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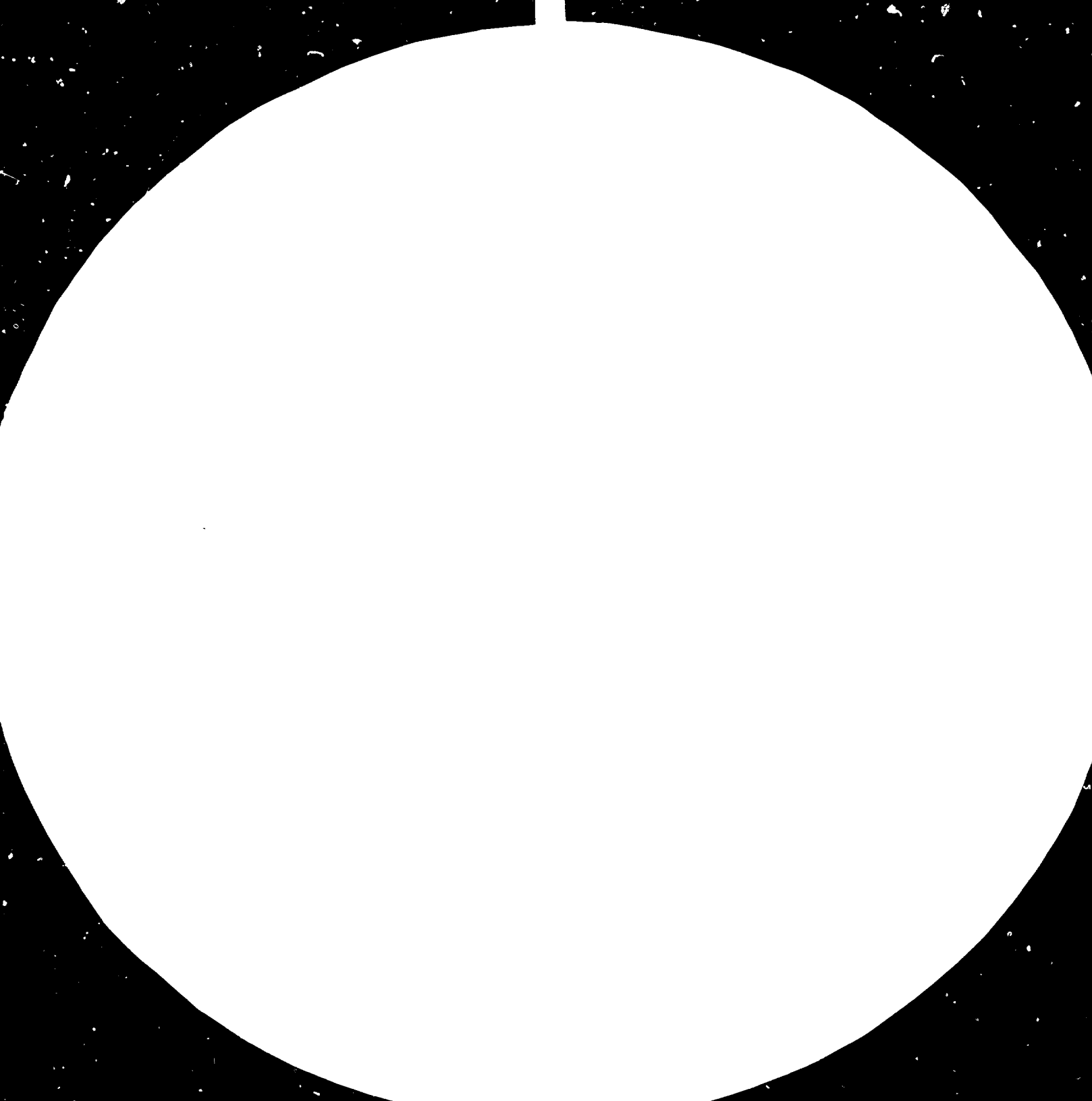
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**Second Consultation on the Food-Processing Industry
with Special Emphasis on Vegetable Oils and Fats
Copenhagen, Denmark, 15-19 October 1984**

THE CONTEXT OF AGRO-INDUSTRY DEVELOPMENT
AND THE STAKES AT ISSUE ^{*/}

Background Paper

by

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^{*/} This document has been translated from an unedited original.

The views expressed in this paper are those of the author and do not necessarily reflect the views of the secretariat of UNIDO.

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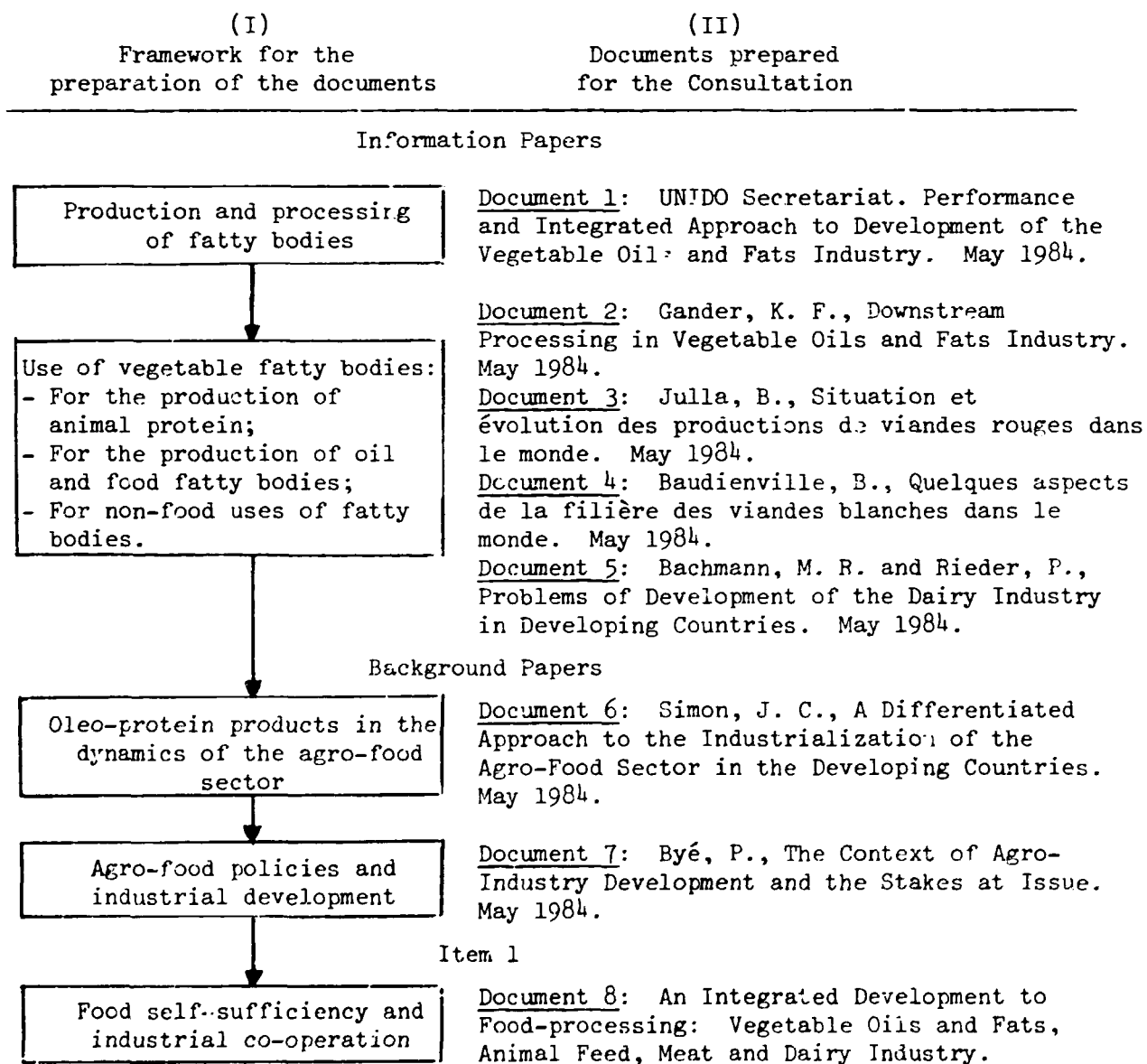
I. Prefatory note

The collection of information documents mentioned in this report was prepared with a twofold purpose in mind:

- (i) To add depth to the analysis presented in the attached background paper;
- (ii) To lay stress on the technical and economic interdependencies existing between the activities involved in the operation of the oilseed-protein sector.

These different documents are, therefore, interrelated. They are part of a common analysis bearing on the substance of agenda item 1: food self-sufficiency and industrial co-operation.

It is possible, by way of illustration, to give concrete form to this interrelationship by juxtaposing the framework for the preparation of the documents (I) and the documents themselves (II) of the Consultation:



II. The agriculture-industry relationship

1. The importance of agriculture to economic growth is well enough understood to require only a very brief review of its general functions, with particular emphasis on those which link it to industrial development.

A generator of employment and a source of food - and also, when it exports or eliminates the need for imported agro-food products, of foreign exchange - agriculture is an activity of essential importance to employment, the level of industrial wages, the learning of techniques and skills, and regional and local development. The level of agricultural production and productivity has a direct effect on the industrial wage level and on purchasing power. In addition, however, the growth of agriculture is also a factor in industrial growth, to the degree that agriculture is simultaneously a seller of products that will be processed by the agro-food industry, and a buyer of the industrial products required for agricultural production itself (fertilizers, plant-health products, capital goods, etc.). In this way, agriculture contributes to the creation of upstream and downstream jobs and businesses (2) 1/. The mastery of the agriculture-industry relationship is, in particular, an important element of economic policies in pursuit of self-sustained growth.

2. As the logical technical, economic and commercial extension of agriculture, the agro-food industry is, for its part, a major multiplier of the wealth produced in agriculture. As the reader is certainly aware, in the majority of industrialized countries with highly developed agricultural sectors, the value of production, the degree of value added and the number of jobs in the agro-food industry exceed the corresponding figures for the actual agricultural sector. All these considerations indicate what is at stake in the strengthening of agro-industries as part of development policy (1).

Whether one regards its role positively, in terms of the reduction of agricultural losses or the supply of large urban markets, or negatively, as a contributor to the accelerated modification of food habits, to increased agro-food imports and thus to the destructuring of local agriculture, there is no way to minimize the importance of the agro-food industry in the formulation of strategies aimed at autonomy or self-sufficiency in food. Nor is this possible in the face of an expressed national will to develop livestock agriculture or export crops.

1/ The numbers in round brackets () refer to the information documents listed on the previous pages.

3. As an important link in an agro-industrial system which is becoming increasingly complex and which involves a set of heterogeneous but highly interdependent activities, the agro-food industry performs four essential functions in the industrialization process (6):

(i) A market function for agricultural production and, in this way, for the stimulation of this production;

(ii) A regulatory function with respect to the prices of commodities and the level of wages to the degree that, through the harvesting, storing and preliminary processing of perishable products, the agro-food industry exerts a moderating effect on the speculation connected with the irregularities of agricultural supply;

(iii) A function in respect of the creation of employment and enterprises associated with the urgency of the food needs to be satisfied. On this basis, it is estimated that the jobs lost in agriculture can be partially compensated by those created by the processing and distribution of food. The cost involved in the creation of a single job is, generally speaking, lower than in basic industry, with this difference increasing the closer one's position to the final consumption stage;

(iv) A function of gradual access to the learning of techniques. The techniques used in the processing of agro-food products still very clearly show their craft origins. For these reasons, these techniques can be employed on a large or small scale and in a centralized or decentralized system.

The origin of these methods cannot, however, disguise the fact that they are in a phase of rapid change, particularly as a result of the expansion of industrial capacities, the increasing role of processed foods in dietary patterns and, above all, the effects of the internationalization of production and marketing conditions (2, 3, 4).

4. These effects make themselves felt specifically through certain industrial or economic links. Suffice it to recall, by way of illustration, the importance of animal or vegetable genetics in the dissemination of poultry- or pig-raising techniques (4), the importance of the large-scale brokers and major agricultural powers in setting international price levels for maize or soya (1), the role of the large food firms in the periodical renewal of the range of dairy products (5), and the role of the large industrial countries in determining the nature (size, capacity, etc.) of the capital equipment used in food processing (6).

Thus, the formulation of agricultural policies designed both to increase agro-exports and to strengthen food self-sufficiency involves an integrated approach to agricultural and industrial problems (1) aimed at the following objectives:

(i) The ranking in importance, on the basis of local constraints and goals, of the functions to be performed by the national agro-food industry (4). Should, for example, the agro-food industry, as a matter of priority, perform the following tasks:

- Act as a driving force on the expansion and modernization of agricultural production, at the risk of accelerating the population exodus from the countryside and the concentration of land ownership?

- Contribute to the stabilization of agricultural employment and to regional equilibrium, at the risk of delaying the modernization of the industrial establishment?

- Respond to the urgent need to satisfy the food requirements of the cities (in quantitative terms, but also in terms of changing food habits), at the risk of causing an increase in the volume of imports?

- Base its development on agro-exports, at the risk of failing to meet the population's food product requirements?

(ii) The promotion of the view of the agro-food industry as a link in a complex technico-economic system, and not as an isolated activity (6);

(iii) The identification of the conditions and constraints under which production and international trade takes place (1);

(iv) The formulation, on the basis of the above, of development policies and new approaches to co-operation with all the agents affected by the agro-food system (8);

5. Too often, in effect, a closer agriculture-industry relationship is not compatible with the requirements of certain development options. This can be seen in two particular cases where, although clearly proclaimed as policy objectives, agricultural expansion and the growth of the agro-food sector are seen as opposing rather than as complementary factors.

(i) Self-centred agricultural development favours the development of the agricultural and rural zones on the basis of the gradual assimilation of production techniques by the population. This objective, which is an effective one, since the aim is to help to hold the active population in place, preserve diversity and graft modern techniques onto traditional craft methods, may collide with the requirements of the urban food demand. If in terms of consumption patterns this demand is very different from that of the rural population, and if the quantities consumed are out of all proportion to the quantities which the local agriculture can furnish rapidly and massively, then the food industry will resort to imports in order to meet these requirements, in this way depriving local agriculture of an important part of its potential markets. Over time, this results in agriculture's becoming marginal or disappearing. In the same way, it runs counter to the objectives of self-reliant agricultural development.

(ii) The priority accorded, in certain countries, to agro-exports is justified by the fact that these exports help to generate the foreign exchange revenue needed for national industrialization. In turn, this industrialization often leads to the import of the goods, know-how and capital required for the "modernization" of the national agricultural sector (a modernization which is, frequently, a posteriori, a second justification for the adoption of this option).

The priority accorded to agro-exports need not, however, necessarily lead to the establishment of a national agro-industry, for the reason that many of the agricultural raw materials still continue to be exported unprocessed or with very little processing, to the greater profit of the importing countries. But even when this priority does operate in this direction, the processing techniques, the sites or size of the plants, the range or nature of the food items produced, finally the very organization of production in the agro-industries working for the export market are not so much integrated with, as they are superimposed on, the agro-industries supplying the internal market. Moreover, it frequently happens that the priority assigned to agro-exports leads to the mobilization of rare resources (land, water, credit, skilled manpower, transport infrastructure, etc.), with the result of later handicapping the establishment or expansion of the national agro-food sector. Agro-export policies and food policies are more often in conflict than in harmony.

6. In quite a few developing countries - because of their failure to devise a policy appropriate to the agriculture-industry relationship - industrialization and urbanization have frequently been accompanied by the gradual elimination of national agriculture and by a growing state of external dependence in the food area.

An agro-food industry conceived to have as its prime objective the satisfaction of the needs of urban consumption, and one which promotes agro-exports, is seen as an important cause of this destruction and loss of autonomy.

Through its massive imports of know-how and capital goods and through its use of basic agricultural raw materials (cereals, oilseeds, etc.) or intermediate products (flour, sugar, milk powder, etc.) sold on the international market, this kind of agro-food industry contributes, primarily through the pricing of these products, to forcing the agriculture and small-scale rural industries of the developing countries into competition with those of the developed and industrialized nations, and by introducing abrupt changes

in production techniques and food habits they accelerate their decline. For some time now, flour mills, sugar refineries and oil plants, and, more recently, plants producing animal feeds, pasta, milk products or "fabricated foods" and also industrial-scale breeding establishments have been established in the large metropolitan areas or port areas of the developing countries, with the effect of enmeshing these countries within a situation of food dependence, which is all the more in evidence given the lack of any political will to control these developments. Having been reduced to rural markets alone, faced with the competition of imported products and deprived of their former sales outlets, the growers and rural inhabitants in these countries are migrating to the towns and cities. In the more traditional agricultural sectors, those areas of national food production which have a seasonal requirement for numerous labourers (sowing, transplanting, harvesting, transport, etc.) founder even before modern, capital-intensive, agricultural establishments can be established.

All this, coupled with an unprecedented demographic explosion in the cities, thus justifies a posteriori the strengthening of a resolutely import-oriented agro-industry. Taken together, these developments have cumulative repercussions on the "marginalization" of the countryside, the swelling of the populations of the major cities and the deepening of these nations' food-dependent status. In addition, they make it all the more difficult, and above all more costly, to build a large-scale modern agricultural sector designed to satisfy national food requirements as its priority function.

The consequences of these developments may be concealed, minimized or even deliberately accepted when the "negative effects" exerted by agricultural growth are counterbalanced by positive effects on industrial growth.

In the least advanced countries, however, the exacerbation of these phenomena is taking on particularly disturbing dimensions. Thus, the Economic Commission for Africa has pointed out that during the 1970s the population of 24 African countries 2/ increased at the rate of 2.8 per cent a year, at the same time that agricultural output grew, on the average, by only 1.5 per cent annually. In 1960, Africa was very nearly self-sufficient in food; by the outset of the 1980s it was dependent on imports for 14 per cent of its food needs. At this rate, the continent's ability to cover its own food needs by the year 2008 will be only 71 per cent.

2/ Angola, Benin, Botswana, Cape Verde, Central African Republic, Chad, Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Lesotho, Mali, Mauritania, Mozambique, Sao Tome and Principe, Senegal, Somalia, Swaziland, Tanzania, Togo, Upper Volta, Zambia and Zimbabwe.

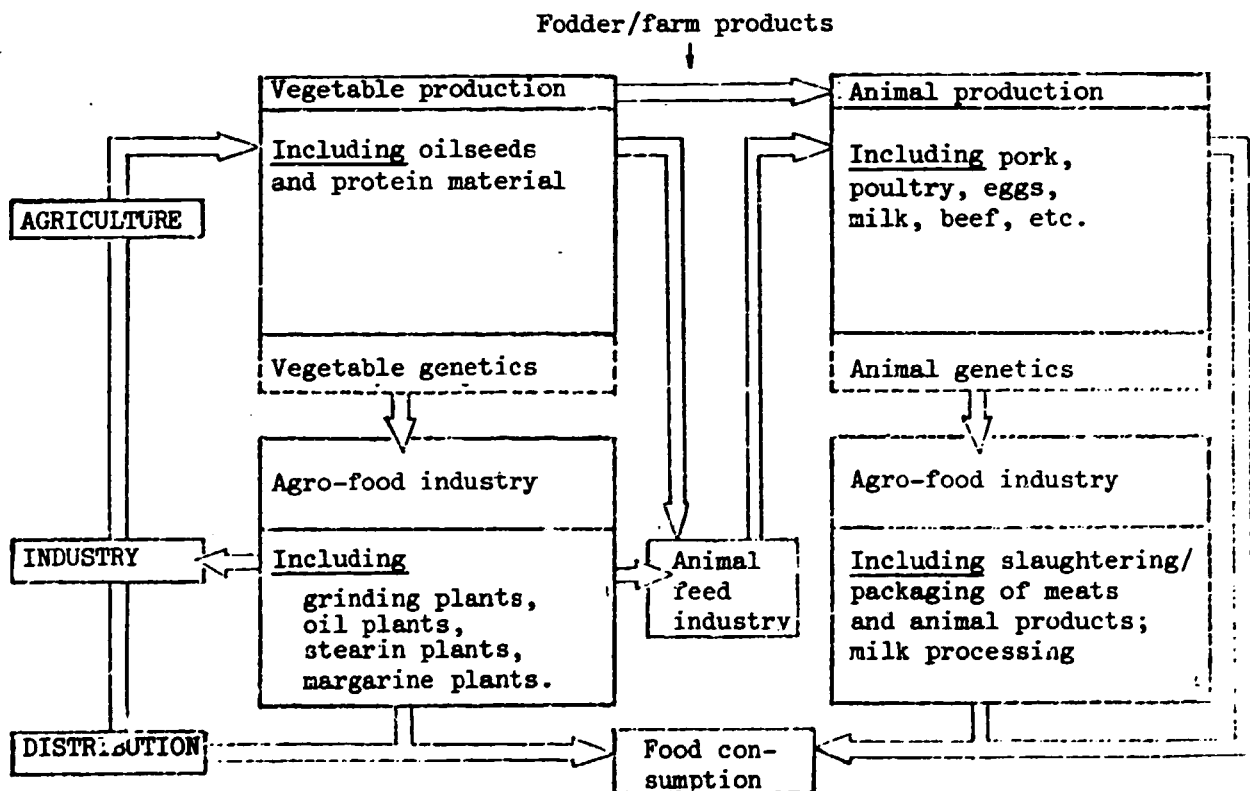
III. The oilseed-animal protein sector

1. As the diagram below shows, this complex consists of a set of activities linked together through a closely meshed network of technico-economic relationships. These relationships contract and multiply as a function of:

- The level and pace of industrialization;
- Urban growth;
- International trade in techniques (know-how), products and capital.

They contribute not only to the response to, but also to the modification of, food consumption patterns.

The oilseed-protein sector (OPS)



2. The technical and economic importance of this sector rests on four major arguments:

(i) The production and consumption of the products of the oilseed-protein sector (OPS) today account for more than 60 per cent of the gross agricultural products of the industrialized countries (6);

(ii) The mastery of protein production represents one of the bases for the mastery of industrialization (3, 4, 5);

(iii) This mastery is, in turn, a source of industrialization, since it makes possible the multiplication and tightening of the agriculture-industry relationships and contributes to the satisfaction of urban food requirements;

(iv) The operation of the OPS at the world-wide level is characterized by surpluses on the one hand and deficits on the other. This explains the importance of international trading in raw materials (oilseeds), intermediate products (cakes, powdered milk, etc.), production goods (genetic strains, capital equipment, etc.) and techniques and capital (direct investments, joint ventures, loans, etc.) (1). These elements constitute the background of industrial co-operation.

3. The operation of the oilseed-protein complex is based on:

(i) The tightening of the relationships between vegetable and animal producers through the intermediary of the blended animal feed industry, generally further highlighting the importance of the agro-food industries in the production and marketing of agricultural products (2);

(ii) The industrialization of stock-raising techniques, and also their increasing standardization; the gradual decline of farm production (poultry, pigs, beef, etc.) (4, 5);

(iii) The ability of certain agents in the sector to intervene in a range of activities which are technically and economically interrelated and, in this way, to dominate this area. This applies, for example, to certain industries which, using genetic selection techniques, control poultry production, the animal feed industry, and the processing and marketing of white meats;

(iv) The substitutability and, thus, the versatility of certain oil products in meeting the needs of a diversity of food consumption models. Thus, soya derivatives, through their use in animal feeds, are a major factor in the production of white meat or of animal products (eggs and milk); through hydrogenation techniques, in concrete oils and in margarine manufacturing; and through the methods for adding value to vegetable protein, in the vegetable milk product (soya-extract milk and cheese) or meat (texturized protein) market (2);

(v) The opening up of certain food activities within this sector to non-food markets, e.g. fuels, chemicals or pharmaceuticals.

4. The economic and political significance of the oilseed-protein sector will be lost on no one who is familiar with the importance of protein production, increasingly the basis for coherence in this area.

More and more animal protein is being consumed as the standard of living rises and purchasing power increases (6). The consumption of white meat, eggs, milk, etc., is absorbing an increasing portion of world cereal and soya production (3, 4, 5). In large measure, however, a small group of industrialized countries accounts for the world-wide exports of these products (1). The result is a growing risk of increased food dependence on the part of the importing nations.

The gradual standardization of animal production methods under the leadership of a few large developed agro-exporting countries ensures these nations a large market for their raw materials (cereals and soya), their intermediate goods (powdered milk, pre-mix, etc.) and their capital equipment (machinery and equipment, turnkey plants, genetic strains, etc.) (4).

In this way, a sizeable number of developing countries are losing control over the growth of internal protein consumption at the very time when this growth is becoming a key factor in the industrialization process and an important element in the agriculture-industry relationship.

5. Frequently, the oilseed-animal protein sector is established, both in the new industrial nations and in the least advanced countries, without due regard to internal agricultural resources. In such cases, this sector appears as an industrial structure more "impressed" on the agricultural, industrial and social realities of the country than actually "integrated" within them and thus capable of functioning as a driving force in that context.

The dynamics of this complex is in fact becoming increasingly dependent on the production of two major agriculture staples - cereals and oil plants, especially maize and soya (4). The nearly exclusive use of these two products in industrial breeding (the battery production of poultry and pigs, intensive milk production and egg production) is leading to the decline of national sources of supply (fodder, tubers, local cereals, etc.) and traditional breeding. Under these conditions, the establishment of large-scale industrial breeding operations justifies both the recourse to imported cereals and soya-beans, and the creation of specialized, but costly, farming areas capable of supplying them.

Accordingly, the battery breeding complexes are more a part of industry and the urban environment than of agriculture. Their characteristics replicate those of the industrial countries, which remain their principal suppliers.

For the latter, the standardization of battery breeding techniques, and of cereal and soyabean production techniques, is viewed, primarily, as the best means of controlling the considerable outlet represented by the world market for animal protein.

6. However, the fact is that this standardization is also a significant factor in the introduction of competition among developed countries, on the one hand, and between the latter and certain new industrial agro-exporting countries, on the other.

The monopoly control of breeding techniques is, therefore, one of the ways of combating their general dissemination and of dealing with the competition.

It is no accident, therefore, that the major industrial and political agents involved in the operation of the oilseed-protein sector at the present time are seeking to direct the way it is evolving through their control of certain strategic links. Among these links, the following deserve particular mention:

(i) The importance of vegetable and animal genetics in the design and mastery of battery breeding techniques (4);

(ii) The mastery of nutritional techniques contributing to substitutions among agricultural and agro-food materials; the development of national vegetable resources; the mastery of processing methods facilitating the development of by-products or the establishment of decentralized industrial production units operating with intermediate food products (2);

(iii) The control of developments in prices and markets thanks to long-term marketing policies implemented by professional organizations (cf. the role played by the American Soybean Association) and to the exercise of geo-political pressure through food dependence.

7. However, while the oilseed-animal protein sector constitutes a co-ordinated agro-industrial system, it is not, by any means, a homogeneous system consisting of agents pursuing identical objectives. The contradictions which arise between the behaviour of the various agents are at least as important as the technical and economic elements they share. These contradictions can be a substantial factor contributing to diversification in techniques and partners.

In this context, one might mention:

(i) The desire of certain growers or agro-food industries to valorize in situ their products or by-products: food production at the farm, by-product recycling as animal or chemical feeds (3);

(ii) The desire of the blended animal feed industries to break free of the constraints of the supplying of cereals and soya alone by expanding their range of caloric products (cassava pellets, citrus pulp, corn gluten, etc.) and protein products used in animal feeds;

(iii) The competition which has emerged, through technical developments, between animal products: white meat/red meat competition and also margarine/oil/butter competition or, more generally, competition between protein-rich products of animal origin and those of vegetable or chemical origin (2, 5);

(iv) The desire of the large food firms, particularly those operating in the field of processed food products, to develop a new range of products in line with a certain return to vegetables in human diets (vegetable proteins) and in line with the valorization of local vegetable crops (2, 5);

(v) The desire of the newcomers to the oilseed-animal protein sector for less dependence on the "maize-soya-industrial meats" approach and to develop new techniques and new products: chemical or petrochemical firms working with bioproteins, small and medium-scale industrial companies developing new capital goods, and agricultural co-operatives interested in new kinds of co-operation agreements.

(vi) The desire of Governments to diversify their sources of supply and to expand the range of their protein-rich products: launching of and assistance to aquaculture; development of vegetable protein.

The higher level of competition between the large agro-exporting countries on international markets in which solvent demand has been nearly saturated is also contributing to the appearance of new alternative technical and commercial solutions. This context, favourable a priori to an opening up of the "oilseed-animal protein sector", should be turned to profit by the developing countries in North-South and South-South negotiations.

IV. Certain realities not to be overlooked

1. In less than 20 years, the industrialized countries have become the world's principal producers and exporters of agro-food products. The growth of their agricultural sectors has come to be increasingly based on the sales in the developing countries.

With the exception of the "tropical" products, 3/ the developed nations clearly dominate all the major international agro-food markets: cereals, oil plants, meats, dairy products and animal products, with the single exception of saccharose, 4/ where their power is still being strenuously contested by the Southern countries.

3/ Coffee, cacao, palms and tropical and citrus fruits.

4/ While exports from Australia, South Africa and the countries of the European Economic Community have increased considerably in recent years and account for nearly 40 per cent of the tonnage negotiated on the international markets. One might also mention, by way of example, the increasing importance of maize sucers (specifically the isoglucoses) in the food industry.

In this way, the industrialized countries are in control of the production, processing and consumption of agricultural products. The best proof of this assertion can be seen in the growth of the use of forage cereals (maize and barley) and oilcake in animal production at the expense of rice, and in the greater use of white meat (chicken) and eggs at the expense, in this instance, of vegetable protein and fish.

2. The industrialization of agricultural production techniques (mechanization and the use of chemicals) has been accompanied by a simplification of the range of agricultural products. Mankind today is relying on "less than 30 plants to satisfy 95 per cent of its nutritional requirements; the eight most important of these alone account for three-quarters of the energy which man receives from the vegetable kingdom". ^{5/} Progress in farming methods has led to an increase in production and productivity, which is particularly in evidence in the agriculture of the industrialized countries. The food industry has had to "adapt" to this mass production by modifying its originally "craft" processes in the direction of industrial techniques. There has been a considerable increase in the size of the processing units, bringing with it a concentration of enterprises and a more intensive exchange of intermediate products between the primary and secondary processing industries.

3. This accent on increased production has led to a strengthening of the "agro-exporting" orientation of growers in the industrialized countries. The "food power" of these countries is quite real. Whether as suppliers of commodities to the developing or new industrial countries, which face an increasing food shortfall, as competitors of the products they supply (liquid oils competing with solid oils), or as the increasingly exclusive buyers of products which they use (cassava or oilcake for use in industrial-scale livestock breeding), the industrialized nations are exerting a growing influence on food balances and, consequently, on the geopolitical leanings of the countries which buy and sell these products.

4. This power is brought to bear in a number of ways: through trading in unprocessed products, intermediate goods and the techniques employed by the agro-food industries.

Thus, over time, nothing has a more stabilizing effect on the exports of wheat produced in the countries of the North than the establishment of industrial bakeries in the countries of the South. What better guarantee for the sales of maize and soya than the expansion of the battery production

^{5/} Mooney, P. R. Les semences de la terre. Une richesse publique ou privée? International Coalition for Development Action, Brussels, 1982.

of eggs, milk, poultry and pork in the countries of the South? What better assurance can there be of the retention of these markets than a policy of genetic selection based on high-performance animal races, incapable, however, of being fed the products of local vegetable production and thus requiring the techniques and products of the industrialized countries? What more effective way of defeating the competition of the oilplants grown in the countries of the South than to encourage the dissemination of techniques making it possible to produce, from a single plant - the soyabean plant - the full range of lipidic products (concrete and fluid oils, oilcake and other non-food by-products)?

There are two obstacles, however, standing in the way of this ambition to satisfy ultimately all the world's food needs, after having "saturated" the industrialized countries: a political obstacle posed by the will of the countries of the South to take the matter of their food growth into their own hands so as to preserve their autonomy and make their agro-food industry one of the pillars of their economic and social development; and an economic obstacle in the form of the increasing impoverishment of a major part of the world's population, which finds itself simultaneously unable either to produce or to buy for lack of purchasing power.

5. The general slow-down in the rate of economic growth has, in effect, revealed the fragility of agricultural growth which deliberately ignores the consequences of the exacerbation of the disparities between the increase in the agro-food production capacity of the Northern countries, and the inability of the Southern countries not only to produce, but also to buy (8).

In the industrialized countries, the growth in the volume of agro-food demand is coming to be based, more and more exclusively, on the growth of the population. The difficulty is more one of medical problems associated with over-nutrition than with the problems of malnutrition or undernutrition. This circumstance is not preventing these markets from increasing in value terms, to the benefit of the agro-food industries specializing in the production of intermediate products and products corresponding to the new trends in distribution (fast foods and large-scale catering), dietetics and animal production (additives for industrial-scale breeding and new applications for agro-food by-products); but these developments contribute only very little - when they in fact do not have the opposite effect - to the expansion of agricultural markets in terms of volume.

A growing portion of agricultural production must, therefore, be disposed of on international markets. Agro-exports are becoming an essential prop for agricultural growth.

6. In these markets, the supply tends to exceed the solvent demand, which is additionally curbed by the effects of the economic crisis. Prices plummet and stocks increase with no possibility of any substantial reduction in production costs. The aid made available by the Governments for the support of their farming communities has increased to the point where it represents as much as 50 and even 60 per cent of farm income. The export assistance has the effect of all the more exacerbating the competition among the industrialized nations (e.g., the EEC/United States conflict) since a number of new industrial countries or least advanced countries have also made the strengthening of their agro-exports one of the foundations of their economic policy. These countries are also experiencing the full force of the consequences of this relative overproduction.

It is not at all certain, therefore, that the function of the agro-food markets of the Northern countries, which have so far represented the principal outlets for the agro-food industries of these countries, can be automatically "picked up" by markets arising out of the theoretical but insolvent food needs of the countries of the South.

The Northern countries, and more generally all the countries that desire to expand or simply maintain an agro-exporting option, must adapt themselves to these new constraints, under which the food needs of the Southern countries must be met in ways other than through the sale of agro-food products alone. This challenge, while in time offering them new markets - to the degree that agro-food trading and consumption is also higher in the case of countries at a high level of development - requires of them, as an immediate condition, new forms of co-operation, which are more than merely cyclical arrangements aimed at maintaining the volume of commercial sales.

In the Southern buying countries, this "price dumping" has only served to palliate the worst consequences of the drop in purchasing power. In this way, massive purchases of imported food products have become a contributing factor to social peace. But the fluctuations in the price of agro-food products have also become one of the factors connected with the stability of regimes and with geopolitical equilibrium. If the prices of these prices increase and if the capacity to finance imports decreases, the risks of destabilization reappear.

This consideration applies fully to industrial co-operation for food production and food self-sufficiency.

V. The stakes at issue in the negotiations: the strengthening of the agro-food centres of the South for continued trading

1. The combined effects of the slow-down in economic growth and the international economic crisis - especially the overindebtedness, and even bankruptcy, which has overtaken a great many new industrial and least advanced countries - have at least had the advantage of revealing:

(i) The importance of food self-sufficiency in the processes of economic growth and, as a consequence, the importance of national agriculture as a factor for external and internal geopolitical stability;

(ii) The fragility, conversely, of development models based on extreme agro-export programmes, adopted without reference to domestic food product requirements;

(iii) The role of the food industry, both in maintaining food dependence (the case of agro-industries working with imported products) and, conversely, in the development of agriculture (the case of agro-industries that promote the launching of agricultural area modernization or extension programmes);

(iv) The differences in the interests and behaviour of the various agents involved in the operation of the agro-food complexes of the industrialized countries;

(v) The limitations of short-term commercial policies leading to actual underbidding by the agro-exporting countries, but not involving genuine agro-food industry development programmes;

(vi) The economic impasses (intolerable increases in production costs vis-à-vis the level of prices paid for agricultural products) caused by the excessive standardization of agro-food production techniques; waste in the development of local resources (agricultural products, but also know-how).

2. Within specific areas of the "oilseed-animal protein sector" these facts are conducive to the opening of medium- and long-term negotiations based, ultimately, on the realities of commercial trading and with a view, taking into account the interests on all sides, to developing into industrial co-operation.

The agro-food industry thus becomes the key vehicle for the formulation of integrated programmes aimed, according to the countries in question, at (6):

(i) The search for autonomy in the field of animal protein on the basis of the more effective valorization of local lipidic products (e.g., the export of oils but the on-the-spot valorization of oilcake for industrial livestock breeding) (1, 2);

(ii) The strengthening of oilseed production with a view to breaking free of the exclusive maize-soya model (utilization of the experience gained by Southern countries with palm oil; in the vegetable protein area, valorization of soya, etc.) (3);

(iii) The mastery of battery breeding techniques or of dairy production geared to local limitations and advantages: pig or cattle breeding (or fish farming) capable of valorizing different locally available vegetable products; multipurpose and small-sized dairy units capable of using both local milk products and imported products; bioprotein production on the basis of starch or petroleum substrates; South-South trading in the by-products of fatty body production (4, 5);

(iv) The valorization of the by-products of the products extracted from agricultural biomass in non-food markets (energy or chemical products extracted from oil plants; cattle, pig or poultry slaughtering by-products for the chemical or cosmetics industry, etc.) (2).

3. These trends favour the multiplication of agricultural or industrial partners in the quest for protein autonomy.

In the case both of large Northern agro-exporting countries seeking to renegotiate the terms of delivery agreements for products in return for the transfer of know-how or a new organization of production and trade (decentralized fatty body grinding and production plant in a consumer country, dairy plant operating with imported powdered milk, establishment of interconnected downstream industries based on fatty body processing), and of Southern agro-exporting countries able to bring benefits to other Southern partners through what they have acquired in the way of processing techniques for fatty bodies (Malaysia), sugar distillation or poultry production (Brazil) in exchange for guaranteed markets for their oilseeds or capital goods.

Agro-industrial agents (small and medium-sized enterprises in the know-how or capital equipment areas, co-operatives, genetic or animal feed research laboratories, etc.) endeavouring to expand their activities internationally and prepared to trade precise knowledge of agricultural production conditions or food processing methods in return for guaranteed markets for their associated operators or partners and for the large-scale application of their discoveries.

Industries and operators (commercial or financial), not originally part of the "oilseed-animal protein sector", but engaged in its diversification. We have already mentioned under this heading a number of chemical or biochemical firms working with bioproteins, either in the North or in the South, seeking, for reasons of internal policy, alternative approaches to the production or processing of oilseeds (protein and oilseed plans of the EEC, diversification of palm use in Malaysia, etc.).

4. This double enlarging of areas and partners represents a favourable negotiating counter. It must be emphasized, however, that this context, while capable of producing a series of specific agreements affecting one or another link of the sector, does not jeopardize the coherence of the whole. At the same time, the application of these agreements, while it may be the best promise of success, may also involve an evident risk of slippage in the implementation of integrated agro-food policies. It is obvious that, in the recipient country, industrial co-operation cannot be a substitute for the clear formulation of the objectives to be pursued and for their harmonization with national agro-food policies.

It will be up to the countries or partners in the negotiations to see to the maintenance of this harmony between the terms of the agreement and adherence to the more general thrust of development: the search for protein autonomy, the promotion of exports, the development of co-operatives, the formulation of a comprehensive development policy based on small rural units, agro-food planning based on large production facilities, etc.

5. In conclusion, five areas may be mentioned in which the negotiation of South-South or North-South agreements is in line with development objectives and may serve the mutual interests of the parties to the negotiation (8).

(a) Improvement of animal food rations through the more effective valorization of local resources.

The objective is to develop partial or complete alternatives to the standard maize-soya model, without at the same time abandoning the quest for improved technical performance in traditional breeding.

The identification of local genetic strains (cattle and pigs which can be fed coarser fodder and the by-products of the agro-food industry) is the first stage in an operation the aim of which must be to develop protein supplements for animal feeds. The blended feed industry is one of the important links in the organization of less concentrated and less specialized sectors than those which are to be found in industrial breeding.

(b) Production and processing of vegetable protein

Although the consumption of animal protein is rapidly increasing in the developing countries, vegetable protein is still predominant. Great experience in this area, at the industrial as well as at the craft level,

exists in both the South and the North and could contribute to the mastery of protein production without necessarily resorting to animal-based products.

(c) Mastery of battery breeding methods

While certainly of significance in population diets, traditional animal breeding is still inadequate if the requirements of urban demand are to be rapidly satisfied. By way of example, while the growth rate in the traditional fisheries sector is very low, fish farming is expanding every year at from 4 to 6 per cent.

Battery breeding is an important means of adding value to oilplant processing by-products (oilcake); however, it is above all a major factor in the pursuit of food self-sufficiency. International trading in this area - modest when compared with the world-wide production levels - should give way to technology transfer. This is a promising field for industrial co-operation.

(d) Processing and distribution of animal products

The modernization of breeding techniques is leading to a modification and rationalization of the processing and distribution techniques for animal products and vice versa. At the present time, considerable and sufficiently well-tested experience has been acquired in this area for industrial co-operation to be more than a merely imitative transfer of techniques from the countries of the North to those of the South, but to take into account the existence of local limitations and objectives.

(e) Valorization of lipidic products

The valorization of lipidic products is an important factor in the pricing of finished products. The greater this valorization, the more the price of the oil or fatty body may be reduced, and vice versa. Oilcake is an essential element in improving animal food rations. Valorization in the areas of chemistry/cosmetics, fatty acids, paints, energy (fuels) or pharmaceuticals (slaughter by-products) is a way of increasing the profitability of industrial production units. A great deal of experience in these areas has been acquired in both the North and South.

Areas	Programmes	General Policy Objectives	Countries or Partners with Experience in the Area (by way of example)
1. Improvement of animal food rations on the basis of a better valorization of local resources: blended feed industry	<ul style="list-style-type: none"> - Use or development of new "rustic" genetic varieties; - Recycling of agro-food by-products; - Protein-rich additives for animal feeds. 	<ul style="list-style-type: none"> - Mastery of "life" techniques, genetic selection and traditional know-how; - Integrated rural development; - Valorization of biosphere resources. 	<ul style="list-style-type: none"> - Research laboratories; - Agricultural co-operatives; Asian countries with highly intensive agriculture; - Pharmaceutical, chemical and petroleum firms producing additives; - Co-operatives working on the agricultural valorization of farm products.
2. Production and processing of vegetable protein.	Margerine; dairy products produced f.om oilplants	Strengthening of protein self-sufficiency	<ul style="list-style-type: none"> - Malaysia; - South East Asian countries; - Food firms.
3. Mastery of battery breeding techniques (poultry, bovines, fish farming)	<ul style="list-style-type: none"> - Battery breeding programmes; - Dairy production programmes. 	Strengthening of the agriculture-industry relationship	<ul style="list-style-type: none"> - Industrialized countries of the North; - Brazil, Thailand, Hungary (poultry); - South East Asian countries (fish farming).
4. Processing and distribution of animal products	<ul style="list-style-type: none"> - Slaughter/distribution of white meat/eggs; - Processing of dairy products. 	<ul style="list-style-type: none"> - Mastery of animal protein consumption; - Development of agro-industry. 	<ul style="list-style-type: none"> - Co-operatives in industrialized countries for the organization of agriculture-industry relationships; - Capital good manufacturers.
5. Covalorization of animal or vegetable lipidic products	<ul style="list-style-type: none"> - Energy products; - Chemical products. 	Policy of support for agricultural export thanks to by-product valorization	<ul style="list-style-type: none"> - Industrialized countries specializing in the production of animal products; - Brazil; - Malaysia; - Philippines.

