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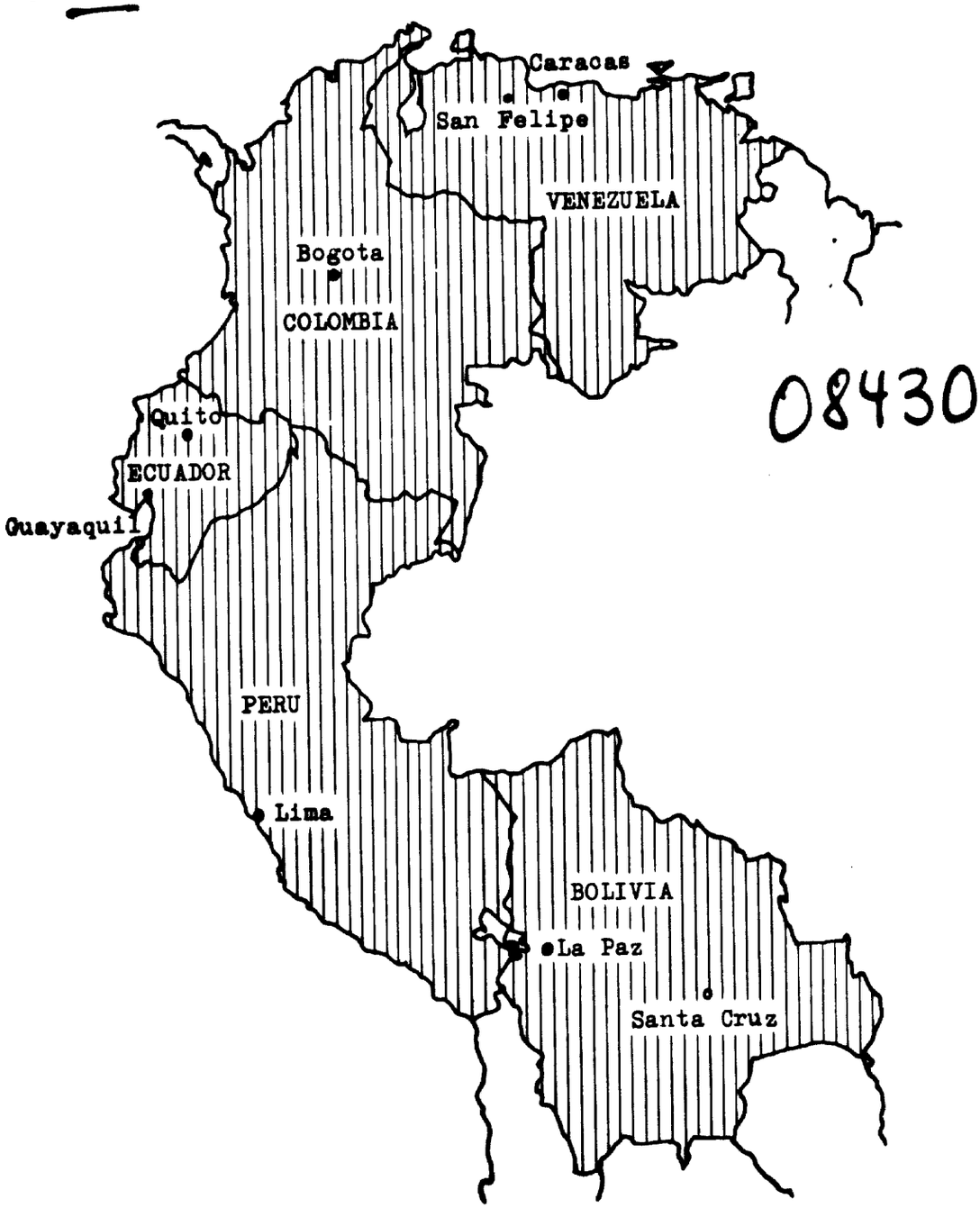

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REPORT

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U N I D O EXPLORATORY MISSION FOR THE ESTABLISHMENT OF INFORMATION AND CONSULTANCY SERVICES FOR THE ANDEAN PACT COUNTRIES IN THE FIELD OF FOOD INDUSTRY

John Zachariassen Roberto H. Moretti Angela Pompeu Davig

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D R A F T P R O P O S A L

1. Introduction

1.1 This report is a result of a journey made jointly by Mr. John Zachariassen, Mr. Roberto H. Moretti and Mrs. Angela Pompeu Davig, November - December 1977 to the Andean Pact countries, Venezuela, Colombia, Ecuador, Peru and Bolivia.

1.2 The task was of a somewhat special nature, since the 'proven methodology' of the co-ordinator of the mission, Mr. Zachariassen was to be applied, and since this methodology was unknown to the two other team members prior to the start of the journey. Furthermore, the contract of Mrs. Pompeu Davig expired before the scheduled visit of the mission to Bolivia, while the contract of Mr. Moretti expired immediately after the completion of the programme in Bolivia. Therefore, a joint finishing of this report was not possible.

1.3 Although the methodology applied and the explicit recommendations and the draft proposal contained in this report thus are the sole responsibility of the co-ordinator, the two other team members accepted and fully co-operated towards the objectives of the mission.

2. Objectives of the mission

2.1 According to the document, 'Draft Project - Exploratory Mission for the Establishment of Information and Consultancy Services for the Andean Pact Countries in the Field of Food Industry', 'the team members will discuss the existing demands for information and consulting as well as explore the existing supply potential in some of the countries of the Andean Pact. They will survey the scene and analyse the feasibility of establishing these services, the conditions under which such services will be optimally useful and the necessary inputs by the local authorities and institutions and by the international organizations. Such attention will be given to the possible links and channels of communication between UNIDO's Industrial and Technological Information Bank (INTIB) and the area in both directions. The results should be processed into detailed recommendations for the actual establishment of information and consultancy services with a view to expand these services from the food industry to other branches in the Andean area and to use this whole experience for similar programmes for other regions'.

2.2 According to the terms of contract between UNIDO and Mr. Zachariassen, 'the consultant will apply his proven methodology derived from his experience in setting up technical consultancy (advisory, as well as R + D) services to industry and in establishing information services'. The said methodology is illustrated in part by a document called "Proposal for a Programme to Facilitate the Establishment of Industrial Enterprises in Developing Countries Through the Development and Dissemination of Model Procedures, Know-how Packages and Related Services" [14].

3. Account of journey

3.1 As part of the preparation for the mission, on his way from Denmark to the Andean Pact region, the co-ordinator passed by the headquarters of the UNDP in New York and of the Organization of American States (OAS) in Washington, D.C. The purpose of these visits was primarily to obtain information on completed and on-going United Nations and OAS projects in the region, in one way or another related to food industry, and on institutions and individuals whom it might be useful to contact during the mission.

3.2 The team members met in Caracas, Venezuela, where the joint mission started November 7, 1977.

Approach

3.3 At the outset the team members exchanged and discussed available information related to the objectives of the mission with a view to develop a suitable approach. It was evident from many sources [1, 2], that already there exist a considerable number of institutions throughout the region, which have the purpose of serving - exclusively or among others - the development of food industry. However, it was equally clear (for instance from LIFE-IFT Nutrition - Food Technology Study, May 1977 [3]), that till now, the practical effect of all of these costly measures have been disappointing modest. For one thing it is claimed, that 'malnutrition has continued to grow'. It was therefore quite apparent that some bold new initiative would be necessary in order to achieve a significant advance.

3.4 Also, during the first days of the joint mission, the co-ordinator explained to the other members of the team his methodology, which among others implies the development and massive dissemination of integrated, comprehensive know-how packages and other information in easily understood presentation, covering the appropriate state-of-the-art of technology as well as of procurement of raw materials, marketing, organization etc. On top of the thus established common basic level of comprehension, complementary improved information, consultancy, research and development can expand and become profoundly more effectful than till now, for the benefit of the individual enterprises and institutions as well as for the society at large.

3.5 Having thus in mind

(a) the abovementioned initial information on the situation of food industry in the Andean Pact countries,

(b) the first meetings of the journey with industry and institutions, the impressions from which supported the above information,

(c) the report by the Executive Director of UNIDO on 'Establishment of an Industrial and Technological Information Bank' [4] (INTIB), in which is stated that INTIB will provide 'information to enable entrepreneurs to take investment decisions and to establish and operate manufacturing units' among others by devoting special attention to 'technological choice in respect of products and processes, scale of production, process planning, selection of machinery and equipment, material selection, imports or manufacture of components, quality control and standardization, negotiations for acquisition of technology and the use of patents etc.',

(d) the objectives of the mission, which included the outlining of a model operation for UNIDO - INTIB information and consultancy services,

the team members agreed - while continuing to explore the constraints to development of food industry, and continuing to identify institutions, which may form part of a future information and consultancy network - simultaneously to start drafting and assessing the acceptability and viability of an integrated model operation. The working title 'Demonstration Operation' was chosen for easier terminological differentiation from other projects of the region.

Envisaged Demonstration Operation

3.6 The draft basic concept of the Demonstration Operation was defined as follow: to establish an indigenous technology group and information and consultancy service in the Andean Pact region as part of the UNIDO - INTIB organism and in co-operation with institutions in the region with the object to

(1) establish within the region full knowledge and command

of all appropriate, freely available know-how and other pertinent information relating initially to a selected sector within the field of food industry,

(2) develop and activate a mechanism for identification and - when desirable and possible - comparative evaluation of appropriate, restricted (through patents or otherwise) technology within the sector concerned,

(3) develop and activate a mechanism for dissemination and utilization of said know-how and other relevant information throughout the region,

(4) develop the indigenous capacity for contributing to the state-of-the-art within the selected sector and in general - among others through the conception, development and exploitation of adapted and new products, processes and services,

(5) extend the said activities to the whole food industry.

3.7 The draft basic programme of the Demonstration Operation was outlined as follows:

(a) selecting a suitable pilot sector,

(b) elaborating a detailed programme,

(c) forming the basic technology group,

(d) establishing the information network,

(e) collecting the affected know-how and other information, and processing the core part for presentation in a special type of manuals in loose-leaf form,

(f) establishing demonstration enterprises for training and development purposes,

(g) developing consultancy and industrial extension services,

(h) arranging courses for people from industry, consultants, administrators, researchers, students etc.,

(i) establishing a feed-back mechanism from on-going and new enterprises of the pilot sector,

(j) continous up-dating and further development of know-how and information,

(k) extension of the programme to the whole food industry.

3.8 Having accepted the methodology suggested by the co-ordinator, the experts and the co-ordinator decided, that their major task would be:

(1) to explore the constraints to development of food industry,

(2) to identify measures, which individually and/or concerted can contribute to the elimination of said constraints,

(3) to assess the acceptability of the initial concept of the Demonstration Operation,

(4) to select the pilot area,

(5) to identify partner institutions to participate in the carrying out of the operation,

(6) to ajust the concept of the Demonstration Operation according to the observations made.

3.9 As potential end-users of information and consultancy services, potential partners for the Demonstration Operation and as sources of information for the mission, the team decided to make as many contacts as possible with selected groups and individuals in government agencies, technology transfer and information centres, financial institutions, industrial firms, chambers of industry and commerce, consulting firms, research and development organizations and with potential industrial entrepreneurs.

3.10 Considering the objectives of the mission and the methodology adopted, it was decided to present the individuals in the organizations contacted with an outline of the envisaged Demonstration Operation while soliciting their comments and suggestions, in order to assess their reaction towards the concepts presented.

Selection of pilot area

3.11 The discussions with local individuals and institutions (contacted during the mission) about the selection of the pilot area to start the envisaged Demonstration Operation, should be related to areas within the field of food technology which are relevant in each one of the Andean Pact countries and which could contribute

to the fulfilment of several but not necessary all of the following requirements:

(a) stimulating further development activities both in horizontal and vertical directions,

(b) creating employment,

(c) contributing to rural development,

(d) developing skills also useful in other subsectors and sectors,

(e) raising the nutritional conditions of the population,

(f) promoting the use of and - where appropriate - the further quantitative and qualitative development of local raw materials and other resources,

(g) stimulating the local production of processing and production equipment and machinery,

(h) contributing to the improvement of the balance of payments for the Andean Pact countries.

3.12 The selected pilot area should accomodate for a reasonable span of years the parallel development of both smaller and larger industrial enterprises. Furthermore, it would be desirable, if the selected pilot area would offer a basis for co-operation with other United Nations activities such as those of FAO and WHO. In the case of FAO, special attention though should be given, in order not to overlap with the areas already covered by FAO according to the documents:

(a) "Broad principles prepared by the Inter-Secretariat Committee to guide the application of the July 1969 FAO/UNIDO working agreement" and

(b) "Minutes of the meeting between the executive heads of FAO and UNIDO, Geneve 5 July 1972".

Identification of participating institutions

3.13 The institutions and/or groups of people and/or individuals to participate in the suggested information and consultancy services including the envisaged Demonstration Operation, apart from accepting

to co-operate within the general framework of the operation, should preferably each satisfy at least two of the following requirements:

(a) have broad contacts with present and potential end-users of the final products of the operation,

(b) have substantial technological and/or marketing expertise relevant to the operation,

(c) have broad contacts with and good relationship to the scientific and technical environment.

Collection of further information

3.14 In order to perform the tasks described the team also found it important to obtain information on the following:

(a) government policies for the development of the food industry in each one of the countries,

(b) government policies for the development of food science technology,

(c) location of raw materials, markets and industrial enterprises and existing infrastructure,

(d) available R+D, educational and training facilities, information and consulting services, communication and linkages among industrial and technological systems in internal and external levels.

3.15 Due to several difficulties related to the organization of the mission, not all contacts made contributed to the objectives of the mission. Too much time was lost on airline and hotel reservations. The contacts with UNDP officials were very embarrassing for both parties, because they had no advance notice about the mission, and at several occasions it was impossible to make the necessary appointments ahead of time. Nevertheless, in spite of the difficulties, the team received special attention from UNDP offices in Bogota, Lima and La Paz.

3.16 Because of the limited time available in each country, not all of the contacts were made with all three members of the team present. In the following, each account is signed by the respective writer.

V E N E Z U E L A

3.17 In all 12 institutions were visited, located in Caracas, Victoria, Valencia and San Felipe. The stay in Venezuela lasted from Monday, November 7 to Saturday, November 12. Only the more important findings in relation to the objectives of the mission are recorded in the following.

(V-1) CONICIT - Consejo Nacional de Investigaciones Cientificas y Tecnologicas. Caracas.

3.18 Since Adam's Report for NSF (1975) [5] was written, a new law was passed, the decree 1759, establishing the National Information System, called 'Sistema National de Servicios de Bibliotecas y Information Humanistica, Cientifica y Tecnologica' under the coordination of CONICIT. The Venezuelan information system groups several organizations having information and documentation activities, such as representatives of end users like chambers of industries and research institutes.

3.19 According to Mr. Anibal Gomez Mantellini, director of Scientific and Technological Information Service, CONICIT, has improved its information capabilities in the last two years, not only in terms of its services and budget but also in its relationship to industry and in government programs related to transfer of technology as well. A total of Bl.$. 2.000.000 have been spent in acquisitions and documentation equipment. A centralized acquisition policy is in effect for all the libraries depending upon CONICIT funds.

3.20 Eight consultants are presently working for CONICIT technical enquiry service, serving industry and research institutes. CONOCIT Scientific and Technical Information Service has also been able to improve its relationship to industry and has actually designed the Information, Documentation and Reference Center of the Venezuelan Chambers of Industries, which started operating November 1977.

3.21 CONICIT Scientific and Technical Information Service also participates in analysing Andean Pact industrial projects, which are submitted to the Superintendencia de Inversiónes Extranjeros, mainly in relation to selection of equipment. This experience suggests that there is a need for an indigenous development of agro-industrial machinery for better adaptation to the local raw materials.

3.22 Industrial information activities have also been carried out by the Venezuelan Productivity Center (Fundacion Instituto de Productividad) INPRO, but it was closed down in 1976. The director of INPRO Documentation and Information Center (CEDO-INPRO) Mr. Manuel Perez Rodriques is presently working for CIEPE, the Food Research Institute located in San Felipe.

3.23 The director of CONICIT Scientific and Technical Information Service expressed his interest in the objectives of the mission and offered to contribute to the design of INTIB with one or two information specialist, during a six months period at the expence of CONICIT.

3.24 Mr. Luiz M. Carbonell, vice-president of CONICIT recently [6] expressed his opinion about the dependence of the country upon foreign technology. According to him there is a need for reorientation of international development programs to support the development of local technological capabilities, for instance, on engineering and design of processes, products and equipment.

3.25 Although, CONICIT has been providing information services directly, its participation in the national information system seems to be mainly in terms of coordination, policy formulation and funding. Therefore, the INTIB operation in Venezuela should indirectly involve CONICIT and receive its necessary approval. (A.P.D.)

<u>(V-2) COVENIN - Comision Venezuelana de Normas Industriales - Ministerio de Fomento. Caracas.</u>

3.26 COVENIN objectives are the following:

(a) to establish the priorities in the normalization of foods and other industrialized products and processes

according to the general guidelines of the Government national plan.

(b) to integrate all technical committees on normalization.

(c) to coordinate the work of the technical committees.

(d) to recommend to the ministry of 'Fomento' the norms, for its approval as Venezuelan COVENIN norms.

(e) to represent the country in all international technical committees on normalization like COPANT, ISO and 'Codex Alimentarius'.

3.27 The work structure of COVENIN is based on technical committees and sub-committees, which are formed by technical people from industry, from universities and from R + D institutes, representatives of consumers, marketing people, and others involved with the industry.

3.28 The elaboration of norms within the food industrial field is based on the following:

(a) International documentation and information available.

(b) Local industrial experience, through data obtained from the different food industrial areas.

(c) Results and parameters coming from research done in universities and institutes working within the food industrial field.

(d) Laboratory results on microbiology, analytical chemistry, biochemical analysis, etc.

3.29 The COVENIN is integrated in the CONICIT system of information and documentation, among others through telex communication.

3.30 According to their General directives, COVENIN would be very open to the Demonstration Operation, collaborating in the establishment of norms and quality control manuals for the food sector to be chosen. (R.H.M.)

(V-3) Universidad Simon Bolivar
Departamento of Biological and Biochemical Process Technology, Food Science Section. Caracas.

3.31 This university is very young, started 3 to 4 years ago and their plans and objectives are very modern. They are working as the North American universities, organized in departments, with a very strong interrelationship, exchanging professors, sharing laboratory facilities and pilot plants, and hiring foreign professors to fulfil their needs.

3.32 The department, which was started only one year ago, already has four graduated professors in the food technology field while others are studing abroad.

3.33 The tentative approach to food technology research to be followed is to contact the food industry directly and try to work on solving their practical problems. In order to reach this goal, the department is working closely with the Institute de Investigacion y Desarrollo Industrial (INVEDI), which belongs to the university (see (V-4)).

3.34 During this period of time the department is aiming at forming specialized and highly trained people for the food industry, at the master of science level, which they think is the most adequate for the country, which badly needs professors, researchers and development people, as well as high level technical people to make decisions on selection of technologies, transfer of technology and on results from their own research and development work. They also claim that by having this masters program they can start with people, who are already professionals in correlated fields, who can be adopted to the food technology field in a shorter time than if starting from scratch. Their staff comprises 14 professors in all.

3.35 Professor Luiz A. Boxan, the director of the department, was very receptive to the idea of the Demonstration Operation and expressed his preparedness for co-operating with it. (R.H.M.)

(V-4) INVEDI - Instituto de Investigacion y Desarrollo Industrial, Universidad Simon Bolivar. Caracas.

3.36 INVEDI is established about a year ago with the purpose of marketing services of the university to industry. So far 6 contracts have been made at a total value of Bl.$. 600.000. For services is charged on basis of the professionel time used (about Bl.S. 140/hour for a professor) plus for use of special equipment and facilities (a nominal fee on an per hour basis). Finally is added 10-15 % to cover administration etc.

3.37 The institute is presently experimenting to find the best way to market its services. Contact is established with associations of industries and individual industrial enterprises through visits, invitations to meetings and the publishing of a magazine. The engagement of a professional marketing firm is being contemplated. A list of summary biografies of the professional staff as well as a list of available laboratory equipment and other facilities is being prepared for publication and distribution to industry.

3.38 The institute has taken several initiatives in an endevour to establish an information centre. Among others, contacts has been established with data banks in the USA, but so far no agreement has been made for terminal operation. Dr. Bertha, the director of INVEDI stated, that no patent information service exists in Venezuela. The institute intends to establish one, and for a start has ordered a full collection of the U.S. Patent Gazette. The institute is interested in establishing information about who buy what, and who sell what in industry, and to establish a comprehensive listing of specifications of materials and equipment.

3.39 The institute and the university is also entertaining the idea to start up new industries with financial participation of the university and also possibly by the staff of the university. A preliminary list of ideas has been drawn up. Among the ideas is food preservation and storage, among others through cold storage.

3.40 Dr. Bertha expressed strong interest in co-operating with INTIB, for instance through making a model industrial enterprises of the Demonstration Operation. It should not be difficult to raise capital locally. It has been agreed, that Dr. Bertha write a letter of intent to help establish a basis for future co-operation (copy of letter, see annex 3). Dr. Bertha is obviously a capable, dynamic person, who with his institute might fit in well in a future operating system of INTIB. (J.Z.)

(V-5) CAPEMIAC - Cámara de Pequeños - Medianos Industriales y Artesanos de Carabobo, Valencia.

3.41 This chamber of small and medium size industries comprises about 150 industrial enterprises. Their office is adjacent to the branch office of CORPOINDUSTRIA, which is meant to assist such enterprises and to encourage the establishment of new ones.

3.42 In order to classify these industries by size they employ the following criteria:

Small industry: Capital 20.000 - 100.000 Bl.$.

Medium industry: Capital 100.000 - 2.000.000 Bl.$.

Large industry: Capital larger than 2.000.000 Bl.$.

However, a classification is also made through the number of workers employed.

3.43 Most of the industries belonging to the CAPEMIAC are located in the Valencia region and especially in the 'zonas industriales', which are located outside the town and the development of which was facilitated by the municipal government.

3.44 Through CORPOINDUSTRIA these industries are meant to receive financial support, technical assistance, consultancy (direct or indirect), etc.

3.45 According to Mr. Juan Pelegrino, the vice president of CAPEMIAC they need badly information, consultancy and documentation within among others the following areas:

(a) Administrative capacity formation

(b) Working capital facilities

(c) Quality control

(d) Supervisors training

(e) Marketing assessment

(f) Up-to-date technological information and consultancy.

3.46 It was also pointed out, that most of the small and medium size industry owners started as workers in a larger industry in the same

field. Others were farmers, who wished to manage their own processing in order to increase their profits. These industrial entrepreneurs are usually dynamic and of above average intelligence. They are the kind of people, who need just a lift to make real progress and contribute to the economy of the country, as well as to the social conditions of the regions, through more employment and better salaries, which means better standard of living, nutrition and also education'. (R.H.M.)

(V-6) CIEPE - Fundación de Investigaciones del Estado para la Produccion Experimental Agroindustrial, San Felipe.

3.47 This foundation was created by the decree No. 1605 of May 25th, 1976. During this short period of time the center has organized all basic and necessary physical tools to start operation.

The pilot plant

3.48 The installations include a very modern and complete food pilot plant, laboratories and auxiliary facilities. The pilot plant has an area of 3900 m^2 distributed in three levels. In the first floor is installed all the equipment for processing of fruits and vegetables, juice extraction, filtration, centrifugation, heat exchangers, tanks, packing machines, etc. There is also in the first floor cold storage rooms at different temperatures from -40°C up to 10°C, and a maintenance shop, all very modern and complete.

3.49 In the second floor there is the equipment for evaporation, dehydration, freezing, coffee and cocoa processing and meat processing. In the third floor there is installed equipment for extrusion, cereals cleaning, milling, classification, mixing and oil extraction by pressing, oil refinery, margarine and butter processing, baking facilities and fermentors completely automated. The oil extraction by solvent is located outside the main building with a very good ventilation. All auxiliary facilities such as: steam, electricity, compressed air, emergency electricity generation plant and air conditions are located in adjacent buildings.

3.50 Equipment for milk processing has not yet been installed but is already there, waiting for installation. It was noticed that some of the equipment were still uncased although the shipping year was 1973.

3.51 Before the new foundation started, in 1976, there was a Centro Industrial Experimental para la Exportation, which was responsible for the purchasing of all the equipment.

3.52 With all these facilities, the CIEPE center has the equipment basis to make a very substantial contribution to food industrial development and problem solving. However, it appears that the large technical personnel is greatly in need of, especially, practical training. Many members of the staff are being sent abroad for training and additional education. The manager of the pilot plant, for instance, is going to UNICAMP - Brazil next year to study for a masters degree in food engineering.

3.53 It seems that the general principle of the CIEPE foundation is healthy and that their director, Mr. Virgilio Urbino is doing his best to push fast ahead towards the chosen objectives. (R.H.M.)

The Information and Technical Assistance Division

3.54 This division is providing information services to CIEPE's researchers and clients. Following the same guidelines of the ex-CIT in Brazil (Pompeu 1973) [7]. It provides current awareness services to industrial companies and technical enquiry services which shall, in the near future, be followed up by field service.

3.55 At the present moment it has a staff of eight people with university background and 400 journal titles. Its services include the editing and publishing of CIEPE publications.

3.56 CIEPE information and technical assistance division is looking for an information expert to help on improving its documentation procedures, establish a cost accounting system, improve its information sources file, and training the personnel. They also want information on training sources abroad. In the future the information and technical assistance division should become the marketing agent for CIEPE research and services.

3.57 This orientation makes CIEPE and its information and technical assistance division a suitable partner for the Demonstration Operation for both collecting local information and disseminating the information tools directly to the users.

3.58 The CIEPE Information and Technical Assistance Division has a good program of activities and a competent director, Mr. Manuel Perez Rodriques. (A.P.D.)

3.59 Strong interest was expressed in having arranged courses in conception, planning and development of new products, processes and services.

3.60 Mr. Virgilio Urbina, the executive director expressed much sympathy with the objectives of INTIB and expressed on behalf of CIEPE their interest in an active cooperation. (J.Z.)

(V-7) AVEDEA - Camera Venezolana de la Industria de Alimentos, Caracas.

3.61 The vicepresident of the chamber, Mr. William A. Conkright explained the situation of the industry. As for training, information and consultancy, each enterprise is for all practical purpose still working on its own. Mr. Conkright repeated several times, that there is a tremendous need for the kind of services INTIB is envisaged to offer. (J.Z.)

C O L O M B I A

3.62 In all 8 institution plus Mr. Sagasti were contacted in Bogota, Colombia from Saturday, November 12 to Friday, November 18.

3.63 After a first meeting in IIT, a later joint meeting was held again at the IIT with participation of representatives of: IIT, FICITEC, Fundacion Mariano Ospina Perez and Corporacion Financiera Popular-Service de Informacion Tecnica (SINTEC). The last-mentioned seemed to be potentially interesting (and interested) as a cooperating partner for INTIB. However, unfortunately, since the meeting was the last one before the team left for Quito, there was no occasion during this journey to deepen the acquaintancy.

(C-1) FICITEC - Fundacion Para el Fomento de la Investigacion Cientifica y Tecnologica, Bogota.

3.64 FICITEC is a private, non-profit organization established by the coffee producers association in Colombia. It provides consultation services to industry on management, marketing and other areas related to industrial engineering. It also provides industrial information services, like current awareness and technical enquiry services as marketing tools for the consultation service. 400 companies are registred to receive the monthly current awareness bulletins.

3.65 FICITEC is also active on economic studies and feasibility studies. Two FICITEC reports were found useful to the mission:

(a) Empresarios Colombianos, Un Nuevo Contexto de Desarrollo, 1976, 156 p [8].

(b) La Peguena y Mediana Industria en América Latina. (Study on the presentations to the 1973 meeting on small and medium size industry in Caribbean and Latin America) [9].

3.66 The study on the Colombian entrepreneurs is divided into two parts. Part one is dedicated to the characteristics of the entrepreneur and his role in social and economic development. The second part contains three case studies of successful entrepreneurs in Colombia.

3.67 The development of the entrepreneurship capacity is divided into five stages, and according to this study the technology transfer efforts should aim at the companies which have already passed the third stage and are entering the 'maturation' stage (p. 82-85). That third stage is characterized by improved management, the beginning of serial production, concern about quality and the image of the company, specialization of production technology and preparation to reach outside local markets.

3.68 The study on small and medium entrepreneurs in Latin America contains useful statistical information and also information on existing institutional programmes.

3.69 The paper presented by Union Industrial Argentina and quoted by the FICITEC study, lists the favourable conditions that could

be created in industrial sites specially designed for groups of small and medium companies (p. III-104-106). Following this recommendation the Demonstration Operation should dedicate special attention to CORPOINDUSTRIA and CAPEMIAC both located at Parque Industrial la Quisanda in Venezuela where an infrastructure was created for the development of small companies. (see (V-5)).

3.70 It is the experts opinion that FICITEC could be one of the co-operating institutions for elaborating the manuals on its economical and managerial aspects.

3.71 The director of FICITEC, Mr. Manuel Antonio Botero Borda was interested in the Demonstration Operation, including the model projects. Mr. Botero suggested possible areas in which to start the prototype operation: rice, corn, fruit and fish processing but emphasized the need of an economic preliminary study to determine the best subject area for Colombia.

3.72 Some of the other representatives of FICITEC expressed doubt whether the manuals suggested could be done.

3.73 According to the FICITEC study on small and medium firms in Latin America the main institutions providing technical assistance to industry in Colombia are: SENA, FICITEC and IIT.

3.74 Due to its direct contacts with industry (6.500 enterprises), through its training courses and technical assistance program, SENA should be contacted in the future during the design stage of the Demonstration Operation as a good partner institution to disseminate the spring-binder types of manuals. (A.P.D.)

(C-2) IIT - Instituto de Investigaciones Tecnologicas, Bogota.

3.75 This institute is a well established research and technology institute towards food industries sector. Mainly, they have a well trained staff and their laboratories and pilot plant are amply equiped, and all kind of food technology could be developed.

3.76 They are supported by the government. A small part of their income is from the work they do for private industry, the Finance Corporation for Small and Medium Scale enterprises, the Coffee Federation and from projects they develop for Government organizations.

3.77 The IIT is concerned with using corn and soy to substitute part of the wheat imported by Colombia. In this field they are producing pregelatinized corn flour, defatted and full fat soy flour, pregelatinized rice flour and sesame flour. The main objectives are to increase the nutritional value of pastas, bread, tortillas and arepa.

3.78 They are also working on soymilk in liquid and dried form, with different flavours. The extrusion of vegetable protein is also being studied.

3.79 Another important field in which the IIT is doing research is in tropical fruit and vegetables preservation, through cold storage, canning, making juices, pulps, concentrates, and through other technical means.

3.80 On the staff a technically educated industrial man, Mr. Martin Lutz, who used to work in Washington D.C. for OAS. During the past 7 months, he has been working on identifying industry's practical problemes with a view to offer solving such problems through contract work.

3.81 The institute also offers courses and seminars on general and specific subjects. While we were visiting, they were giving a short course on bread making for bakers, mainly directed to the use of other flours to substitute wheat flour (soy flour and corn flour). This institute is world-wide recognized through international seminars they offer.

3.82 The IIT is working in close relation with COLCIENCIAS, who coordinates all science and technology in Colombia. They are also working with Fundacion Mariano Ospina Perez and FICITEC, proposing projects in joint venture.

3.83 Some work have been done with the Programme de Alimentos y Nutricion, by developing enriched flours and food products for poor people and for the school lunch program. Pilot nutrition programs are presently running in CAUCA and BOYACA.

3.84 The work on milk and meat processing is being carried out by a FAO project, which is under Dr. Antonio Bacigalupo's direction, and is located at the National University of Bogota in the School of Agronomy.

3.85 By the conversation we understood, that in general small and medium scale food industries are not being well served by IIT. There is a lack of communication, a problem, which is strongly felt in the IIT. Potential entrepreneurs are completely outside of the IIT program.

3.86 Representatives of IIT expressed some doubt as to whether the manuals suggested could be done.

3.87 Mr. Martin Lutz expressed the view, that the Demonstration Operation if realized should cover several food industrial areas from the start - not just one - in order not to risk distorting the development of the food industrial sector as a whole. Also, he emphasized the importance of securing continuity in the operation. Too many projects started by international organizations have created great hopes initially, and later on corresponding dispair, when the operations were discontinued. (R.H.M.)

(C-3) Departamento Nacional de Planeacion, Unidad de Estudios, Bogota.

3.88 The department is placed directly under the presidency, as a ministry. The section for agricultural studies, which is headed by Mr. Fernando Villanizar, is studying the national agricultural production and its commercialization, and also that of other natural resources.

3.89 A World Bank investment program of 18 million US $ is being carried out in the agro industry sector through the Bank of the Republic.

3.90 The agro-industrial program also receives financial support from 'Federacion Colombiane de Cafeteros', which this year amounted to 1 million US $.

3.91 The National Committee on Agro Industries with the participation of the ministries of agriculture, industry and finance was mentioned. This committee was formed three times, but did not work so far because of differing ministerial policies and ideas.

3.92 Mr. Villanizar also mentioned the advice being received from FAO - UNDP on general political structure of the ministry of agriculture. (R.H.M.)

(C-4) Caja de Credito Agrario, Industrial y Minero, Subgerencia de Fomento, Bogota.

3.93 This organization, which is the executive agency for channeling the World Bank loan to enterprises, has about 860 agencies, distributed throughout the country.

3.94 The INTIB and the envisaged concept of the Demonstration Operation was explained to Mr. Salazar Cruz, the head of the department, who was very receptive to the ideas presented. He offered to collaborate in marketing the services of the INTIB through their many agencies. They would be able to bring the INTIB facilities to the small industrialist and to the potential industrialists, including the raw material producers located in the rural areas. Mr. Cruz expressed the view, that the kind of information INTIB intends to bring to the end-users may bring about very concrete results. It appears that this organization could become a useful marketing organization for the INTIB services in Colombia. (R.H.M.)

(C-5) FEDEARROZ - Federacion Nacionale de Arroceros, Bogota.

3.95 Contact was made with FEDEARROZ in connection with their XVI National Congress on Rice, in order to asses their possible interest in INTIB.

3.96 We first contacted the general secretary Mr. Ramon Nino Galeono, who got very interested in our work and with our ideas. He made an appointment for us with their head of Economical studies and statistics department, Mr. Gustavo Lopez Arbelaez, their head of technical department, Mr. I. A. Hernando A. Suarez P., and their head of Milling technical assistance, Mr. Nestor Rodriguez.

3.97 The meeting was very successful because we could notice from them a real interest on our work, and they really got interested in the INTIB facilities . They are going to get a meeting with their president and promised to send us a letter confirming all their interest.

3.98 Colombia rice culture is very important, running about 10 % of total national agriculture production, and increasing faster than other agriculture products.

3.99 Colombia is the 8th largest rice producing country in the world, and the second largest in South America. Rice is one of the main foods in the Colombian's diet.

The subjects which were discussed were the following:

(a) The FEDEARROZ would like to have UNIDO - INTIB involved in their next specialized course for mechanical engineers on milling industries, which is scheduled for next year - 1978.

They would like to have UNIDO cooperating with some kind of materials for the course and specially a milling technical consultant to be one of the professors in this course.

(b) They have donated to SENA - Services Nacional de Aprendisaje a pilot mill to be a training unit for their hand labours and maintenance people. They also co-operate with SENA through offering financial support, in order to have training courses for their hand labour and specialists.

(c) The FEDEARROZ has a network of offices throughout the country where rice is being grown. They comprise all rice growers in the country. They offered to be the linkage between their rice growers and INTIB and would like to promote the proposed Demonstration Operation and disseminate the proposed information material.

(d) We met among others with one of their members, Mr. Diego Robledo, who is cultivating 1100 ha with an average yield of 3 tons per ha. He told us initially, that he was not thinking of starting an industry in this field because information on technological aspects of the industry is very difficult to get,'international food companies are always closing their doors for visitors and keeping their technology secret'.

During the conversation however, he got very enthusiastic and claimed to be seriously interested in starting some industry operating in the rice sector, provided the INTIB could substantially facilitate the starting-up operation through offering services along the lines of the envisaged Demonstration Operation. He would like to keep in contact and be one of the first to receive the benefits from the INTIB.

3.100 It may be noticed that the technical staff of the FEDEARROZ initially was much reserved towards the idea of receiving technical consultancy through international organizations, because, as they claimed, they had received three technical specialists in rice processing through an international organization. They proved to be completely unably to solve the problems they were called in to solve.

3.101 Another interesting fact from the FEDEARROZ experience is that they started a oil extraction and refinery plant to work with rice bran but it was a complete failure, because they did not know how to preserve the rice bran without rancidfication, in other words keeping the rice bran oil from hydrolising or from total acidity increase, which decreases tremendously the oil extraction and refinery yield.

3.102 Because of this failure they simply stopped using rice bran as raw material and presently they are using sesame seed, soy-beans and cotton seed. The reason for this failure, seems to us, was a lack of practical, pre-digested information. (R.H.M.)

(C-6) Mr. Francisco Sagasti, Bogota.

3.103 Mr. Francisco Sagasti is presently working in Bogota as field coordinator of International Development Research Centre (IDRC) project on the Science and Technology Policy Instruments Project, which includes nine countries: Argentina, Brazil, Colombia, Egypt, Korea, India, Macedonia, Peru, and Venezuela [10].

3.104 The project is designed as 'a comparative research effort among less-developed countries to examine ways of implementing science and technology polices in the industrial sector'.

3.105 'The project which is in its last stage, is carried out by a network of autonomous country project teams, that work together by virtue of agreements reached at the level of the coordinating committee, implemented through the field coordinator's office and through the national teams themselves' (IDRC 1975).

3.106 After being briefed on the objectives of the mission, Mr. Sagasti expressed his positive interest in the methodology suggested, and he offered to co-operate with the Demonstration Operation and made suggestions to its design.

3.107 He emphasized the importance af making a survey on technologies already developed in the different countries by the prototype operation. He also suggested that universities preferably those giving night courses, for instance in business administration, would be good places to find future industrialist and also industrialists looking for further knowledge - and therefore suitable places to market the Demonstration Operation.

Mr. Sagasti made the following further suggestions:

...for sectional studies made for Colombia and Peru, Henrique Ratner in Sao Paulo could be contacted,

...for the local economic studies, Raul Alvelarez, previously representing Colombia in the Andean Pact should be one of the best persons to contact,

...the mission should interview Luis Soto Krebs in Junta de Acuerdo de Cartagena,

...the mission should also contact Gustavo Flores from ITINTEC Information Center, the Sociedad National de Industries and the Industrial Development Bank - all in Lima, Peru.

3.108 It is the expert opinion that Mr. Sagasti would be an excellent field coordinator in Colombia for the Demonstration Operation. He will be joining the IDRC staff in 1978, certainly a good partner institution for UNIDO - INTIB. (A.P.D.)

E C U A D O R

3.109 In all 9 institutions were contacted in Ecuador, in Quito and Guayaquil, from Friday, November 18 to Tuesday, November 22.

(E-1) FAO - Project ECU/72/018 Agroindustrias, Quito.

3.110 The project which has the purpose of promoting agro industries is terminating, and the ministry of agriculture is to continue the activities. The final report will be completed a few days after our meeting.

3.111 The main result of the project was told to be the study of fruit and vegetable markets in Ecuador - and abroad for Ecuadorian produce.

3.112 It was told, that in recent years, 1000 tons of tomato paste has been imported annually for the fish canning industry. As a result of spreading this information, and without proper guiding, production capacity corresponding to 3000 tons/year has been installed, while much of the equipment is still idle and import is still continuing.

3.113 A key problem is a lack of coordination between tomato growers and industry. A massive extension service and marketing should be mounted in order to disseminate the tomato cultures among the farmers.

3.114 There are 14 agronomy schools in Ecuador, but the level of graduated agronomists is told to be very low because of no selection of students before starting college.

3.115 It was mentioned, that in 1976, illegal imports from Colombia of processed (mainly canned) food represented a value of around 1 million US $. (J.Z.)

(E-2) Banco Nacional de Fomento, Quito.

3.116 The bank has 53 branches distributed all over the main provinces of Ecuador. Its task is to finance agriculture and agro-industries in the small and medium size, to identify projects and to make feasibility studies. The technical division is composed af 12 technical people.

3.117 Some of the projects the bank is financing are : tomato plants, palm oil extraction and refinering plants, milk plants, tea plants and commercial food transport by ship.

3.118 They think it is very important to have an agressive marketing of information and consultancy for the industry. The idea of the INTIB and the concept of the Demonstration Operation was very well accepted and we were offered an active cooperation. (R.H.M.)

(E-3) Escuela Politecnica Nacional de Quito, Instituto de Investigaciones tecnologica, Quito.

3.119 This institute is working in the area of food science, technology and also in chemical engineering. For the food technology they have two pilot plants, one for fruits and vegetables process-

ing and one for cereal chemistry and technology. The laboratory facilities are equipped to monitor the pilot plant research. This is a new and promising institute.

3.120 The main objectives are:

(a) to guide basic research,

(b) to do applied research in fields considered of national priority, of interest for the community,

(c) Consultancy for the industry, public organizations, and other organizations which may be part official and part private.

3.121 In the food technology field they are working on:

(a) handling, processing and control of food raw materials,

(b) processing of fruit and vegetables,

(c) processing of meat,

(d) processing of edible oils and fats,

(e) composite flours for baking industry: cereals, roots, oil seed meals,

(f) proteins from vegetable sources and other non conventional sources,

(g) dehydrated products,

(h) fermentation products.

3.122 Their technical personal is composed of twelve people, most of them with a M.Sc. degree. Three of these have studied in Brazil at UNICAMP. They charge for their services at cost price.

3.123 The institute collaborate with the FAO projects and with the ministry of agriculture. It will also participate in the Andean Development Projects on the area of food, according to the Junta proposal No. 83 Revision No. 3 of August 22nd, 1977. (R.H.M.)

<u>(E-4) Universidad de Guayaquil de Ingenieria Quimica, Guayaquil.</u>

3.124 The university is running in the school of chemical engineering a department of food processing. This department has several professors with master degree graduated mainly in USA at the University of California - Davis. The department together with food

industry, consultancy and packaging material companies, organized the 1th Congress on Food Science and the 2nd Exposition of National Food Products, running from November 21 to November 25 1977 in Guayaquil.

3.125 The number of participants was a surprise to the organizers, as 120 people attended paying Sucres 1000 each. The congress was joined for one day by this mission. The co-ordinator addressed the meeting explaining the objectives of the mission. It resulted in informal discussions with several interested people. (R.H.M.)

(E-5) Instituto de Investigaciones Tecnologicas e Industriales, Universidad Tecnica de Ambato, Facultad de Ingenieria de Alimentos, Ambato.

3.126 This institute belongs to the school of engineering and they are graduating food technologists at college level. The school program covers five years after high school. A program of research in technology is being developed.

3.127 Mr. Anibal A. Saltos, head of research technology offered on behalf of his institute to be a source of information, working in collaborating with UNIDO-INTIB. (R.H.M.)

(E-6) LITE S.A. - Laboratorios Industriales Tecnicos Ecuatorianos, Guayaquil.

3.128 This private consulting company is working primarily in the food technology and food engineering field. They do consultancy work, industrial projects, research and development, quality control, boiler water treatment. Their capital is S. 2 million. They have laboratories on analytical chemistry and bacteriology.

3.129 The company includes three technical people: Food and chemistry, construction and petroleum,and information specialist.

3.130 Their main work is in the field of cocoa and they are doing analysis and issuing certificates for exporting of cocoa to the USA and other countries. They are approved by the Food and Drugs Administration, FDA of USA. (R.H.M.)

P E R U

3.131 In all four institutions excluding Junta Acuerdo de Cartagene, JUNAC, were contacted in Peru - in Lima and La Molina, from Tuesday, November 22 to Sunday, November 27. A considerable part of the time in Peru was used in the contacts with JUNAC.

3.132 Two meetings were held with representatives of ITINTEC. The last one was a joint meeting where also Banco Industrial and the Sociedad de Industrias were represented, of which the latter turned up in strength.

3.133 The result of the direct contact with ITINTEC was non-conclusive, possibly because a substantial part of the management had been recruited from outside the organization only a few week earlier.

(P-1) Sociedad de Industrias, Lima.

3.134 A very good contact of the mission with representatives from the Sociedad de Industrias was made during a meeting in the ITINTEC information center.

3.135 The representatives from the industrial association were interested in participating in the design of the Demonstration Operation and also in being the main partner institution in Peru to the marketing of INTIB tools. According to Mr. Martinatti, the president of the committee for the small companies, 90 % of the industrial companies in Peru are affiliated to the industrial association. The association has permanent contact with its members through information service which include publications, an up-to-date directory of industries and consulting services.

3.136 It was strongly recommended that INTIB tools be disseminated through their association. In the same way, future field service or extension service should preferably be done in connection with them to assure confidence from the part of the industrialists. The head of the economic studies department recommended, that if any economic studies on Peruvian industries were found necessary to design the Demonstration Operation, they could either be done by Sociedad de Industrias or by Departemento de Promocion y Desarrollo of the ministry of industry.

3.137 The areas suggested during the meeting for the start of the Demonstration Operation were pastas, cannery, meat products and cheese production. (see also copy of letter from S.I., annex 4).

3.138 It was repeatedly emphasized that the provision of INTIB information and consultancy services must be followed by more ample local government provisions of funds for the establishment of new plants and for the improvement of existing ones. (A.P.D.)

(P-2) Instituto de Investigaciones Agroindustriales, La Molina, Lima.

3.139 This institute was established in 1969, under an agreement between the Peruvian Government, UNDP and FAO. The institute was created to do research and development for the agroindustry in laboratory and in pilot plant scale. They also work on pre-feasibility and feasibility studies, development of the agroindustry as such and development of agricultural and animal production through their industrialization.

3.140 The laboratories and pilot plants are good, and they can work in the following fields of the food sector: chemestry, biochemestry, microbiology and taxicology as well as nutritional evaluation of food products. Also, they can carry out canning studies, with a number of alternatives and options, by changing unit operations in the processing line. The institute also has facilities for working within the following areas: fruits and vegetables processing, edible oils and fats, meat and meat products, flours and starches, milk and milk products, bakery, cereal chemestry and technology, protein products and fermented and distilled products. They also work on the establishment and running-in of food plants, training programs for industries and turn-key projects.

3.141 By using the 2 % of net profit, which is encouraged used for R + D, the industries can ask the institute to do research for them. These researches can be in the field of raw material and product analysis, food products and processes development, development of new products for marketing studies, etc.

3.142 The areas where they are working on their own, are the following:

(a) substitution of wheat, which is imported, by manioc flour, corn or rice flour, quinoa,

(b) alcohol production from sugar cane or starch products, or fruits - 96 % and absolute,

(c) edible oil and fats from bebega and from buriti,

(d) coffee and tea processing,

(e) bitterness removal from lupinos sp.

3.143 They have 180 people in the institute, 60 of them technical people. (R.H.M.)

B O L I V I A

3.144 In all 11 institutions were contacted in Bolivia - in La Paz and Santa Cruz, from Sunday, November 27 to Tursday, December 1.

(B-1) Ministry of Planning and Coordination, Direction of International Cooperation, La Paz.

3.145 A meeting was held at the Ministry of Planning and Coordination in which also representatives of Sistema y Fondo Nacional de Informasión para le Desarrollo (SYFNID) and Centro Nacional de Documentacion Cientifica y Tecnologica participated. The objectives and ideas of the INTIB was exposed to the participants and the general agreement was that the project would be very useful for Bolivia. However, It is important to work close together in order to avoid dublication of efforts. The SYFNID, which is the new umbrella organization for all information service in Bolivia should collect all information and supply to INTIB. They are being assisted by an information specialist working for IDRC (Canada).

3.146 SYFNID started working last July, following a decree of April 1977. Under their coordination are among others: Centro Nacional de Documentacion Cientifica y Tecnologica, attached to Universidad Major San Andres - and the information service of Direccion General de Normas y Tecnologica (DGNT).

3.147 They feel that regionally developed and adapted technology is much more important for the country than technology transferred from outside. According to their idea, UNIDO should provide the methodology and the Andean Pact Countries Organizations should develop and adapt their technologies. They were also concerned about developing countries with valuable technology would rather sell their finished products than selling their technology.

3.148 They mentioned 'Servicio de Information Tecnologica Industrial' (SITI), but according to them, all information there is in a warehouse, completely useless for the industry. The explanation for this situation was lack of physical space. They have 4 to 5 technicians on documentation. They publish a bulletin which is sent to all industries. SITI has also a system for extention. They should visit the industries and try to solve their problems. This is not working because there is no food technologists available in the country. The general opinion was that INTIB could beautifully complement SITI's objectives.

3.149 The National Institute for Preinvestment (INP), directed by Mr. Antonio Bazoberry, was mentioned. This institute deals with the law of foreign investment in the country, and also consulting services coming from abroad. When technology or specialists are not available in the country, this institute can allow foreign consulting firms to operate in Bolivia, through national consulting companies. All new industry to be installed in Bolivia is analyzed by the 'Corporacion de Desarrollo', former 'Comite de Obras Publicas', which is located in all the provinces of the country.

3.150 They finally mentioned that they have listed more than thirty information classification systems, and that they do not wish to be offered still another one. We explained that the INTIB operation will be concerned with developing substance - not a new classification system. (R.H.M.)

(B-2) DGNT - Direccion General de Normas y Tecnologica, La Paz.

3.151 The information service of the DGNT covering three activity areas:

(a) alert - to activate the industrialists through the technical bulletin,

(b) industrial liaison,

(c) answering of questions from industry.

Their main priority is told to be the food industry. They have 5 engineers in the extention service, however none of them is a food technologist. Their library is containing among others Chemical Abstracts and Abstracts on Food Science and Technology. Their tech-

nioal bulletin is issued in 500 copies out of which 400 are mailed to the industry.

3.152 They were very co-operative and insisted in being the key group to collaborate with the INTIB in Bolivia. (R.H.M.)

(B-3) Universidad Boliviana Gabriel Rene Moreno, Facultad de Tecnologica, Santa Cruz.

3.153 This faculty is very new and they are just starting to built a food technology team. They have professors studying in USA and they have a co-operation agreement with UNICAMP - Brazil. The first laboratory equipment for food analysis has been installed.

3.154 According to the director, Mr. Rubén Suárez Parada, they are supposed to work in co-ordination with all universities in the country, following the 'National University Coordinating Council' decisions. This council agreed to establish in Santa Cruz the National Center for Food Technology, but unfortunately nothing concrete was done to implement the decision. They now hope to built the center together with the Corporacion de Desarrollo and the ministry of industry and thus serve the industry.

3.155 It was mentioned to us that Corporacion Boliviana de Fomento, started several food industries projects and almost all of them failed because their costs were too high to interest the private investors. One example, was the case of a sugar plant which was built and offered to the sugar cane growers. Because of its high cost, the farmers decided to built themselves another plant at a much lower cost. The same was told to have occured with a meat plant and an edible oil plant.

3.156 The Corporacion de Desarrollo is said to be working in a much better way, starting the industry in direct co-operation with private investors. (R.H.M.)

(B-4) Comite de Obras Publicas de Santa Cruz, Departemento Desarrollo Industrial, Santa Cruz.

3.157 As was said before this committee will now become the Corporacion de Desarrollo. Each province in the country will have their own Corporacion.

3.158 They work in many aspects of development of the province, including the establishment of roads, water supply, industrial development etc.

3.159 They are presently financing a can factory which is planned to produce in 1979 - 12 million tin plate cans. The tin plate will be imported from abroad. This factory was planned in Santa Cruz because there is a great growth potential in this department in the field of canning. They have already studied and identified 157 fruits varieties in this province. Presently heart of palm, pineapple, alcohol and peaches are being canned.

3.160 They are also planning a tomato plant and a bebegu oil plant. They are in the stage of receiving bids on the equipment. Feasibility study, design and execution is managed by the Corporation.

3.161 Once they identify a profitable and necessary industry for the department, they do a feasibility study and present to the Chamber of Commerce and Industry, to find the investors and establish the industry, with all necessary facilities from the government.

3.162 The Corporation has already started the following industries in the department: cheese, balanced animal feed, ice cream, butter, pasteurized milk.

3.163 This Corporacion is very active, market oriented and practical. They would be an important partner for INTIB, and they are very interested in co-operation. (R.H.M.)

(B-5) MAISOY S.R.L., Santa Cruz.

3.164 This firm, was established as a feed mixing plant, and feed is still the main business. A couple of years back they also went into producing food with high nutritional value, based mainly on soy and corn. The owner-manager, Mr. Pedro Bleyer Presser is a typical entrepreneurs who is using evenings and week-ends to develop new products. He is interested in selling know-how and formulas and to have INTIB helping him in the marketing of technology. (J.Z.)

JUNTA - ACUERDO DE CARTAGENA

3.165 The contact with the Technology Division of Junta - Acuerdo de Cartagena, (JUNAC), Lima was very successful. In all three meetings were held with Mr. Luis Soto Krebs, the director of the divison. The last visit was made by the co-ordinator December 1, after having completed the visit to Bolivia.

3.166 It turned out, that the JUNAC is carrying out a project on tropical woods [11], which among others include a series of manuals of a similar concept to that suggested by the co-ordinator. Already during the development of the project, it was told to have had a very constructive impact on the participating institutions and enterprises and on their mutual relationship.

3.167 Mr. Soto Krebs offered his full co-operation in initiating and carrying out the Demonstration Operation, and suggested that it be made a joint project between UNIDO and JUNAC. He was of the opinion, that it would be possible to procure most of the necessary finance from bi-lateral or other sources with whom JUNAC is in contact.

3.168 Mr. Soto Krebs and his food technology advisor, Mr. Alex Trier Gabler both expressed the view that the choice of pilot area for the Demonstration Operation is not critical, as long as the area is one of the several key areas being taken up accordingly within a reasonably short span of time. Canning was suggested as an example of a suitable area.

3.169 At the last meeting, December 1, there was general accord on the outline programme of the Demonstration Operation as shown in fig. 1 of draft proposal. (J.Z.)

3.170 On the return from the Andean Pact region, the co-ordinator again passed by the headquarters of OAS in Washington, D.C., where he discussed the main findings of the mission with Mr. M.P. Greene, deputy director of the Department of Scientific Affairs. Also, some of the sessions of the First Directors Meeting of Latin America Industrial Technical Research Institutes, December 5 to 9, 1977 were attended. The observations made by the team on the current situation in the Andean Pact region proved to be similar to those contained in an analysis presented as an introduction to the meeting.

3.171 Also, discussions were made in the World Bank with among others Mr. David Gordon, director of Industrial Development and Finance Department, on the detriments to industrial development, and on ways to remove said detriments.

3.172 In the headquarters of UNDP in New York, the findings and preliminary conclusions of the mission were discussed in some detail with Mr. Alfredo del Valle, who expressed his considerable sympathy with the envisaged Demonstration Operation, not the least, if the technology group would be established as a technology enterprise. (J.Z.)

4. Summary of findings

General

4.1 Apart from a fairly limited number of food industrial enterprises with appropriate facilities and up-to-date management methods, there exist in the Andean Pact countries a very large number of enterprises with inadequate facilities, having no rational sequence in and control of their processes, and often with a very low standard of hygiene. Such enterprises have no (systematic) method of collecting, storing and using information. They generally keep as guarded trade secrets their experience and any improvements they may have made, even though such know-how in other environments most often is well within the public realm, if not long surpassed by more appropriate measures, which are likewise generally accessable. Most of such enterprises have little or no contact neither with food technology institutions nor with information systems. They feel to be - and are - very much left to solve their problems alone, each enterprise separatly.

4.2 The food industry in general considers the following to be their main problem areas:

(a) procurement of raw materials:
- how to get a suitable supply of appropriate and uniform quality goods at reasonable and stable prices (for instance, many smaller enterprises mainly use surplus goods from fruit and vegetable markets),

(b) packaging:
- how to secure appropriate quality and supply of packaging materials at reasonable costs (packaging materials often cost more than the raw materials to be processed),

(c) technology:
- how to obtain relevant information and guidance at minimum cost of time and money (many industrialists have little notion of their own needs and are not in a position to define their problem areas properly),

(d) financing:

- how to secure ample finance at reasonable terms - especially for working capital (many industrialists are not able (some do not want) to present proper accounts and feasibility studies as basis for their requests for financing, and are therefore often unnecessarily left to lend money privately at very high interest rates).

(e) marketing:

- how to secure a better domestic market - and how to find export markets.

4.3 There is a lack of overall objectives and planning for the food sector. Genrally, there is practically no co-ordination between development programmes and agencies, for agriculture, food industries and nutrition. Several international organizations are involved in projects dealing with or at least having a bearing on food industrial development. There appear also between these organizations to be an almost total lack of co-ordination of efforts.

4.4 The specialized food industrial, private consultancy profession seems to be only incipient: Apart from LITE S.A. in Guayaquil, no other indigenous food industrial consultancy firm was identified during this scanning operation. A couple of firms appearing as consulting firms proved to be part of the marketing mechanism of overseas equipment manufacturers. It seems, that on one hand, the development of a well qualified, multi-disciplinary consulting profession could become a constructive element in the development of the food industrial sector, on the other hand, such profession will not easily 'get off the ground' without some sort of deliberate priming through training, granting of contracts etc. to build up experience, confidence and resources. There are food technologists and other professionals in the region, who, when being trained in the broader aspects of consultancy could make out the basic stock, together with others from the region, who are presently offering their talents in the already industrialised environments af the Northern Hemisphere.

4.5 The existing general export promotion measures (apparently mainly financing) are not adequate for helping to build up sub-

stantial foreign currency earnings from exports of processed foods, for instance tropical fruits.

4.6 The quite impressive physical institutional facilities existing in the region in the field of food technology seem so far to have practically no impact on the food industrial development of the region. The main reason seems to be, that the food technologists generally have an all too limited knowledge of and contact with procurement of raw materials, marketing, packaging, distribution, consumer acceptance and pricing.

4.7 There is observed a serious need both in industrial enterprises and in technological institutions to learn how in a more systematic and optimal way to conceive, assess, develop, finance and market new products, processes and services.

4.8 Some R+D is being done in the region on new products and processes to help solve nutrition problems. However, in several cases it was noticed, that important practical accomplicements done in similar fields in other developing countries, were entirely unknown to both researchers and industrialists interviewed during the mission. Two of the main causes for this situation seem to be the following:

(a) a widespread lack among those having developed viable innovations in following-up with adequate dissemination, nationally as well as internationally,

(b) a lack of a mechanism, which undertakes systematically to carry out continuous scouting, information service, comparative testing, evaluation and promotion of the most appropriate technologies, whether on a commercial and/or on a non-profit basis.

4.9 The key impediments to accelerated food industrial development in the Andean Pact countries appear thus to be: lack of relevant and adequate information, lack of communication, lack of confidence and lack of a common language between the various parties involved in food industrial development. These four key factors further imply lack of co-ordination of efforts, lack of incentives and lack of development plans for the sector, as integrated parts of the overall development plans.

4.10 In the following is listed summaries of the specific findings made in each of the countries visited - especially with regard to the possibilities for future co-operation.

V E N E Z U E L A

4.11 Individuals from three of the twelve institutions visited in Venezuela showed understanding and interest in the objectives of the mission and demonstrated good capabilities to contribute to the Demonstration Operation. They were from CAPEMIAC, CIEPE and INVEDI. Also CONICIT made a concrete offer of contribution.

4.12 CIEPE and INVEDI could participate in elaborating the tools and CAPEMIAC and INVEDI could be involved in marketing them. CIEPE information centre should also cooperate in the marketing of the manuals and spring-binders. INVEDI showed interest in establishing a demonstration industrial enterprise and suggested as possible subject areas: Cold storage and other forms of controlled storage.

C O L O M B I A

4.13 Individuals from three out of seven institutions visited in Colombia showed understanding and interest in the objectives of the mission and demonstrated good capabilities to contribute to the Demonstration Operation. They were from Caja de Credito Agrario, Industrial e Minerio, FEDEARROZ and Corporación Financiera Popular - Servico de Informacion Tecnica (SINTEC). The latter, which has more than 70 branches throughout the country, provides information and consulting services to the industrial companies to which they are extending credits. All three organizations could be involved in the marketing of the services of INTIB.

4.14 Both IIT and FICITEC offered co-operation with the Demonstration Operation, however, some of the representatives were sceptical towards the actual possibility of developing the suggested 'tools'.

4.15 Mr. F. Sagasti was not only interested in the suggested methodology, but also offered to co-operate with the Demonstration Operation and made suggestions to its design. Mr. Sagasti suggest-

ed that the Demonstration Operation should include a survey of the technology available in the participating countries from the Andean Pact in the selected subject area, and that attention should be paid to Mr. H. Rattner's studies on the food sector of some of the countries involved.

4.16 Mr. Rattner's studies are related to technological innovation in the food industries in Peru, Colombia, Mexico and Brazil. The results will probably be available in 1978.

E C U A D O R

4.17 Three institutions were found that could be involved in the Demonstration Operation: Banco Nacional de Fomento (BFN) INEN and CENDES which could participate in marketing the tools, BNF's representative showed good understanding and interest in the objectives of the mission. If canning were the selected subject area, some support could be given by the dynamic president of the recently formed canning industry association from Conservas Del Valle.

P E R U

4.18 The Sociedad de Industrias was highly interested in cooperating with the Demonstration Operation through marketing.

B O L I V I A

4.19 Individuals from six of the eleven institutions visited in Bolivia showed understanding and interest in the objectives of the mission and in cooperating actively with INTIB. They were from DGNT, Camera Nacional de Industrias, Instituto Nacional de Inversiones (INI), Centro Nacional de Documentacion Cientifica y Tecnologica, (DGNT), Universidad Boliviana Gabriel Rene Moreno, Santa Cruz and Corporacion de Desarrollo de Santa Cruz. Especially the last-mention-

ed seemed to be able to make a constructive contribution to the co-operation, primarily in connection with the marketing.

JUNTA - ACUERDO DE CARTAGENA

4.20 The director of the Division of Technology of JUNAC demonstrated his substantial interest in making the Demonstration Operation a joint venture between UNIDO-INTIB and JUNAC. Canning was the suggested pilot area.

Some of the summary findings are illustrated in the following four tables:

Fig. 1: Recording of reactions to proposed Demonstration Operation.

Fig. 2: Recording of potential contributions to Demonstration Operation.

Fig. 3: Recording of food industrial areas suggested or indicated.

Fig. 4: Recording of information available.

INSTITUTIONS	RECORDING OF REACTION					
	CONSIDERABLE INTEREST	INTEREST	INDIFFERENCE	NO UNDERSTANDING	SCEPTICISM	NO ACCEPTANCE
CAPEMIAC		●				
CIEPE		●				
INVEDI	●					
IIT					●	
CORPORACION FIN. POPULAR		●				
FICITEC		●			●	
CAJA DE CREDITO		●				
SAGASTI	●					
BANCO NACIONAL DE FOMENTO		●				
CENDES		●				
CONSERVAS DE VALLE		●				
INEN		●				
ITINTEC				●	●	
SOCIEDAD DE INDUSTRIAS	●					
DGNT		●				
CAMERA NAC. DE INDUSTRIAS		●				
CORPORACION DE DESARROLLO		●				
TECHN. DIV. JUNTA-CARTAGENA	●					

Fig. 1: Recording of reaction to proposed Demonstration Operation.

INSTITUTIONS	POTENTIAL CONTRIBUTIONS TO			
	ELABORATE THE TOOLS	MARKET THE TOOLS	ECONOMIC & OTHER STUDIES	SUPPORT & COOPERATION
CAPEMIAC		●		
CIEPE	●	●		
INVEDI	●	●		●
CONICIT				●
CORPORACION FIN. POPULAR		●		
FICITEC			●	
CAJA DE CREDITO		●		
SAGASTI			●	●
BANCO NACIONAL DE FOMENTO		●		
CENDES		●	●	
INEM		●		
SOCIEDAD DE INDUSTRIAS		●		
DGNT		●		
CAMERA NAC. DE INDUSTRIAS		●		
CORPORACION DE DESARROLLO		●	●	
TECHN. DIV. JUNTA-CARTAGENA	●		●	●

Fig. 2: Recording of potential contributions to Demonstration Operation.

INSTITUTION / INDUSTRIAL AREA	INVEDI	COMICIT	PICITEC	IIT	FEDEARROZ	F. SAGASTI	CONSERV. DEL VALLE	SOC. DE IND. PERU	CORP. DE DESARR. (SANTA CRUZ)	JUNTA - CARTAGENA
RICE PROCESSING			●		●			●		
CORN PROCESSING			●	●				●		
FRUIT PROCESSING			●	●						
COLD STORAGE	●									
MEAT PRODUCTS				●						
CANNING				●			●	●	●	●
PASTAS								●		
MILK PRODUCTS				●				●		
BAKERY PRODUCTS								●		
SWEETS								●		
ANIMAL FEED				●						
AGROINDUSTRY MACHINERY		●								
SUBJECT AREA SELECTION IS SECONDARY						●				●
NEED FOR FURTHER STUDIES TO SELECT SUBJECT AREA			●	●						

Fig. 3: Recording of food industrial areas suggested or indicated.

TYPES OF INFORMATION	VENEZUELA	COLOMBIA	ECUADOR	PERU	BOLIVIA	JUNTA
Government priorities for the development of food industry	No	No	No	No	No	Partial
Government priorities for the development of food science & technology	No	Partial (from IIT)	No	No	No	Yes
Available R&D, education and training facilities, information & consulting services	No	Partial	Partial (from CENDES)	No	No	No
Industry statistics, products, etc.	Partial	Partial	Partial (from INEN)	Partial (from SI)	Partial (from SNI)	Partial

Fig. 4: Recording of information available.

5. Recommendations

5.1 Having scanned the field of food industry in the Andean Pact countries, especially with a view to strengthen the information and consultancy services to the industry,

taking into account the findings made during the journey, as well as related knowledge previously accumulated and

considering the Lima Declaration and Plan of Action on Industrial Development and Co-operation to be the guideline and framework for the forthcoming activities,

the resulting recommendations and draft proposal are herewith submitted.

5.2 Most of the actions listed in this chapter may be carried out largely independent of each other. However, a profound dynamic effect will only occur in case an integrated, bold and comprehensive programme will be implemented. For this purpose has been drafted a proposal for a 'Demonstration Operation', which is designed with the objective of accomplishing significant advances for food industry in the Andean Pact region. The draft proposal is attached to this report after the appendices.

R.1 Noticing the interest of FEDEARROZ, the Colombian rice growers association in having UNIDO contributing to the next specialized course for mechanical engineers on milling industries to be held in 1978 +), it is recommended that UNIDO take up contact with FEDEARROZ offering to send a highly qualified rice milling consultant as an instructor at the course. Also, it is suggested, that UNIDO identify and accordingly inform FEDEARROZ which consultant(s) can help get their oil extraction and refinery plant again to work with rice bran as intended ++).

+) See item 3.99, page 3 - 21

++) See item 3.101 and 3.102, page 3 - 22

R.2 Having been informed about the general lack of adequate in-house libraries in most food industrial enterprises in the Andean Pact region (and lack of knowledge of how to establish such library) +), it is recommended to elaborate a brief 'guide to establishing and sustaining a basic library of a food industrial enterprise', with suggested priorities according to line of production etc. The guide is to contain brief abstracts of appropriate books, periodicals, trade litterature etc. and to include information on costs, name of publisher etc. The guide, which is to give preference to Spanish language litterature, should be prepared for a later updating and supplementation. The distribution of the guide is to take place through the channels suggested in R.3.

R.3 In view of the generally scant contact between most technological service institutions and the individual food industrial enterprises, it is recommended that UNIDO-INTIB develop material for direct forwarding to the enterprises. It would be desirable that such material be passed on to the individual enterprises through suitable intermediaries, who may themselves benefit in various ways by acting as such. During the journey of the mission, a number of institutions were identified, which seem to be in a position to fill in such role ++). It is recommended, that UNIDO-INTIB

(a) establish and sustain a list of food industrial enterprises in the Andean Pact countries,

(b) take contact with the institutions mentioned in order to establish how such co-operation may be practised.

The guide mentioned under R.2 could possibly be the first material channeled out to the enterprises in this manner.

R.4 Noting the lack of information arriving to the food industry on development in various countries regarding industrial production of nutritious foods at reasonable prices, it is suggested that a special abstracting and information service be initiated in this field, possibly in co-operation with the publishers of 'Food Science and Technology Abstracts'.

+) See item 4.1, page 4 - 1

++) See Fig. 2, page 4 - 8

R.5 Since packaging is obviously one of the key problem areas of food industry in the Andean Pact countries +), it is suggested, that UNIDO investigate how in the best way the packaging situation can be improved, for instance, through

(a) encouraging and supporting co-operative initiatives from the food industrialists of the region,

(b) initiating the establishment of a packaging institute,

(c) initiating the development of new packaging materials and methods, especially for the local markets where costs of packaging is one of the main limiting factors for the spreading of safe, healthy, inexpensive foods to the broader masses of people.

R.6 Having learned of the existance of numerous intermittantly operated food factories, where one of the causes is the lack of management skills in planning for a better utilization of the processing equipment, it is suggested that courses and guides be prepared in 'how to improve plant utilization through better year-round planning of operations'.

R.7 Noting, that generally there exist only a very limited knowledge of how to develop waste into profitable by-products, it is suggested, that specialists be engaged to work out material on 'how to convert waste from food production into profitable by-products' with a view to arrange meetings on the subject throughout the region. ++).

+) See item 4.2, page 4 - 1

++) See items 3.101 and 3.102, page 3 - 22

R.8 Noting that the industrial consultancy profession in general, and not the least the part of it related to food industrial consultancy, is barely incipient +), the following measures are suggested to strengthen this function, as it is considered to be a potentially very useful factor for food industrial development:

(a) to elaborate and carry out courses for professionals (food technologists, industrial engineers, civil engineers, economists, marketing specialists etc.) in how to establish and run a multi-disciplinary consulting firm,

(b) to contract work - and to suggest to governments, development institutions etc. to contract work - to indigenous industrial consulting firms, in order to stimulate the development of this sector.

+) See item 4.4, page 4 - 2

The following recommendations, were made by Mrs. Angela Pompeu Davig after the second meeting at the Junta Acuerdo de Cartagena.

5.3 Because of its potentialities for the operation of INTIB and also because of the support it could receive from the Junta de Cartagena, Mr. Zachariassen's proposal should be explored in more detail.

5.4 Some of the potentialities of the manuals and the spring-binders can be mentioned:

(a) They could function as the first contact of INTIB with its industrial users and motivate them to use other INTIB information services. Special types of current awareness services have been used by several information centers as an effective tool for establishing contact with information users and motivating demand for the services of the information centers for solution of specific problems. The ma-

nuals and spring-binders as suggested by Mr. Zachariassen could perform the same function as the current awareness service with the advantage of being much more useful in the short run.

(b) As a direct consequence af the motivation effect of the manuals the industrials would start presenting their specific requests for technical assistance and consultancy. But at that stage their requests would be presented in a higher level of understanding of their own problems due to the knowledge acquired from the manuals.

(c) The nationals that participated in the elaboration of the tools would acquire an integrated knowledge of the subject area chosen, of general problems related to the establishment of industrial companies and of marketing of that type of information. They would also have an special opportunity to learn how to market technology.

(d) The collection of information on specific subject areas in each country could help the local development of specialized information centers.

5.5 The aspects of Mr. Zachariassen's proposal that could be explored in more detail are:

(a) The content of the manuals in terms of the information for feasibility studies in each one of the countries, how to collect this type of information and how often it needs to be up-dated,

(b) in what technological areas the manuals could or could not be done due to technical complexity and/or patent restrictions,

(c) the selection of the subject area should include an analysis of the technical inquiry service of UNIDO in the food area, that is the major subjects requested during a certain number of years, the information accumulated, and the names of the consultants who answered the technical inquiries.

5.6 The support that could be obtaines from the Division of technology of the Junta could be discussed deeply during a special meeting called for that purpose. Not only the persons directly involved could participate in the meeting but also well known senior information professionals like Mr. Klintøe and Mr. Kirouac for instance could be invited.

5.7 The Demonstration Operation differs very much from the existing information systems like AGRIS and AGRIMER, for instance, because no library network or documentation services are suggested to be established. Libraries, documentation services and existing information centers will be used to obtain information needed to elaborate the substance for the Demonstration Operation. For the ones who are familiar with the information material made available through traditional information systems, like AGRINDEX for instance, it is also clear the differences between that type of presentation and the 'spring binders' presentation of the Demonstration Operation.

5.8 A special recommendation should be made: It is very important that in case UNIDO decides to produce and distribute the manuals, they should not become another instruments to market the technology available in the developed countries only. Countries like Argentina, Brazil and Mexico should be included as technological sources and their technology receive the same attention as the ones coming from the United States or France or Denmark, for instance. (A.P.D)

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UNIVERSIDAD SIMON BOLIVAR
INSTITUTO DE INVESTIGACION Y
DESARROLLO INDUSTRIAL

Caracas, November 25, 1977

Mr. John Zachariassen
Gladsaxe Mollevej 23
DK-2860 Soborg
Copenhagen - Dinamarca.-

Dear Mr. Zachariassen:

It was a real pleasure to talk with you during your visit to the Universidad Simón Bolívar. I found the idea of the establishment of an industrial and technological information bank within the UNIDO very useful and stimulating.

We are particularly interested in the services that this bank may offer because our university, through the INVEDI (Instituto de Investigación y Desarrollo Industrial) is planning to set up industrial plants in one or more of the following areas: food, chemistry or electronics.

The INVEDI is an institute for industrial research and develoment whose main function is to link and draw together the university and industrial sectors for the benefit of both: the university benefits in that the faculty, technicians, and students take part in the study and resolution of real industrial problems, and, consequently, the students approach the activities of a newly graduate in his job,thereby he will need a shorter period of training at the job:this is important in Venezuela as most industries are small and have little capacity for on-the-job training. On the other hand, industry benefits in that its problems are studied and solved

with the guidance of competent professionals, and at a reasonable expense.

We are now interested in setting up industrial plants through the University. There are several reasons that moved us to this decision. It is becomming evident that it will be increasingly difficult for the University to depend exclusively on the budget assigned by the Governement, thus we need new and various sources of income. On the other hand, we have a capable faculty who can help in the study, elaboration of the project, supervising to the start-up, and in the running of an industry. Finally, the University will come closer to the industrial sector, becomming part of it.

As this is a new project of the INVEDI, at this point we only have number of ideas on what industry or industries we should study first. We have decided on the following limitations for the first project (although they are flexible); the maximum total investment should not exceed 5 million U.S dollars, and should have a social aspect (it could not be, for example, a rum distillery).

We have thought that our first industry might be in the area of food preservation. The technology of food preservation is used only in small sectors of our food products, and large quantities of food are lost through spoilage every year. We are thinking on two of its aspects: (1) set up a plant to freeze vegetables, starting with potatoes, carrots and peas. (2) set up special silos with inert and controlled atmosphere to retard the spoilage of delicate produce such as tomatoes, peppers, papaya and others.

We have a Department of Food Science at the University whose personnel will participate in this project together

UNIVERSIDAD SIMON BOLIVAR
INSTITUTO DE INVESTIGACION Y
DESARROLLO INDUSTRIAL

with several engineering departments, however, we will definitely need help from UNIDO, and particularly, from the information bank.

You explained to me that there will be one or several pilot operations during 1.978 in order to gather information that will permit establishing the optimum manner of operation of the bank. We would very much like it if you could propose to UNIDO that our project on food preservation be considered as one of the pilot projects. We would need your help in obtaining information and the decision-making on many aspects of the project : marketing, selection of technologies, selection of equipment, administrative organization, quality control, personnel trainning, industrial security, and others.

I am sending you, together with this letter, information on the Universidad Simón Bolívar and the INVEDI.

We wish to establish a strong and useful link with UNIDO. Please convey them our interest, and write me as soon as you have some news on the matter.

I again thank you for your visit,

Dr. ESTEBAN L. BERTHA
Jefe del INVEDI

ELB/yp.

SOCIEDAD DE INDUSTRIAS

LOS LAURELES 365 SAN ISIDRO – TELEFONO: 408700 CASILLA 632 TELEX 21030 PE ESEDE

Afiliada a la Asociación de Industriales Latinoamericanos

San Isidro, 13 de Diciembre de 1977.

M. Jhon Zachariassen
Zac - Consult
Gladsaxe Mollevej 23
DK-2860 Soborg
Copenhaguen
DENMARK

Estimado Señor Zachariassen:

Los señores representantes de la Sociedad de Industrias en la reunión llevada a cabo en el local institucional del ITINTEC, en el pasado mes de Noviembre, me han transmitido la lista de los productos susceptibles a ser incorporados en la primera etapa del Proyecto de creación de un Banco de Datos a nivel regional. Los productos elegidos han sido los siguientes:

- Productos lacteos (con exepción de la leche)
- Conservas de frutas y legumbres
- Molinería
- Panadería
- Cacao, chocolate y artículos de confitería.

Además, se han mostrado muy interesados en que la Sociedad de Industrias (institución que agrupa a más de 3.500 empresas) sea propuesta como órgano coordinador en el Perú.

Muy atentamente,

Patricia M. de Miquel
Jefe de Biblioteca

January 1978

D R A F T P R O P O S A L

for

a joint

UNIDO Industrial and Technological Information Bank

and

JUNTA - Acuerdo de Cartagena

Project for the Establishment of Integrated Information and Consultancy Services in the Andean Pact Countries in the Field of Food Industry

-

designated

the

DEMONSTRATION OPERATION

John Zachariassen

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0. Summary

0.1 In the following is described a draft proposal for a project, designated the Demonstration Operation, for the establishment of integrated information and consultancy services in the Andean Pact countries in the field of food industry, to be carried out by UNIDO-Industrial and Technological Information Bank in co-operation with Junta - Acuerdo de Cartagena.

0.2 The objectives of the Demonstration Operation are the following:

(a) to contribute substantially towards achieving a significant advance in food industrial development and in eradication of nutritional deficiencies in the Andean Pact region through establishing full and broad indigenous command of the state-of-the-art of key food industrial areas,

(b) to establish a model for promotion of industrial development in other industrial fields and in other geographic regions.

0.3 The indigenous command of the state-of-the-art is to be promoted - in co-operation with existing technological, industrial and financial institutions in the region - through the development and marketing of specific information and consultancy tools in the form of integrated know-how and information packages, model designs, demonstration enterprises and complementary information, consultancy and R+D services.

0.4 The co-ordination and carrying out of the core part of the development of said information and consultancy tools is proposed contracted to an indigenous 'technology enterprise' to be established for the occasion and with the additional objective of developing into an expanding self-sustained enterprise.

The operation is proposed to start in the area of canning, for subsequent expansion to the other key areas within food industry.

1. Introduction

1.1 This draft proposal is the result of the Exploratory Mission for the Establishment of Information and Consultancy Services for the Andean Pact Countries in the Field of Food Industry. (November - December 1977). The members of the mission were Mr. John Zachariassen, Mr. Roberto H. Moretti and Mrs. Angela Pompeu Davig.

1.2 According to the draft project description of the mission, 'the team members will discuss the existing demands for information and consulting as well as explore the existing supply potential in some of the countries of the Andean Pact. They will survey the scene and analyse the feasibility of establishing these services, the conditions under which such services will be optimally useful and the necessary inputs by the local authorities and institutions and by the international organizations. Such attention will be given to the possible links and channels of communication between UNIDO's Industrial and Technological Information Bank (INTIB) and the area in both directions. The results should be processed into detailed recommendations for the actual establishment of information and consultancy services with a view to expand these services from the food industry to other branches in the Andean area and to use this whole experience for similar programmes for other regions'. Furthermore, the contract between UNIDO and the consultant, Mr. Zachariassen states 'that the consultant will apply his proven methodology derived from his experience in setting up technical consultancy (advisory, as well as R+D) services to industry and in establishing information services'.

1.3 In consequence, this proposal is seeing the outlined Demonstration Operation directly related to the future function and form of the Industrial and Technological Information Bank (INTIB), while at the same time being a reflection of said methodology.

2. Background

2.1 The UNIDO - Lima Declaration on Industrial Development and Co-operation declares, that the 'share of developing countries in total world industrial production should be increased to the maximum possible extent from the then (1975) less than 7 % to at least 25 % of total world industrial production by the year 2000, while making every endeavour to ensure that the industrial growth so achieved is distributed among the developing countries as evenly as possible'.

2.2 Considering this most ambitious target, it is self-evident, that only early initiated, bold and at the same time massive new measures will establish the credibility of the endeavour. It calls for an interdisciplinary systems approach, and the will, power and means to carry it through. Adequately conceived, elaborated and applied information and consultancy services are key elements of such approach.

2.3 The natural body to initiate such new measures seems to be INTIB, since, according to the Report by the Executive Director of UNIDO: 'Establishment of an Industrial and Technological Information Bank (ID/B/183, 12 April 1977)': 'At the government level, the Bank will provide industrial and technological information designed to assist government officials in the decision-making process. At the institutional level, the provision of information will be oriented to enhance the capabilities of institutions in providing the necessary supporting services to Governments, on the one hand, and to enterprises on the other. At the enterprise level, the Bank will provide information to enable entrepreneurs to take investment decisions and to establish and operate manufacturing units. Among the variety of information inputs needed for these purpose, the Bank will devote particular attention to technological choice in respect of products and processes, scale of production, process planning, selection of machinery and equipment, material selection, imports or manufacture of components, quality control and standardization, negotiations for acquisition of technology and the use of patents etc.' +

+The underlining is made by the writer of this proposal.

2.4 During the said mission was established contact with the technology division of Junta - Acuerdo de Cartagena, JUNAC, the head of which, Mr. Luis Soto Krebs expressed interest in carrying out the project as a joint venture between UNIDO-INTIB and JUNAC. Also, during said mission was contacted and identified a number of technological, industrial and financial institutions, which may form part of the future operating system in the region.

3. Objectives

Development objectives

3.1 The establishment of integrated information and consultancy services in the Andean Pact countries in the field of food industry is a means towards meeting the following development objectives, which are shared by most countries:

1. to accelerate food industrial development,
2. to eradicate nutritional deficiences,
3. to establish indigenous command of the state-of-the-art of key food industrial areas,
4. to create the basis for indigenous development and utilization of new, appropriate food products, processes and process machinery,
5. to establish a model for promotion of industrial development in other industrial fields and in other geographic regions.

Immediate objectives

3.2 The immediate objectives are:

1. to develop integrated, comprehensive know-how packages and other information in easily understood presentation, covering the appropriate state-of-the-art of technology as well as of procurement of raw materials, marketing, organization etc. - at first in the area of canning and subsequently expanding to the other key areas within food industry,

2. to massively disseminate said know-how and information, thus establishing a common language and basic level of comprehension among those actively concerned,

3. to sustain a continuous up-dating, supplementation and dissemination of the know-how and information mentioned,

4. to encourage and support the development of food industrial consultancy firms to complement the information services mentioned,

5. to encourage and facilitate the development and exploitation of new, appropriate food products, processes and machinery.

4. Proposed work programme

4.1 The work programme will follow a logical sequence of preparatory and complementary procedures as follows:

(1) development of detailed programme,

(2) securing of finance,

(3) establishment of project key group and network,

(4) collection and development of information material,

(5) development of projects for model enterprises,

(6) development of courses and seminars,

(7) training of consultants,

(8) development of marketing material,

(9) preparation of feed-back mechanism,

(10) establishment of demonstration enterprises,

(11) operation of services,

(12) recording and processing feed-back information,

(13) expanding operation to complementary food industrial areas,

(14) expanding operation to other industrial fields,

(15) expanding operation to other geographic regions.

A principle flow chart is shown in Fig. 1.

Introductory steps

4.2 At first, as function (1) will be developed a detailed programme including a thorough description of the planned output with examples of the envisaged presentation. Also, at this stage, co-operating institutions will be precisely identified and their respective functions defined. Furthermore, a detailed cost estimate will be worked out on basis of which firm commitments of finance will be solicited (function (2)).

4.3 On the assemption that the detailed programme will be approved and the necessary finance secured, the project key group will be established (function (3)) in Lima, Peru in proximity of the technology group of the JUNAC. The key group is to co-ordinate and carry out the continued programme in co-operation with the above-mentioned institutions, and supported by the necessary administrative and technical staff and outside consultants. The subsequent and main part of the programme consists of the following three chief phases:

development of substance,
development of operational tools,
operation.

Development of substance

4.4 This phase of the Demonstration Operation consists of two main functions:

(4) the collection and development of information material,

(5) the development of projects for model enterprises.

4.5 Function (4) implies the following:

(a) collection - from Andean Pact countries and other developing countries as well as from industrialized countries - of all accessible know-how and other information relevant to the establishment, running, expansion and diversification of canning enterprises in the Andean Pact countries. This includes among others information on raw materials and their procurement, processing and the selection of the related machinery and equipment, pack-

aging and packaging materials, storage, handling, hygiene, maintenance, quality control, organization, finance, marketing etc.

(b) the thus collected material is then to be sorted and evaluated. Suitable material will be processed for presentation in loose-leaf form in spring binders for continuous up-dating and supplementation. The processing of the information will secure the presentation in a well organized, integrated, pre-digested form for easy overview, comprehension and use by the non-specialist. The selected know-how is to contain the best possible 'rules of thumb', appropriate formulas etc. through letterpress, tables, graphs, diagrams, photos etc. In case various environmental circumstances imply essentially different approaches, such differences may be underlined through the use of different colouring letterpress and illustrations or - in extreme cases - separate binders.

The model procedures offered to facilitate the application are to be presented through algorithms and similar appropriate aids. The algorithms, using the same basic principle as computer programmes, would offer the additional advantage, that completed evaluation and decision forms may be subjected to supplementary computer analysis, if or when desired, for instance, as part of the feed-back mechanism mentioned under points (9) and (12).

4.6 Function (5) implies the elaboration of typical basic model projects, one for small-scale operation and one for medium-scale operation, to be presented in sufficient detail to offer adequate guidance or solutions to the most common problems. The projects are to include general drawings and essential specifications of production machinery, secondary facilities and buildings - besides typical plans for financing, purchasing, production, marketing, training, maintenance, safety features etc.

Development of operational tools

4.7 This phase of the Demonstration Operation consists of the following five main functions:

(6) development of courses and seminars,

(7) training of consultants,

(8) development of marketing material,

(9) preparation of feed-back mechanism,

(10) establishment of demonstration enterprises.

4.8 Function (6) implies the development of separate and joint courses, seminars, workshops and meetings for industrialists and their staff and operators, food technologists, public administrators, industrial and agricultural extension officers, nutritionists and others, whose work in one way or another is related to food industrial development. Also, special arrangements are to be prepared for potential food industrialists. One type of courses will deal with conception, development and exploitation of new products, processes, machinery and services.

4.9 Function (7) implies the special training of consultants in offering and carrying out consultancy and development services complementary to the information and training services described.

4.10 Function (8) represents the development of brochures, posters as well as material for the mass media, to help secure the best possible industrial, institutional and public relations for the Demonstration Operation.

4.11 Function (9) represents the preparation of an adequate feed-back mechanism from industrial enterprises and others affected by the Demonstration Operation, in order to gauge objectively the impact of the operation with a view currently to make the necessary adjustments.

4.12 Function (10) implies the encouragement of potential industrial entrepreneurs to establish at an early time at least one small-scale and one medium-scale enterprise according to the model projects developed, with the purpose of using said enterprises as 'demonstration enterprises'.

Operation

4.13 The operation phase of the Demonstration Operation is to be continuous. It contains two main functions, the operation of the services, function (11), and the recording and processing of feedback information, function (12).

4.14 After the running-in of the operation related to canning enterprises, similar procedures will be started up for other key food industrial areas as pastas, milk products, bakery products, cold storage etc.

5. Time schedule

5.1 An outline time schedule for the carrying out of the Demonstration Operation is presented in Fig. 2.

5.2 As shown, the development of the detailed programme is estimated to take about three months, after which an open period is shown until the programme be approved, finance secured and the establishment of the organization can take place. The establishment and development of the substance is estimated to take about a year, and the development of the operational tools to take another year. The marketing of the services is suggested to run for half a year before expanding into complementary food industrial areas and into other industrial sectors and geographic regions.

6. Organization

6.1 The key group is proposed to consist of 3-4 highly qualified and motivated professionals, preferably covering the fields of food technology, food industrial management and the development and marketing of technology. Each one of them should have a broad outlook and exceptional capability of communicating with people from all walks of life. The members of the key group should preferably be nationals of Andean Pact countries - or at least of Latin American countries.

6.2 The key group will establish working contacts with organizations and individuals who will contribute towards the carrying through of the operation. A diagram of the principle organizational set-up is shown in Fig. 3.

6.3 It is proposed, that the key group works in the framework of a 'technology enterprise', which could be established as a limited company, and to which is contracted the work of co-ordinating and participating in the carrying out of the Demonstration Operation. In order to prevent possible future interferance of interests contrary to the general objectives of this proposal, it is suggested, that UNIDO-INTIB and JUNAC retain the control of the company. This arrangement is intended to:

(a) set an example of how to operate an indigenous technology enterprise in a developing country,

(b) establish a basis for carrying out technology contracts in other areas and with other parties,

(c) help retaining a dynamic approach also after the carrying through of the initial operation.

6.4 The thus outlined structure is envisaged to form part of a decentralized INTIB organization.

7. Justification

7.1 The key impediments to accelerated food industrial development in the Andean Pact countries appear to be: lack of relevant and adequate information, lack of communication, lack of confidence and lack of a common language between the various parties involved in food industrial development. These four key factors further imply lack of co-ordination of efforts, lack of incentives, lack of a development plan for the sector - integrated with the overall development plan. The proposed Demonstration Operation will make a frontal attack on the described key impediments, and thus create a basis for the elimination of the other hindrances mentioned.

7.2 The current cost of continuously repeated import of nearly identical technology within the field of food industry is not only unfavourably affecting the balance of payment between the Andean Pact countries and the rest of the world. More seriously, it is hindering the development of an indigenous technological base, and it is perpetuating the 'brain drain' to the more industrialized environments. The Demonstration Operation, through establishing such a technological base within the field of food industry could also become a decisive factor towards the elimination of 'brain drain'.

8. Costs

8.1 It is not possible at this stage to make any close estimate of the cost of the operation. Function (1), the development of a detailed programme for the Demonstration Operation, including a cost-benefit analysis may cost from US $ 25.000 to 40.000 depending upon how many people and institutions are deemed necessary to be consulted, and in which way.

8.2 The cost of the full operation to cover all key food industrial areas within a four year period is very roughly estimated to be in the range of US $ 2,0 - 2,5 million.

8.3 The normal capital investment involved at the establishment of the 'demonstration enterprises' is not included in the above figures, since this will be part of usual industrial financing operations.

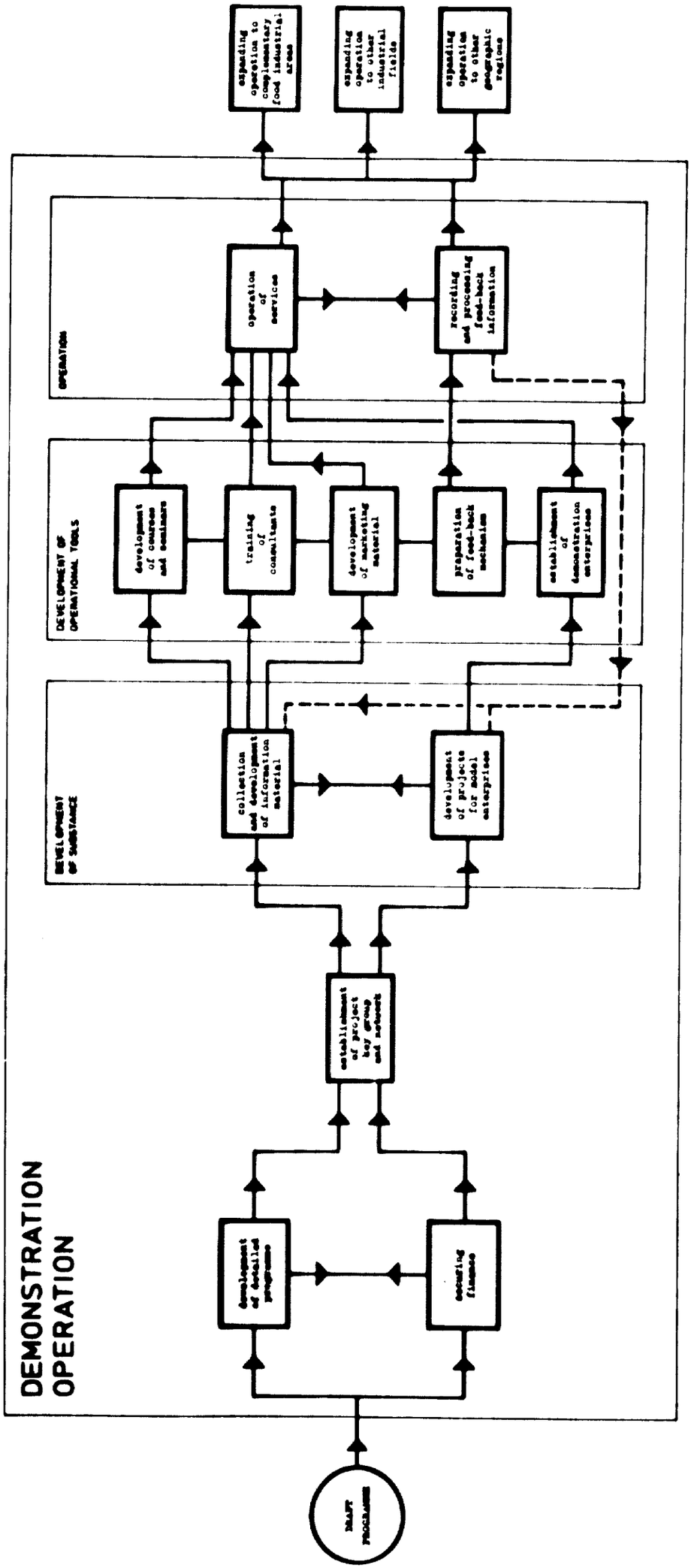

Fig. 1. Principle flow chart of proposed demonstration operation

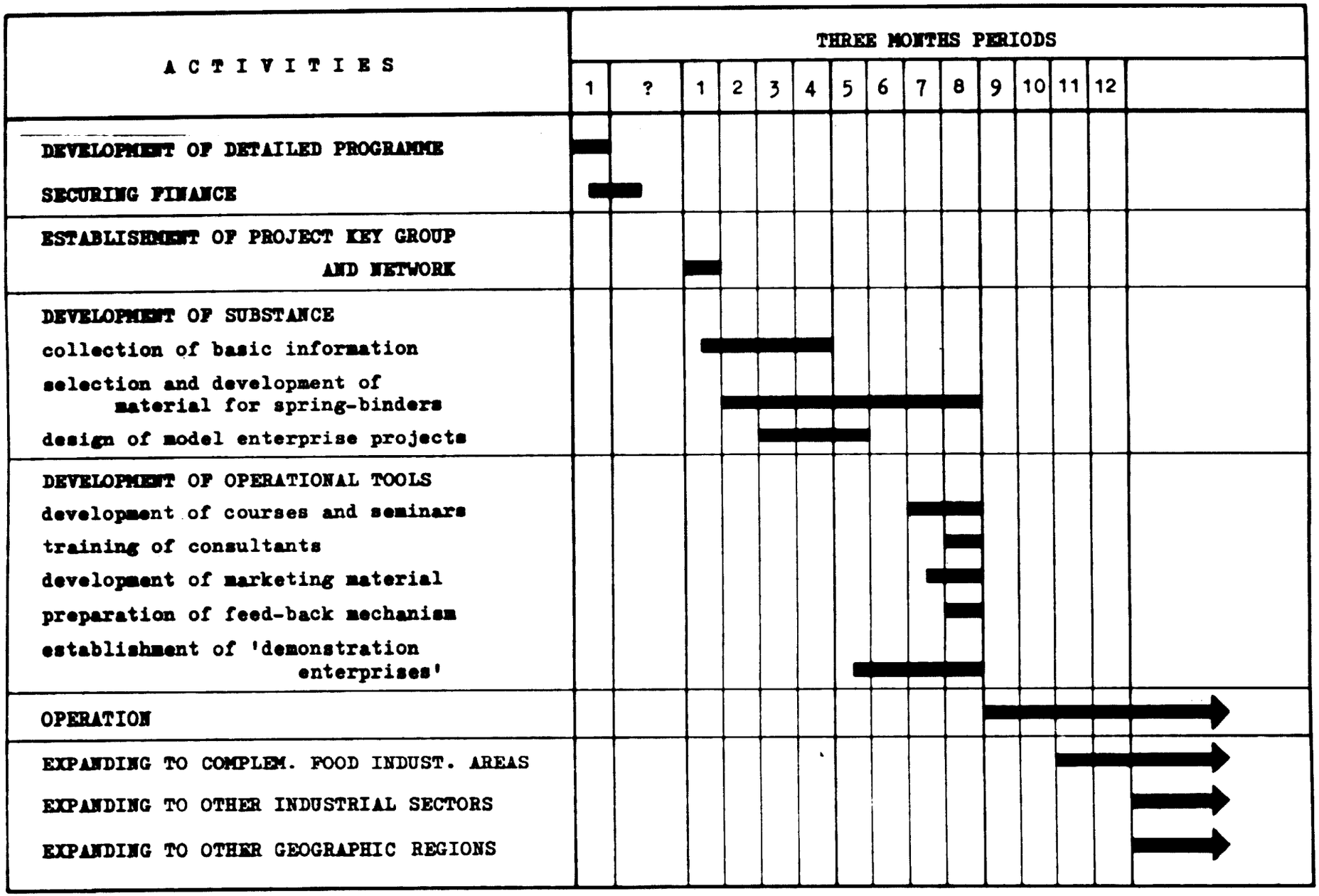

Fig. 2. Outline time schedule for Demonstration Operation

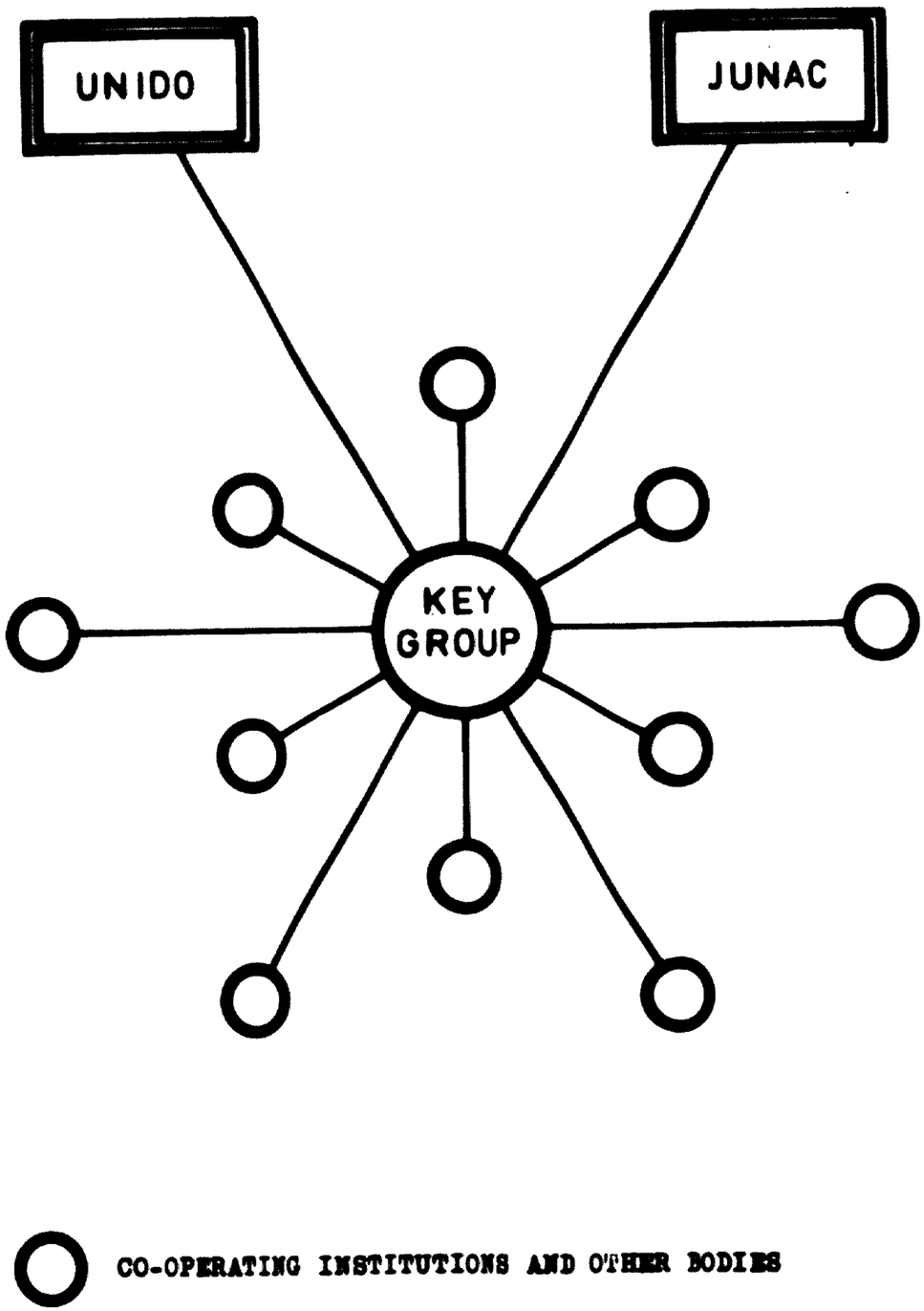

Fig. 3. Principle organisation diagram

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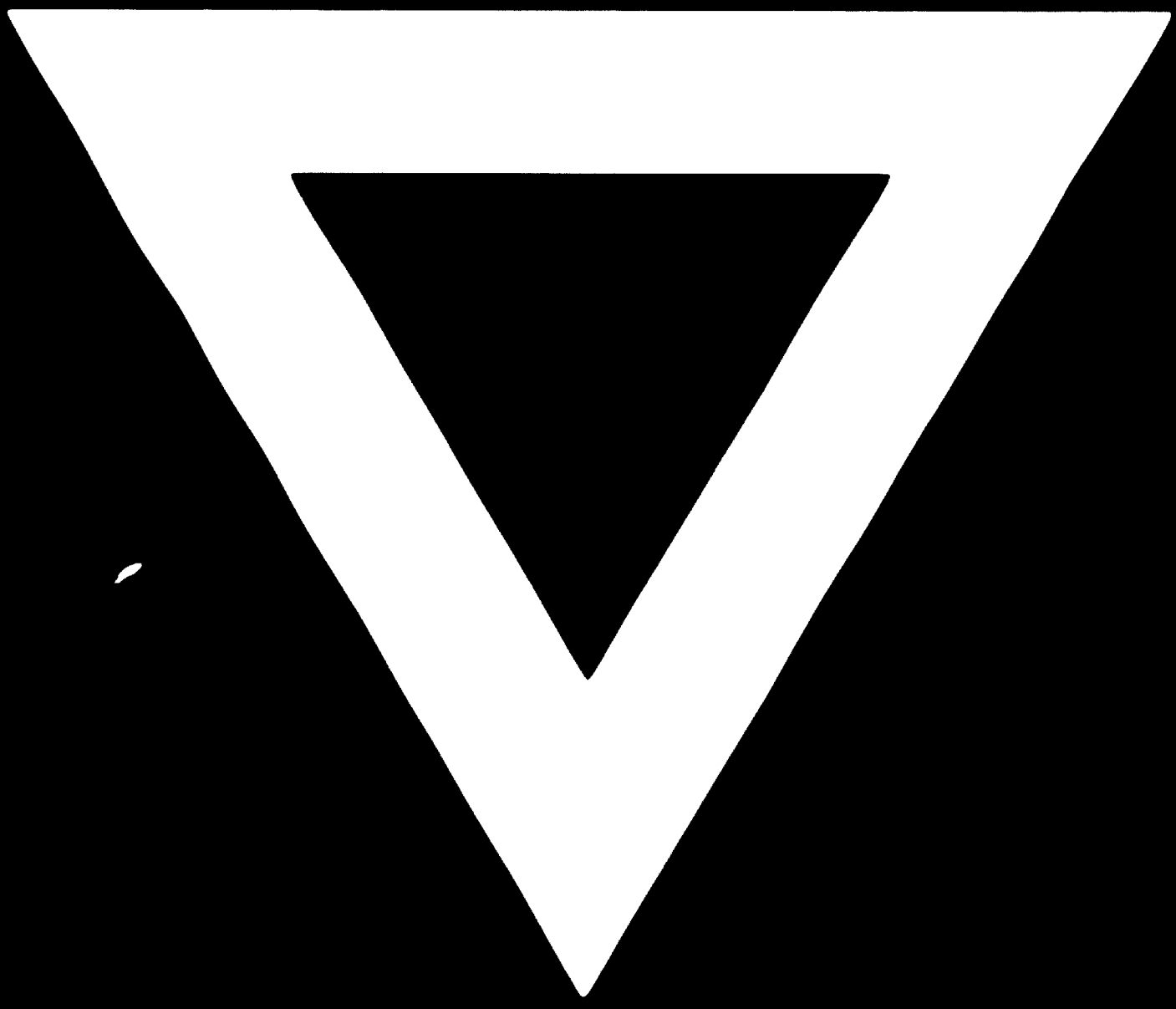

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