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MARKETING OF FPC AND ITS END PRODUCTS <sup>1/</sup>

by

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I would like to talk about two things. The first one will be what we in AID have been doing with Fish Protein Concentrate for the past two and a half years. Number two, I would like to talk about FPC on the Moroccan scene. With respect to the first point, what the Agency for International Development has done. In 1967 a committee chaired by the Vice President and called the Marine Science, Resources and Engineering Committee gave the Agency for International Development, the U.S. Government lead-agency, responsibility for developing FPC for use in overseas programmes. We work very closely with the Bureau of Commercial Fisheries who supply the technical information on FPC.

In the development of our programme we have emphasized two areas: the first involves carrying out FPC feasibility studies, and the second is the agreement to purchase a quantity of FPC from a producer, Alpine Marine Protein Industries Incorporated. With respect to the first point, the feasibility study, a group of fisheries experts, economists, food technologists and marketing people, visited about 15 countries in early 1967 to select three of them for demonstrative studies to determine the potential for the erection of an FPC plant. The recommendations of this study were that feasibility studies should be carried out in Chile, Korea and Iceland. Reasons favouring these three countries were based on some of the more visible aspects of availability of industrialized fish-catch resources, the existence of a food industry with central processing facilities, interest on the part of the local government and on the part of local industry and a number of other invisible factors.

We awarded in June 1967, a contract to a US firm, General Oceanology of Boston, Mass., which was a consortium of individuals such as Mr. Gactor, Dr. Sol Chafkin and Mr. Jerry Bernstein. These people have been active in overseas activities for a number of years and I think it is fair for me to say that we are well pleased with the work that they have done and continue to do for us.

In Korea we have completed our feasibility study and part of this study was the subject of the paper prepared by the three gentlemen that I just mentioned for presentation here. I originally intended to read their paper but I was asked to do part of my general presentation and if anyone who has read the paper has any questions I will attempt to respond.

In Korea the conclusion was reached that an "E" plant should not be built there at this time. Specifically, the reason is that there is not a large enough supply of underutilized fisheries resources at a low enough cost to justify the plant. On the other hand a large amount of what up until now has to be imported increased protein deficiency has been uncovered and certainly shows the need for better quality and larger quantities of proteins. Finally, this study was compared with rice and soy products. The result was that under certain conditions, depending on the policies and the costs of the government, P<sub>2</sub> was the best source of protein with respect to the cost of the product. This is the thesis of the paper prepared by the gentlemen mentioned previously. What we do from here in Korea is still to be debated. It is our hope that this study will be one of the contributing factors to the development of a national nutritional policy for Korea.

With respect to the second feasibility study, the one in Chile, this study is expected to be complete by the end of this calendar year with a report hopefully 30 - 60 days after that. From the preliminary reports, however, and our discussions with the contractor, there is every indication that a cost positive potential for the erection of a plant in Chile exists. This does not surprise us, indeed, we had to take some precautions as to why we went ahead with the marketing study when it appeared that there were no more positive factors known already. The steel mill concept of part erecting a plant still seems to prevail in some circles but we have gone through the marketing study and we have made believers out of people who have seen some of the value of doing a marketing study before erecting a plant. Several things come out of this study that may be useful to us in our discussion here and I think one thing that Mr Mautner touched on and that other people have alluded to in their remarks, is

the nature of the commercial operation. In Chile we have found that the FPC business (we found this not only to be true in Chile, but in the United States, and other countries) will be a very high risk business, and this is one of the reasons that many companies in the US do not get involved in the building of plants. Since capital is scarce and and they can make a better return in other areas, they prefer not to make this kind of investment. However, I am getting off the subject. What I wanted to say about the study in Chile is that the indication is that unless the Government is interested in and committed to the utilization of FPC in its feeding programmes and will agree to the purchase of a certain amount of the product from the plant then there is probably little chance of commercial success. In the case of Chile the Government indicated that it can use 50 - 60 per cent of the expected capacity of the plant, which will be between 4,000 - 5,000 tons of FPC per year. Other markets for Chile will be the pasteur industry and some weaning and other baby foods being developed. All indications are that a substantial market can be found for between 4,000 and 5,000 tons. Another interesting point is that because of the high risk nature of the enterprise and because of the changes in concepts and processes that FPC is expected to go through in the next few years the plant is being amortized over a five year period, as opposed to what I understand is a more general practice of between ten and twenty years. I suppose that is saying enough in Chile for the present time and the feasibility study in Korea. I will reserve talking about Morocco, which was the third country that we chose as a demonstration study until the end. Now we will move to our purchase of FPC.

We, AID, held a conference in early January of 1967 in which we invited private industry to discuss with us how we could best go about getting them involved in the FPC industry. One of the things we proposed was to hold out about one million dollars for the purchase of product, which would guarantee a market for a certain percentage of the capacity of a plant. At the same time this product could be used in various overseas feeding programmes to give us data on utilization and acceptance. At the conference about 35 companies were represented. Discussions were held and AID later offered to purchase 900,000 US\$ worth of FPC. Only one bid

was received, this from Alpine Marine Protein Industries of New Bedford, Mass

AID entered into a contract with Alpine for the purchase of FPC. The product was originally scheduled for delivery, one third in January 1969 (about 357 tons) and two-thirds in July 1969 (a little over 670 tons). The total contract was for something in the magnitude of 2 million pounds. Shortly after the contract was signed in November 1968 an extension was granted to the contractor for factors beyond his control and the delivery dates were pushed back from January to May and from July to November. However, now AIP has found it necessary to terminate the contract with Alpine for failure to deliver. During the period of the contract Alpine delivered 20 tons of acceptable product, that met all the specifications as set out in the contract. Although we have terminated the contract, which had to be done for legal reasons, we are still working with Alpine to try to determine what has caused the product to fail to meet the specifications. The particular problem here is that it did not meet the PER (Protein Efficiency Ratio) required by the specifications. We are running additional tests on this material with The Bureau of Commercial Fisheries assisting, and we hope that the matter can be corrected. Alpine has on hand about 500 tons of product, which if it does pass the test will fill approximately 50% of their original commitment. In addition to the production problems that Alpine has encountered over the past couple of years, they have also run into the additional problem that the raw material, hake, is not available at a cheap enough cost to produce FPC economically. I suppose it depends on who you talk with, the fishermen or other people, as to whether hake fish is really available. I do know that the Alpine people have made a great effort, and it is public knowledge that recently they have been offering as much as \$10 a ton to try to fill their commitment.

I have spoken with the fishermen involved and it is a simple matter of economics for them. Why should they fish for hake at 2 cents a pound when they can fish for table fish at 5-13 cents a pound? On the other hand there are people who say that the resource just is not there. In any event Alpine has closed the plant, AID has terminated the contract and we have only received 20 tons of product. I wish I had something more pleasant to report on this subject but these are the facts.



In a related part of our utilization plan we established guidelines that were sent to American voluntary agencies that were distributing food overseas to foreign governments having UN AID feeding programmes and to our AID missions asking them to submit proposals as to how they would like to use the EFC, in a use and evaluation programme. We received a number of proposals and we were in the process of visiting several of these countries. Now at this stage, because of the unavailability of the product it would be premature to go into how we intend to use the product. I just returned from the Orient, after visiting four or five countries in which we had planned to use the product (this was prior to returning and finding that we had to terminate the contract) and I was generally encouraged to find the potentials with good possibilities for getting EFC into the food system and for developing products for its use so as to be able to judge its degree of acceptance.

To touch on something that the chairman recently mentioned, AID has worked with US industry in this matter. We had agreed to commit a large quantity of the product from Alpine for use in the development and testing of products etc. The general reason for industry not acting in the US is that every big company we have talked with wants to be number two; no-one wants to go out and risk everything to be number one. This is the attitude industry has taken. I think this puts the Alpine contract into its proper perspective. I hope to return to Washington and get better news that they have discovered the defects in the process and the problem has been corrected.

Now I would like to turn to the next part of my talk which is probably the most relevant since it concerns EFC in Morocco. As I mentioned earlier, Morocco is the third country that we selected for demonstration study. I visited Morocco in May and again in August of this year to discuss what kind of project AID should do. Based on our discussions I outlined a scope of work which does not reflect what AID plans to do but merely how I viewed the total problem and what I believe should be done to achieve the introduction of EFC. If this plan, a joint effort between the Government of Morocco, US AID and the United Nations is certainly something we would like to see take place.

I was re-reading what I had written some months ago and in the light of what has been discussed at this conference and after re-reading it I felt that these points should be shared with you, so you can add your comments and suggestions. I am certainly new to FFC, and as George Palmer would say, I should not take any pride in authorship and instead should accept any comments or criticisms that may be forthcoming. So I will do this. The remarks are rather short, five or six pages, so I will read them.

The objectives of this project should be: first - to determine the feasibility of establishing an economically viable FFC industry in Morocco which will produce for human consumption, and to develop a methodology to introduce FFC and FFC fortified food products into the Moroccan food system. I believe that the second part, the development of a methodology to get the food into the system, is as important as anything else that could or should be done.

Secondly, to develop a marketing and distribution plan for high grade fish meal produced at the SOAFAF plant for animal feed. To achieve these objectives (and I use AID here simply to supply us with a subject) AID will focus its activities in three areas:

1) FFC production costs in fishmeal development

On the basis of all relevant factors, AID will determine the economics of converting sardine into FFC and the amount of the demand required to justify operation of an FFC plant in Morocco. AID will analyse the economics of fish meal production, marketing and distribution from the SOAFAF plant and will determine what can be done to make SOAFAF fish meal a profitable product.

2) Market intelligence and product identification

AID should determine the cost per unit of protein utilizing FFC as opposed to the cost of protein from alternate sources available or potentially available to broccans from commercial sources.

3) Product development and acceptance

In addition to product identification, AID should develop new food concepts utilizing FFC, test the acceptance of all FFC fortified products by the target groups and develop a methodology for these products to reach and be utilized by the target groups.

Now below are the details that I believe we should do to carry out the feasibility study in Morocco.

- a) With respect to production costs determine the amount of sardines available and usable for FPC production, their location and the sustainability of this resource over time and present cost trends
- b) Study the variable combinations of harvesting, preserving and transporting the sardine to determine the least possible cost of raw material for FPC production
- c) Determine the cost-demand curve for FPC at various production levels.
- d) Analyse the infrastructure of the Moroccan fishing industry and identify any obstacles that will impede fish protein concentrate production and make recommendations as to how these impediments can be reduced or eliminated
- e) Analyse all other factors relevant to determine the cost of producing FPC in Morocco, including labour cost, equipment cost, operating cost, overhead cost, the margin of profit desired etc
- f) Suggest FPC plant location, plant size and details and form of distribution system for least cost production and distribution of FPC. These suggestions must consider the existing SOGEMIP location vis à vis other potential sites
- g) Consider the attitude of the Government of Morocco regarding US and other foreign investment in the assistance and establishment of an FPC industry including all laws and special considerations that might be relevant to such an industry.
- h) Consider all known processes for converting sardine into FPC including Moroccan developed processes and to the extent possible incorporate this data into the study
- i) Make a desk assessment of potential for and means for FPC and FPC fortified products becoming items that move in international trade, including developing a marketing plan to achieve such export potential.

With respect to point (b) under FPC production cost and fish meal market development, AIF will:

- 1) evaluate the present procedures used to produce, market and distribute fish meal from the SONAFAP plant
- 2) recommend methods to improve production, marketing and distribution for the domestic and export markets,
- 3) recommend plans designed to place the SONAFAP plant on a sound economic basis.

1) With respect to the next area of concentration, market intelligence and product identification, the goal of this part of the study should be to collect all information required to determine the practicality of using FPC to fortify certain foods with both non-institutional and institutional protein deficient target groups in Morocco. With respect to the non-institutional area, AIF should identify and define selected non-institutional protein deficient target groups in representative rural and urban areas by age, income levels, geographical location, dietary habits, factors that influence these dietary patterns and other pertinent characteristics such as the Government of Morocco's policy and plans for dealing with nutrition problems.

2) Within the non institutional target groups AIF should emphasize pregnant and nursing women, infants and pre-school aged children. With respect to the institutional area, AIF will identify, describe and qualify institutional feeding programmes such as school lunch, industrial canteens, army mess, maternal and child health and others as may be determined.

With respect to the two combined, non institutional and institutional activities I recognise that there is a certain amount of duplication in these target groups and this should be distinguished carefully in the data collection process.

Secondly, AIF will identify all food products and types of products consumed by these target groups that are potential vehicles for FPC fortification in terms of: (1) the technical practicality of fortifying with FPC (2) the distinction between products sold in commercial channels

and household-made products; (3) the potential that these FPC fortified products have for improving the quantity and quality of the protein intake of the target groups; (4) the price structure of the foods and food ingredients normally consumed and used by the target groups; (5) the factors that determine these prices (6) any indication as to what, if any, additional cost, FPC adds to the fortified product and its acceptance in economic terms (7) what effect, if any, the traditional market structure might have on the processing and marketing of FPC fortified foods (8) showing how or if, FPC can substitute for imported products and thereby save foreign exchange; (9) determining the degree of the Government of Morocco's interest in supporting subsidized feeding programmes and encouraging the use of FPC (10) determining the capabilities and interest of local private manufactures of FPC vehicle commodities; (11) identifying programmes, government and private, that might be used to promote FPC and show how FPC can help close the protein gap.

The data gathered in this section should be used to develop product formulations and processing procedures and to develop new food concepts. With respect to the third area, product development and acceptance, AID having identified the potential FPC vehicles relevant to the aforementioned protein deficient target groups, should (1) develop product formulations and processing procedures for incorporating FPC in these foods; (2) develop new food concepts with FPC, consistent with the needs of the target groups and their line; for example, weaning foods or institutional foods; (3) develop and carry out programmes to determine taste and cost acceptance of the above FPC fortified products including the new foods as developed; (4) determine what influences, if any might be utilized to encourage acceptance of FPC fortified products. Once the degree of acceptance has been sufficiently established AID and others working with the Government of Morocco and local manufactures should develop a plan to manufacture and test these FPC fortified products through the appropriate channels and for a sufficient period of time to derive reliable and significant market data to assess the potential market for FPC. AID will utilize this information and data to develop a methodology for getting FPC to the relevant target groups.

This is essentially the over-all picture I saw on my two previous visits here and what I felt should be done, whether it is done by IID, an international organization, or a private group, or if these things are built up in some short or joint venture. How it can be arranged makes no difference to me, my concern is that they be done.



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