a follow-up action to and in accordance with the conclusions and recommendations of the Consultation.

66. The representative of ITC described the ways in which that Centre helped developing countries, namely, by helping them to set up export promotion organizations; by carrying out studies and surveys on the promotion of exports of fruit and vegetables from developing countries; by the provision of marketing experts and the collection and dissemination of market and price information etc. He said that new production facilities in developing countries must be "market-led", that is, investment projects should be set up based on realistic market forecasts, rather than on other criteria. He also emphasized the importance of developing countries' establishing/strengthening export trade organizations to act as focal points for undertaking activities similar to those of ITC at the national level. ITC and UNIDO could help set up such organizations.

Annex I

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Annex II

LIST OF DOCUMENTS

Discussion papers

- Discussion paper on Issue 1: Basic requirements for ID/WG.488/2
 long-term viability of
 the fruit and vegetable
 processing industry
- Discussion paper on Issue 2: International co-operation ID/WG.488/3

Background papers

- Fruit and vegetable processing in China ID/WG.488/1
- Export market development of processed fruit and ID/WG.488/4
vegetables

Information documents

- Report. Expert Group Meeting for the Asian and Pacific IPCT.80(SPEC.)
Region, in Preparation for the Consultation on
the Food-Processing Industry with Emphasis on
Fruit and Vegetable Processing
- Background Paper for Expert Group Meeting for the Asian IPCT.77(SPEC.)
and Pacific Region, in Preparation for the Consultation
on the Food-Processing Industry with Emphasis on Fruit
and Vegetable Processing
- Report. Expert Group Meeting for Africa in Preparation ID/WG.483/3(SPEC.)
of the Consultation on the Food-Processing Industry
with Emphasis on Fruit and Vegetable Processing
- Corrigendum to Report ID/WG.483/3
Corr.1(SPEC.)
- Investment considerations in the fruit and vegetable ID/WG.483/2
processing sector (SPEC.)
- The state of fruit and vegetable processing industries in ID/WG.483/1
Africa: the case of Algeria, Egypt, Côte d'Ivoire and (SPEC.)
Nigeria
- Report. Global Preparatory Meeting in Preparation of the ID/WG.484/3
Consultation on the Food-Processing Industry with
Emphasis on Fruit and Vegetable Processing
- Fruit and vegetable processing industries for the Latin ID/WG.484/1
American and Caribbean regions (SPEC.)
- Corrigendum to Background Paper ID/WG.484/1
Corr.1(SPEC.)
- Packing materials and technologies and some marketing ID/WG.484/2
issues for the fruit and vegetable processing industries (SPEC.)

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(2) First name (and middle) - Prénom(s) - Nombres

(3) Mr./Ms. - M./Mme - Sr./Sra.

(4) Official position - Fonction officielle - Cargo oficial

(5) Name of organization in full - Nom de l'organisation en toutes lettres - Nombre completo de la organización

(6) Official address - Adresse officielle - Dirección oficial

(7) City and country - Ville et pays - Ciudad y país

(8) Telephone - Téléphone - Teléfono

(9) Telex

(10) If you wish to receive our documents, please indicate sectors of interest

Si vous souhaitez recevoir nos documents, veuillez indiquer les secteurs d'intérêt

En caso de que desee recibir nuestros documentos, sírvase indicar los sectores de interés para Ud.

COUNTRY / ORGANIZATION

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