Integration of the fishing industry

Part 27
Ibero-American integration

Scientific methods and the construction of a modern fishing fleet, combined with the continent's resources to achieve maximum modernization of the industry, are the measures that will assure an important animal protein source for Ibero-America's population: seafood.

This installment is Chapter 9 of *EIR*'s translation of the Schiller Institute book, *Ibero-American Integration: 100 Million New Jobs by the Year 2000!* published in Spanish in September 1986. It was commissioned from an international team of experts by the Schiller Institute's Ibero-American Trade Union Commission, to elaborate the "nuts and bolts" of the proposal by Lyndon LaRouche in 1982 for an "Operation Juárez" that will transform the huge foreign debt problem into the springboard for a regional economic boom—and an unheralded world recovery.

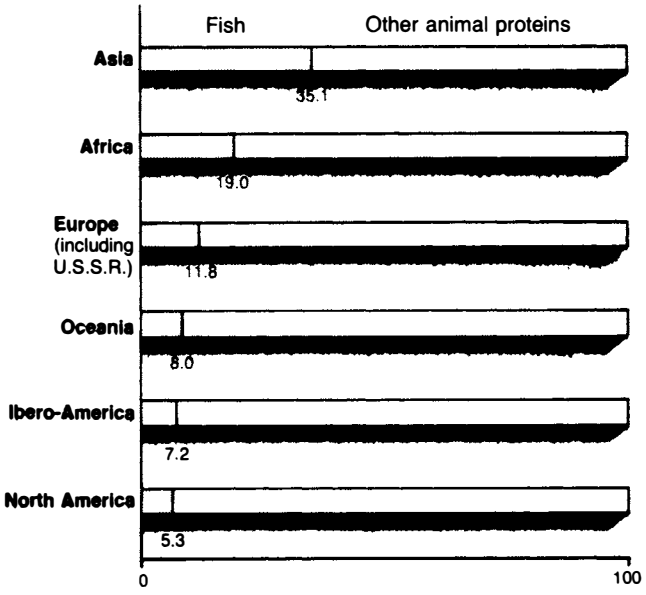
Numbering of the tables and figures follows that of the book.

As we have shown in the previous installments, protein consumption in Ibero-America is extremely low. Given the continent's constantly growing population, achieving a level of per capita protein intake of 90 grams daily—of which 55 grams should be of animal origin—over the next decade and a half, will require large-scale exploitation of fishing resources as a complement to farming activity. As agriculture is modernized to bring about high-yield livestock husbandry, protein intake will rise to 100 grams per capita per day, 65 grams of which will be animal protein; fish products will necessarily represent at any one time an important fraction of consumption, generally 25% of the animal protein. At present, of the total animal protein consumed in Ibero-America, fish and shellfish contribute 7.2% (see **Figure 9-1**).

The difficulties to be overcome are essentially of the same nature as those which appear in the other aspects of the region's economic activity: Fishing has been distorted by the chase after foreign dollars, such that both the catch capacity and the processing and distribution are oriented essentially toward export, to the detriment of internal consumption. Besides, in general—aside from efforts like those made by Mexico during the López Portillo government, and Peru under the government of Juan Velasco Alvarado—in the last 20 years the Ibero-American fishing industry has stagnated in terms of investment in better technology.

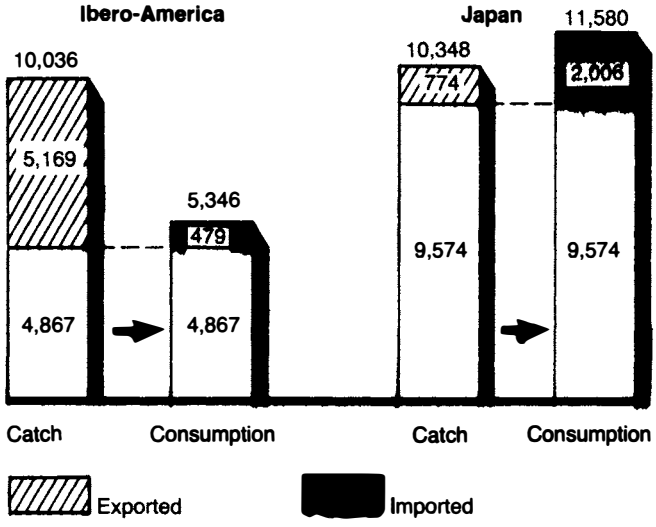
A simple comparison puts this into relief. Ibero-America and Japan have similar volumes of annual catch—a bit over 10 million tons—but, whereas the Ibero-American region exports about 51% of its fish product, Japan consumes 92% (and even buys quantities of seafood from other countries). As a result, in Ibero-America the yearly consumption per

FIGURE 9-1
Contribution of fish to world protein consumption 1980
(percent from fish)



Source: Food and Agriculture Organization (FAO).

FIGURE 9-2
Catch and consumption of fish in Ibero-America and Japan Average 1979-81
(thousands of tons per year)



Source: Food and Agriculture Organization (FAO).

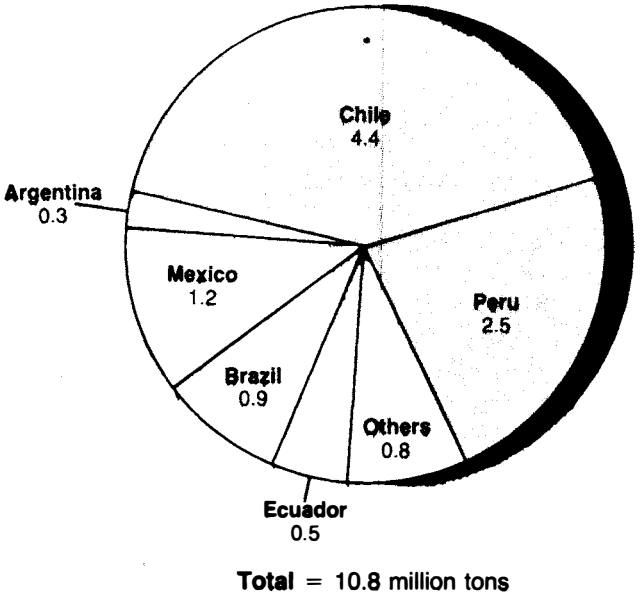
capita of fish and shellfish is 9.4 kg, while in Japan it is 83 kg (1980 figures). The minimal desirable is 30 kg per year per capita (see **Figure 9-2**).

Moreover, there are great inequalities in the fishing activity of the various countries. Chile and Peru, the two major fishing nations, make almost two-thirds of the total catch, as **Figure 9-3** shows.

The colonial distortion of economic activity is expressed in a *physical* distortion of the productive apparatus. For example, two decades ago Peru became the leading fishing nation of the world, but only thanks to its tremendous catch of anchovies, destined to make fish meal for export. The physical apparatus—mainly anchovy fishing boats and processing plants—which served to produce millions of tons of fish meal, would be hard to use to produce a similar amount of fish for direct human consumption. In another case, that of Mexico, 75% of the modernized fishing fleet is concentrated on fishing for shrimp, which is mainly exported.

In other words, although there are plentiful fish resources to rapidly increase the protein intake of Ibero-Americans, the existent equipment for extracting this resource is only partially suited to that end. In particular, a considerable portion of the modernized fishing vessels lacks refrigeration and depends on ice to keep the product cold. This limits their radius of action, and in the case of various fisheries, makes the product useless for direct human consumption (for example,

FIGURE 9-3
Fish catch of Ibero-America 1984
(millions of tons)

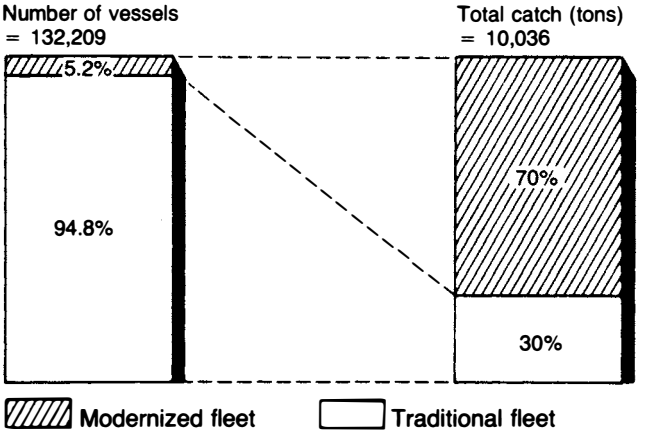


Source: Food and Agriculture Organization.

FIGURE 9-4

Fishing fleet of Ibero-America and what it catches 1979–81

(percentages)



in sardine fishing).

In general, the capitalization of the sector is low. A considerable portion of the fish for domestic consumption is caught by backward, even homemade, methods. A part of the fleet is very old, and even the part of the fishing industry devoted to exports uses machinery which is already obsolete in the advanced countries, or second-hand (this can be observed, for example, in the many fish meal factories which arose in northeastern Mexico when the price of the product went up, as a result of the crisis suffered by the Peruvian industry in 1971 during an unexpected shortage of fish resources).

Thirty percent of the total catch is by traditional fishing methods; i.e., the exploitation of river, lake, and coastal waters with elementary means, for family consumption or sale in local markets. According to FAO figures, the Ibero-American fishing fleet consists of 132,209 vessels, of which 94.8% are dedicated to traditional fishing; these are tiny boats, with a cargo capacity of less than 10 tons, generally propelled by oars, sails, or outboard motors. Brazil and Mexico have 79.3% of these vessels (see **Figure 9-4**).

The distribution of seafood for direct human consumption suffers from the same limitations—scarcity of highways and vehicles, an excessively spread-out population, etc.—facing food distribution in general. On top of this, because of their peculiar characteristics, fish products require special care for preservation (for example, they have to be refrigerated at lower temperatures than red meat and poultry). It is calculated that 20-25% of the fishing catch of Ibero-America is lost due to lack of refrigeration on the vessels, deficiencies in the unloading installations in the ports, lack of efficient transport, and so forth.

Of course, the quality of the fish and shellfish which is sold in places far from the ports where they are unloaded is often decidedly poor. The markets of the inland cities offer "fresh" fish for retail sale which has traveled for two weeks or more in trucks with no refrigeration, and has been kept on ice which is rarely restocked in time, so that the water from the melted ice turns into a hotbed for bacteria. Of the preservation methods, the one most used is tinning, which up to now has allowed the greatest geographical penetration of fish products. Fresh-frozen fish, which offers enormous nutritional advantages, requires refrigerated transport and a network of sales outlets with refrigeration for sale to the public, and hence it only gets to the larger cities.

As a result, in whole areas of Ibero-America, seafood consumption is far below the general average; and in many areas, the habit of including it in the diet has never formed, nor does the corresponding culinary culture exist.

Immediate increase in domestic consumption

To increase the catch of seafood products for direct human consumption fast, the first thing that has to be done is to redirect to consumption the portion that is currently exported. This would immediately double the fish intake, since today more than half the Ibero-American catch is sent abroad. Thus, per capita consumption, which went down from 9.4 to 8.5 kg per capita (more or less) between 1980 and 1985, will increase to some 17 kg per capita—much less than in Japan, but already almost two-thirds of the minimal satisfactory level of 30 kg per capita per year, and more than any country in the region now consumes (**Figure 9-5**). This goal defines Phase 1 of the reorganization of the Ibero-American fishing industry.

The only way to bring about this reorientation with the greatest efficiency in the shortest possible timeframe is to *integrate* the fishing industry of the region. In fact, for a great number of nations there, it will be impossible to attain any short-term increase in the supply of seafood without participating in a region-wide, joint effort. It is recommended that the first concrete steps in that direction be based on activities on the Pacific Coast. As **Map 9-1** shows, historically fishing has concentrated on that coast, and most of the major fishing ports are found on the Pacific.

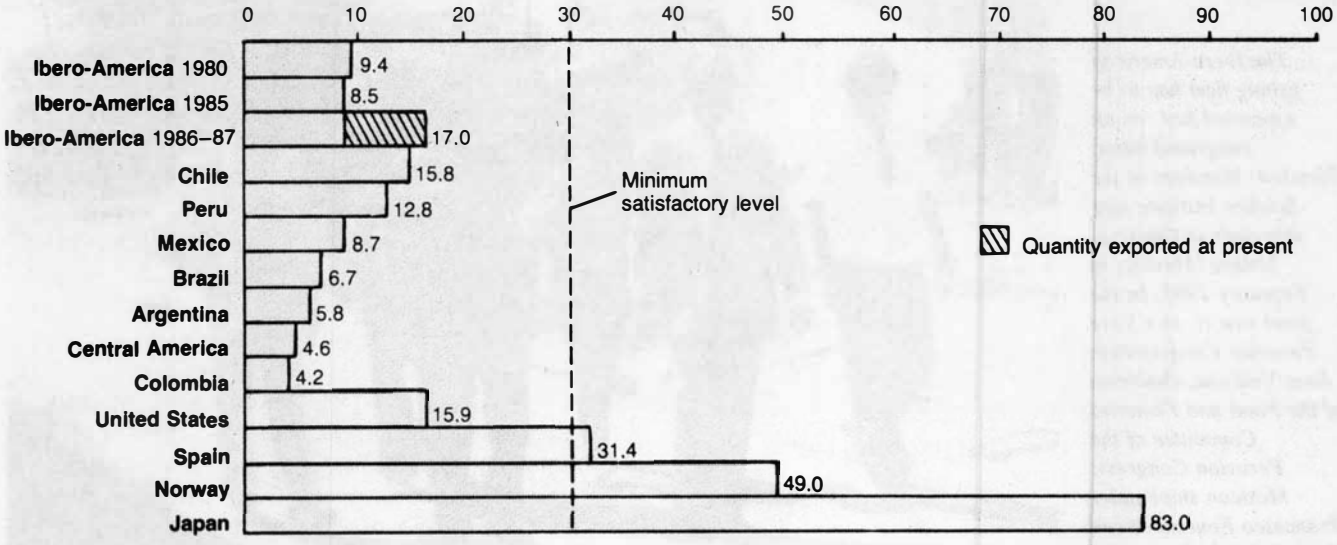
A concrete project in which countries like Mexico, Panama, Ecuador, Peru, Chile, and others could join forces, is the exploitation of tropical tuna fish in the Pacific. This group of migratory fish has a large economic importance for Ibero-America, but Japan, the Soviet Union, and the United States catch significant amounts of tuna in waters within the 200-mile strip which constitutes the exclusive economic territory of the Ibero-American nations bordering on the tropical Pacific. This theft of Ibero-American fishing resources by powers outside the region, who operate *inside* the 200-mile limit, has to be stopped.

The cited countries will negotiate an Ibero-American ac-

FIGURE 9-5

Annual per capita consumption of fish and shellfish 1979–81

(kgs. of equivalent live weight)



cord for tropical tuna, in which they will not only divide up quotas, but establish forms of cooperation and a system of compensations which will permit their tuna fleets and their land installations to operate as an integrated whole, with all the concomitant advantages in costs and productivity. At the same time, they will start a program for building modern tuna vessels, which besides taking advantage of the experience and capacity of countries like Mexico and Peru, can use the shipyards of other Ibero-American countries which have developed a great shipbuilding capacity, such as Argentina and Brazil.

With various concrete projects like this, the orientation of Ibero-America's fishing activity can be changed *at once*. This reorientation would include, ideally, the following regional and national measures:

- Integrating an Ibero-American marine fishing fleet which brings together the best modernized and semi-modernized craft of the participating nations. The exact capacity of this fleet will have to be gauged from the standpoint of the technical characteristics of each vessel (type of fish it is suited for, capacity of the hold, if it is refrigerated or not, radius of action, autonomy, etc.). Special attention has to be given to the integrated use of multiple fishing vessels and factory vessels.
- Integrating, through accords and cooperation contracts, the fishing port installations of the participating countries, so as not only to fully take advantage of the warehousing and processing capacity for seafood production for direct human consumption, but to carry out industrial processes and

MAP 9-1

Principal fishing ports

The Ibero-American fishing fleet has to be expanded fast, on an integrated basis. Pictured: Members of the Schiller Institute tour shipyards in Guayma, Sonora (Mexico) in February 1986. In the front row (l. to r.) are Peruvian Congressman Juan Valdivia, chairman of the Food and Fisheries Committee of the Peruvian Congress; Mexican shipbuilder Francesco Fourcade; and Juan Rebaza, the general manager of Pesca Peru, the Peruvian state fishing industry.

maintenance for the vessels wherever it is most efficient in each case.

- Working up a general plan for applying to available fishing resources the totality of the Ibero-American capacity for catching and processing seafood products for direct human consumption. The production obtained with factory vessels can be of short-term aid to nations underendowed with industrial facilities.
- Adapting the fleet of each nation to the new orientation. Starting from the technical inventory of the existing fleet (including out-of-use vessels which can be repaired), a part of this should be redirected to catching species appropriate for direct human consumption domestically, while at the same time a fleet expansion program will be undertaken directed at the most promising fisheries, for increasing the catch with the maximum productivity per worker, per vessel, and per trip.
- Where possible and necessary, adapting the existing industrial plant to processing the products for direct domestic human consumption. In this sector, Peru's recent experience is very useful, of utilizing the processing plants it already had to process a high-protein food product starting from fish meal. This product, called "sea beef" and processed with Japanese technology, has neither taste nor smell, so it can be added to many other products to raise their protein content; or it can be given various flavors to be used as the basis of traditional dishes in rural areas where people are unaccustomed to eating fish. Thus, Peru has succeeded in reorienting part of the production of the fish meal plants into direct human consumption.
- Upgrading the capacity for handling and distribution of the processed product. The public and private sectors will have to make agreements to use 100% the warehouses for tinned and salt-dried fish, cold-storage rooms for frozen and fresh fish, refrigerator trucks and boxcars, warehousing and preservation plants in the interior of the country for local distribution, installations at the sales outlets, etc. Besides bringing this capacity into phase with the capacity for catching and processing fish, special attention has to be given to the tremendous difficulties which obviously exist for getting the product to remote regions.
- Upgrading inputs. A detailed inventory has to be made of the supply and sources of fuel for vessels and machines, all types of repairs, ice, containers, nets, chemicals, etc. Bottlenecks have to be identified, to figure out shortcuts and urgent measures to resolve them. Reserves must be formed of scarce inputs or ones that represent vulnerabilities in the production flow.

Thirty kilograms per capita by 2000

Just by carrying out the above steps (and adopting certain complementary measures to take better advantage of the inland water resources, utilize the accompanying fauna caught in the nets with luxury catches like shrimp, etc.), the per

capita seafood consumption of the region can be immediately raised to 17 kg per year per capita—i.e., double the current consumption.

But almost at the same time, a longer-term Ibero-American fishing development plan has to be launched, aimed at ensuring by the year 2000 a minimum per capita yearly consumption of 30 kg of fish and shellfish, with a total production of more than 27 million tons. This goal, which assumes almost quadrupling the present per capita consumption and almost tripling present production, defines Phase 2 of the integration of the Ibero-American fishing industry (see **Figure 9-6**).

The crux of the Ibero-American fishing development plan will be to create various total fishing ports, endowed with multiple processing installations, adequate for fully exploiting every type of fish and shellfish. Hence, they will have to have berths for ships, drydocks for repairs, refrigeration and electronic workshops, and so forth, in keeping with a modern fishing fleet fitted for every kind of fish, with a considerable number of factory vessels having a wide radius of action and capable of several weeks of autonomy (freezer-equipped tuna vessels, hake-fishing vessels with tinning equipment on board, etc.).

As to the fleet, it must be kept in mind that the productivity per worker, vessel, and trip depends directly on the autonomy and radius of action of the vessel, its instruments for navigating and locating schools of fish, whether it has refrigeration or not, the capacity of the hold, and—something which often becomes an absurd bottleneck in many fishing ports—unloading capacity. All the adaptations and amplifications of the fleet must observe as their number one criterion, that of technological modernization to increase productivity. The pretense that criterion number one should be creating employment by using fishing methods that use a lot of labor—like tuna boats filled with anglers, for example—have to be rejected as anti-economical.

Ibero-America will get the fishing fleet it needs faster if it integrates its naval construction capacity. From day one, the maximum coordination of shipbuilding capacity has to be sought for the region, which has at least 25 shipyards capable of building ships over 4,000 tons. (If a shipyard builds 1,000-ton vessels, it is capable of building almost any kind of craft the fishing industry could need.) Some 30 Ibero-American shipyards have the capability of building factory vessels (see **Table 9-1**).

In the next 15 years, a fishing fleet will have to be filled out which is capable of almost three times the present volume of catch. The main crux of this expansion will have to be the building of modernized fishing vessels, which will supply almost all of the increase in catch. The capacity of the modernized fishing fleet will have to go up by about 20 million tons, which implies that the continent's shipyards will have to build in that period more ships than the total number that makes up the present modernized fleet, which is about 6,500

FIGURE 9-6
Projection of the fishing catch of Ibero-America 1980-2000
(millions of tons)

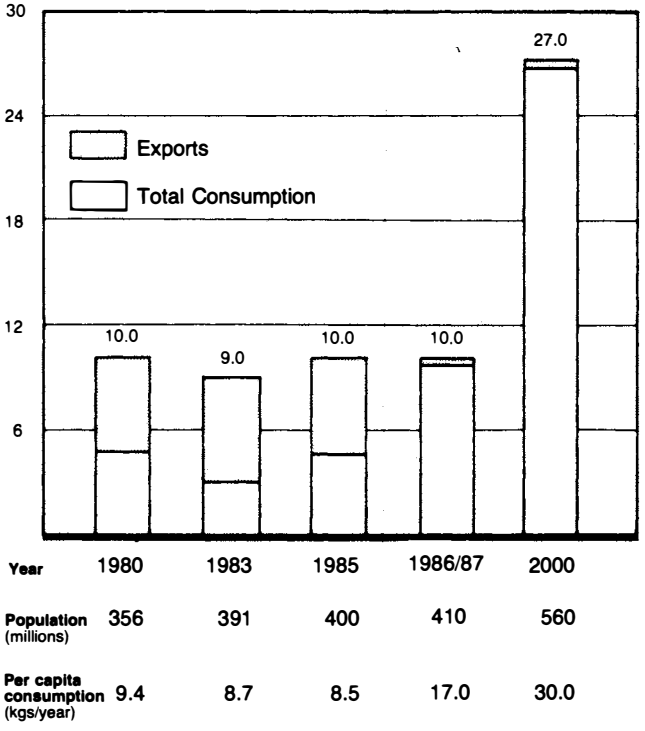


TABLE 9-1
Number of shipyards in Ibero-America

	Large craft*	Medium craft†	Small craft‡	Total
Argentina	5	3	132	140
Brazil	10	28	n.d.	38
Colombia	0	1	6	8
Chile	1	1	n.d.	2
Ecuador	0	1	2	3
Mexico	4	4	90	98
Panama	2	0	n.d.	2
Paraguay	0	1	0	1
Peru	1	4	5	10
Uruguay	1	0	0	1
Venezuela	1	0	n.d.	1

* More than 4,000 dead weight tons (DWT)
† Less than 4,000 DWT
‡ Shops
Source: Asociación Latinamericana de Armadores

units, and will have to do it on the basis of building bigger and bigger vessels, with more modern installations and equipment, to increase their autonomy of deployment and their operative efficiency.

The best shipyards of the region have to be complemented with the best state-of-the-art engineering for fishing, refrigeration equipment, electronic equipment for navigation and finding schools of fish (including satellite-guided navigation), machines designed to process food on board, etc. Likewise, Ibero-America has to become determined to master in the next dozen years all the technical and industrial aspects which are indispensable to build from prow to poop, with 100% Ibero-American components, factory-vessels of the quality that the United States, Japan, and the Soviet Union have.

As part of the Ibero-American fishing development plan, the preservation of fishing products (and of food in general) has to be revolutionized by introducing the use of ionized radiation. This method, the most modern, cheap, and efficient, consists in subjecting food, which is wrapped in sealed packages, to doses of ionized radiation capable of destroying any pathological germs; this done, the foods can be preserved for an indefinite period as long as the package is not opened, without losing their flavor or nutritional qualities. In space flight, the U.S. astronauts—and presumably, the Soviets as well—consume irradiated food exclusively, since they cannot run even the slightest risk of getting sick from eating contaminated food.

It is very important, in this area, to start with the most advanced technology. To date, the irradiation of foods, both experimentally as well as commercially, has been based almost entirely for more than three decades on the use of radionuclides, especially cobalt 60. Although few things are done so safely and efficiently by man as working with radionuclides, they do have some disadvantages. The world production of cobalt 60 and cesium 137 is insufficient to guarantee the large-scale diffusion of this technique. The immense majority of the underdeveloped countries would depend, at least for a while, on foreign supplies. Moreover, the plants that use radionuclides are not well adapted to multiple uses.

Recent advances in the field of pulsed electron accelerators—capable of producing very short high-voltage discharges—make these machines excellent candidates for use in the irradiation of food. These accelerators are cheaper and safer sources of radiation, independent of the availability of radionuclides, and perfectly regulatable in intensity, frequency, etc. The electron accelerators are easy to transport: A complete irradiating unit could be mounted on caterpillar treads or the equivalent on a large moving van. Once an adequate model is obtained, these machines can be mass-produced like TV sets.

Brazil is already utilizing food irradiation commercially; sale to the public has been authorized for 21 irradiated products. Argentina has already built a closed-chamber experimental irradiator, with radionuclides, mounted on a tractor unit, and may very well profit from this experience in the design of units using electron accelerators. Chile, Colombia, and Peru have been carrying out experimental studies on food irradiation for some time.

Given that irradiated food, as long as it is kept in its original packaging, requires no refrigeration, it can be taken to practically any place in any kind of vehicle, like a can of sardines but without the excessive weight of the metal (in general, for irradiation, foods are wrapped in sealed plastic bags). Hence, the preservation of foods by ionized radiation will allow storage and distribution of seafood in the most remote zones without needing special vehicles or plants.

In the long term, world fishing will have to undergo a profound technical revolution that pulls it out of its present stage which is, mostly, a hunting and gathering activity, or if you prefer, an extractive industry. Fishing activity has to be changed into a productive activity equivalent to modern farming and livestock raising.

The myth that there is an absolute limit to fish resources—which the FAO and other institutions calculate at 100-200 million tons of catch yearly in traditional species and perhaps as much again in non-traditional species—is based on the implicit assumption that today's fishing technology will remain essentially unaltered. The reality is that in the future man will have to create, or "cultivate" most of the fish and shellfish he consumes, and will thus be able to enjoy billions of tons per year.

Ibero-America, therefore, has to give a huge impulse to fish farming. Seeding of fish in interior tanks and streams—including, of course, the enormous receptacles that result from hydroelectric projects—is a basic measure. But in genuine fish farming all the most advanced methods must tend to be employed, especially those of the U.S. and Japanese fish farming industry. Although China has methods applicable to relatively small receptacles of water as a transitional means, fish farming has to be conceived as a form of advanced agriculture in which the best yields per worker and per hectare under cultivation have to be sought, as in U.S. fish farming.

Farming the sea is a vaster task, which humanity must seriously undertake before this century is out, and doubtless it represents a great joint enterprise for the Ibero-American nations. An initial phase—in fact technically quite simple—is to create artificial reefs at the mouths of the big rivers, an action which in itself can increase the availability of various fish resources several-fold. The two most promising points to create artificial reefs are the Amazon and Plata deltas. In the future, entire bays can be closed off to create conditions completely ruled by man for raising fish, mollusks, and so forth.

As support for all such activities, Ibero-America must integrate its oceanographic researches, and sign cooperation accords on the topics of naval architecture, fishing technology, and food processing technology.