CASE STUDY

(Industrial Project Writing and Analysis)

A. Purpose

To familiarize U.S. field personnel with the writing and analysis of industrial projects.

B. Scope

Based on hypothetical situations, this case study is intended to illustrate how to practically fill out the "Application for Equipment Procurement (USAID/CIP)" format (which by itself is an industrial project proposal), and how to analyze such an application, by applying the guidelines and criteria set forth in the previous discussion paper "Analyzing an Investment Project".

C. Hypothetical Situation

1. You are a U.S. field employee in charge of the regional economic development in MR-2. Your assistance has been requested by a potential investor who wants to establish a fish meal factory. Since the investor has limited knowledge of English, you are requested to help him out. To start with, a project should be written.

2. From the potential investor, you have obtained the following data and information:

a. The Investor:

Mr. Nguyen Van Xuong is a Vietnamese citizen, 45 years old, residing at 201 Hoang Dieu, Nha Trang. Name of future company: VAN XUONG Cong Ty. Legal structure: Limited liability partnership. Mr. Xuong will

contribute 70% of equity capital. Mr. Van Ty, his partner, a local fisherman, will contribute the balance 30% capital requirement. Mr. Xuong will rearrange his house into the future company's office and plans to put the future factory at Phan Thiet to benefit from the abundance of cheap fish and fish wastes to be utilized as main raw materials in the process of manufacturing fish meal. Mr. Xuong will be the general manager and sales manager, while Mr. Ty will serve as the technical director of the future business.

b. The Product

High protein content fish meal in powder form has been extensively utilized as animal feed by southern growers of pigs and chickens. The demand in MR-2 and 1 has increased rapidly with the dissemination of modern methods of growing domestic animals throughout the country.

c. Marketing

The investor feels confident that he could sell all of his production to growers of pigs and chickens in MR-2 and 1.

d. Financing

Mr. Xuong stated that he and his partner can obtain all the money needed to start his business. (There is no reason to doubt Mr. Xuong's statement as he is well known in the local business community as a respectable and sucessful foodstuff's dealer).

3. Personally, you have developed the following information through your own research and as a result of exchange of letters with USAID/IND Division.

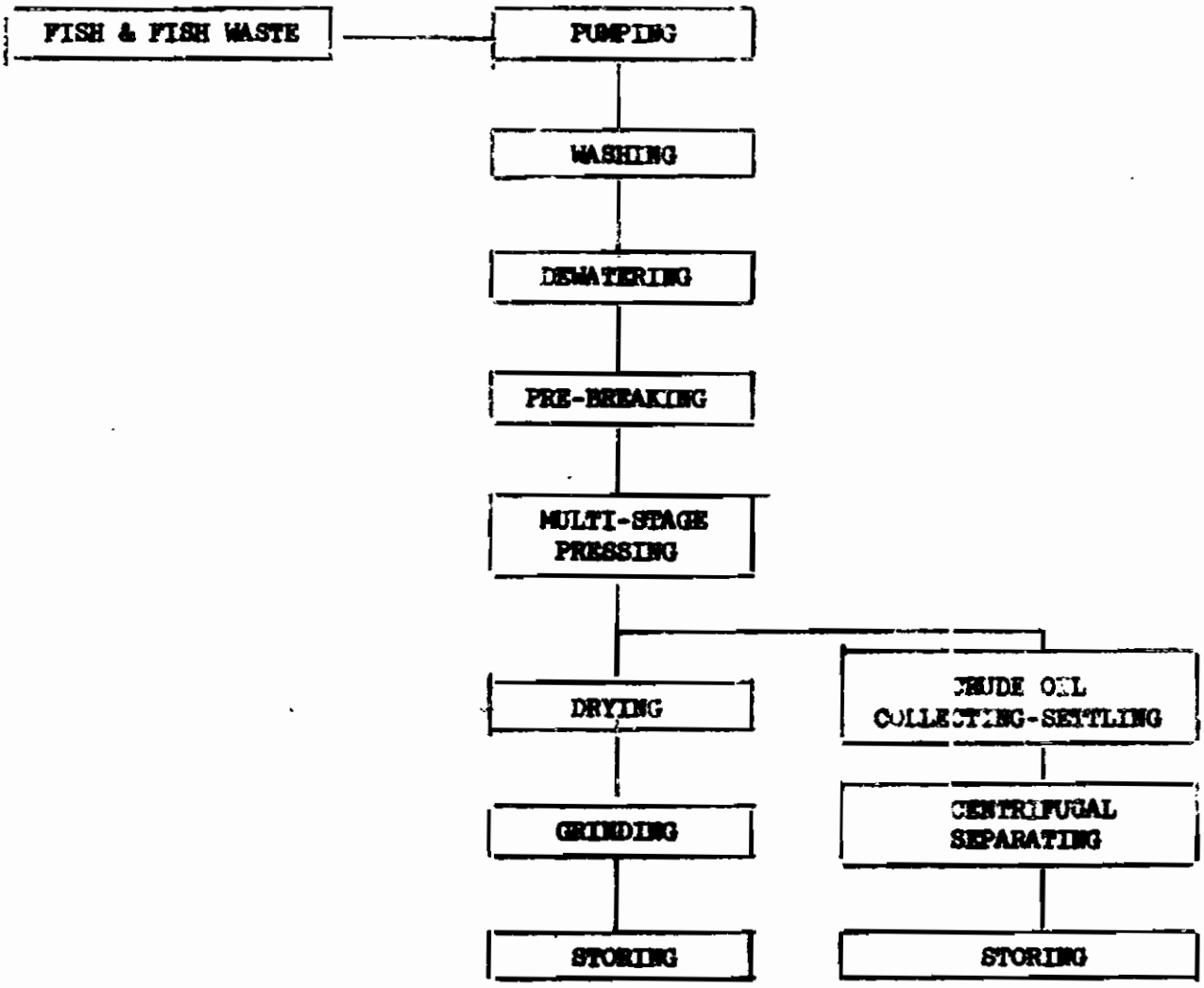
a. Capacity of Production

There exist several plant sizes which could be considered as standardized in the U.S. However, it is suggested that a reasonable small plant be implemented in MR-2 as a pilot project, given the limited experience of the founders. On the other hand, fish meal production also yields sizable quantities of fish oil as a byproduct which can be profitably marketed. The suggested annual production capacity is thus as follows: 2,500 MT of whole fish meal, and 500 MT of industrial fish oil.

b. Technical Process

Fish meal and oil are derived from inedible fish and fish wastes. The proposed process is called the evaporation process, which operates according to the following flow chart:

FLOW CHART


FISH & FISH WASTE
PUMPING
WASHING
DEWATERING
PRE-BREAKING
MULTI-STAGE PRESSING
DRYING
GRINDING
STORING
CRUDE OIL COLLECTING-SETTLING
CENTRIFUGAL SEPARATING
STORING

c. Equipment required: (Source: Industrial profiles, USDC).

(1) Imported:

One set of package steam boiler 200 HP

One complete system of fish pumping, washing, dewatering and weighing.

One complete system of screw conveyor, elevator, screw elevator and fish prebreaker connected to cooker.

One set of automatic fish cooker 24" x 30' complete with hoppers and feeding and discharging devices.

One set of multistage press complete with incline conveyor leading to dryer, and with fish oil collecting device.

One set of combination refractoryless furnace/dryer complete with discharge screw and cyclone collector.

One set of screw conveyor feeding the disintegrator

One set of combination disintegrator and dried fish meal blower, complete with ducts and bagging cyclone.

Two centrifugal oil separators to be connected to oil settling and storing tanks.

One 5-ton truck.

Estimated cost: US$200,000.

In local currency: VN$25,600,000 (at rate 128:1)

(2) Local

Tools and auxiliary equipment	VN$4,000,000
Furniture and fixture	400,000
	VN$4,400,000

(3) Total piaster cost of equipment: VN$30,000,000

d. Raw Materials Requirements

Raw fish: 10,000 MT x VN$10/kg	VN$100,000,000
Antibiotics and other chemicals	
US$2,000 x 260:1	520,000
Bags: 50,000 x VN$30/bag	1,500,000
Oildrums: 5,150 x VN$1,000/drum	5,150,000
	VN$107,170,000

e. Land, Building, and Utilities

Land: 5,000 sq. m. @ VN$2,000	VN$ 10,000,000
Building: 15m x 30m x 7m production	
15m x 30m x 4m storage	
8m x 8m x xm boiler	
(Total area built: 1,000 sq. m)	VN$10,000,000

Electric Power:

150 KW connected load.

Load factor: 0.75

Generating capacity: 200 KW

Source of supply: Vietnam Power Company

Annual consumption: 360,000 KWH

Annual cost: (at VN$10 per KWH)	VN$ 3,600,000

Fuels for Steam and Heat Generating:

200,000 liters x VN$5:	1,000,000

Water:

For production, sanitation and fire protection - Estimated:	50,000

f. Manpower requirements

(1) Direct labor

Skilled	6
Semi skilled	6
Unskilled	18
	30

(2) Indirect labor

Manager	2
Office	5
	7

(3) Estimated annual cost: VN$ 5,000,000

g. Market aspects

(1) Users: Manufacturers of margarine, lower-grade cooking fats, shortening, soap, paints, animal feed, and fertilizers.

(2) Sales: Sales to wholesalers and industrial users.

(3) Geographic extent of market:

(a) Domestic: country wide; there is usually competition from similar products derived from other sources, and delivery price is the controlling factor.

(b) Export: The products are exportable and, as in the domestic market, delivered price is the decisive factor.

(4) Estimate of demands: There are 30,000,000 poultry birds and 5,000,000 pigs being raised throughout the country. To raise one-day chick until it weighs 2 kg, 4 kg of animal feed are required. To raise a

piglet of 7 kg until it weighs 100 kg, one needs 50 kg of animal feed Fish meal may account for 30% of the normal animal feed compound.

(5) C&F price of imports: US$270 per MT of fish meal, and US$240 per MT of fish oil.

D. Actions Requested from U.S. Field Personnel:

1. Help the potential investor to fill out the "Application for Equipment Procurement under USAID/CIP" form.

2. In the course of filling out this form, determine the following, on behalf of the investor:

a. Market justification of the project.

b. Pricing of the products

c. Total cost of investment required

d. Proposed financing method.

e. Financial estimate

f. Estimate of foreign exchange saving.

3. Proceed with the analysis of the completed project according to criteria used by USAID/IND.

IND:FAFlower/ntkm/6/21/71

Seminar, MR-2 - June, 1971 Case Study

VAN XUONG CONG TY

201, Hoang Dieu, Nha Trang

APPLICATION FOR EQUIPMENT PROCUREMENT

(USAID/CIP)

Fish Meal Project

June, 1971

APPLICATION FOR EQUIPMENT PROCUREMENT

(USAID/CIP)

For New Investment Project

Date: June 29, 1971

1. NAME OF APPLICANT: Mr. NGUYEN VAN XUONG

Age: 45 years Nationality: Vietnamese

Residing at: 201, Hoang Dieu, Nha Trang

Name of Firm: VAN XUONG CONG TY

Office location: 201, Hoang Dieu, Nha Trang

Legal structure: Limited Liability Company (under process of legal establishment)

Proposed Plant Location: Phan Thiet, Van Xa Village. (Land purchased)

Relationship of Applicant to the Industrial Activity:

a. Major Shareholder

b. General and Marketing Manager

2. MAJOR SHAREHOLDERS

Name	% of shares	Position in the firm
Mr. Nguyen Van Xuong	70%	General and marketing manager
Mr Van Ty	30%	Technical director

Information About the Company's Founders:

a. Mr. Nguyen Van Xuong: 15 years of commercial experience in foodstuffs. Estimated total value of personal assets: VN$200,000,000. Respected within local business community.

b. Mr. Van Ty: Formerly a rich farmer. Has switched to motorized fishing 5 years ago. Worked for 4 years as Chief mechanic at Phan Thiet Railroad Station. Graduated from the Saigon Technical High School. Person of good character, coming from an old family established at Phan Thiet for several generations.

3. GENERAL DESCRIPTION OF PROJECT

The project proposes to install a fish meal and fish oil factory at the Phan Thiet fishing port. The plant rated capacity is 2,500 MT/year of fish meal suitable for animal feed, and 500 MT/year of fish oil suitable for industrial end-uses.

The estimated value of equipment approximates US$200,000 for which USAID/CIP financing is requested.

When fully implemented, the project will employ 37 persons, contribute VN$13,400,000 to public income (Production & license taxes), and help save US$763,000 annually.

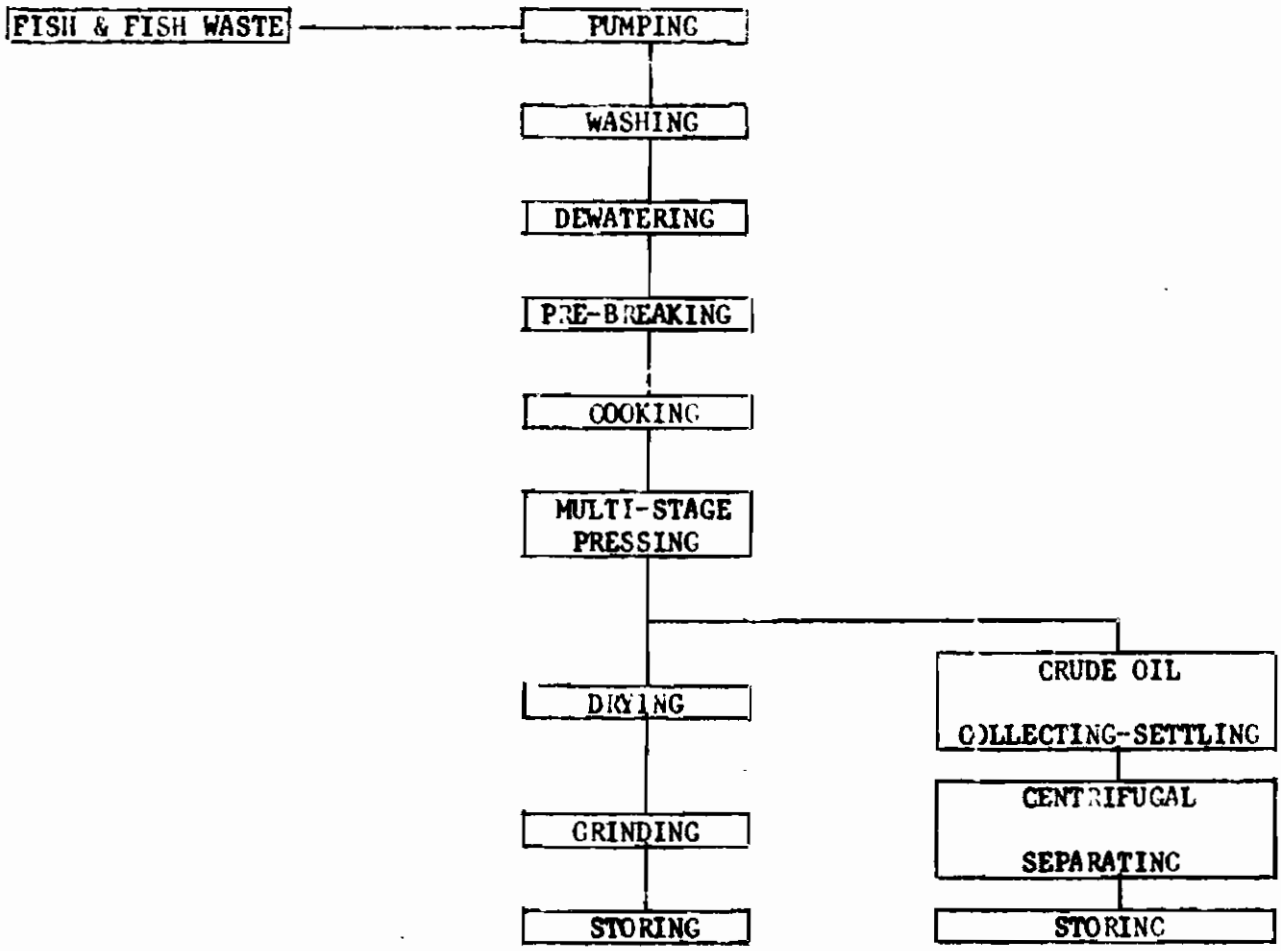
The project will be capitalized with 46% of borrowed money, and is expected to pay off in 4 years approximately.

In a first stage of operation, the production output will be sold to the regional market in MR-2, and possibly in MR-1. In a next expansion stage, the operation will be export oriented.

4. CAPACITY AND PROCESS OF PRODUCTION

a Process of Production:

The evaporation process will be applied for this project. It operates according to the following flow chart:



b Estimated Volume of Production:

Product	Year 1 (70%)	Year 2 and thereafter
Whole Fish meal	1,750 MT	2,500 MT
Industrial Fish oil	350 MT	500 MT

5. EQUIPMENT REQUIRED

(Major items only)

(1) Imported from the US:

One set of package steam boiler 200 HP

One complete system of fish pumping, washing, dewatering and weighing.

One complete system of screw conveyor, elevator, screw elevator

and fish prebreaker connected to cooker.

One set of automatic fish cooker 24" x 30' complete with hoppers and feeding and discharging devices.

One set of multistage press complete with incline conveyor leading to dryer, and with fish oil collecting device.

One set of combination refractoryless furnace/dryer complete with discharge screw and cyclone collector.

One set of screw conveyor feeding the disintegrator.

One set of combination disintegrator and dried fish meal blower, complete with ducts and bagging cyclone.

Two centrifugal fish oil separators to be connected to oil settling and storing tanks.

One 5-ton truck

Estimated cost:	US$ 200,000
In local currency (at rate 118:1 + 10:1 Perequation tax = 128:1)	VN$25,600,000

2) Local built equipment:

Tools and auxiliary equipment	VN$4,000,000
Furniture and fixtures	400,000
	VN$4,400,000

(3) Estimated total cost of equipment VN$30,000,000

6. QUALITY OF PRODUCTS

The products being processed by modern method and equipment will have high chemical stability and sanitary characteristics, and will be comparable to products found on the international market.

7. RAW MATERIALS REQUIRED

a. Local:

Raw fish: 10,000 MT x VN$10/kg	VN$100,000,000
Bags: 50,000 x VN$30/bag	1,500,000
Oil drums: 5,150 x VN$1,000/drum	5,150,000
Total:	VN$106,650,000

b. Imported

Antibiotics and chemicals (estimated)	US$	2,000
In local currency, at 260:1	VN$	520,000

c. Estimated annual cost of materials: VN$107,170,000

8. LAND, BUILDING AND UTILITIES

a. Land

(1) Location of factory: Land purchased, located 700 meters from Phan Thiet's main fishing village.

(2) Approximate land area required for this project:

Initial stage: 2,000 sq.m.
Susequent phase: 3,000 sq.m.

(3) Total land area requirement:

5,000 sq.m. x VN$2,000/sq.m. VN$10,000,000

b. Building:

15m x 30m x 7m for production
15m x 30m x 4m for storage
8m x 8m x xm for boiler
Total area built: 1,000 sq.m. at
cost of VN$10,000/sq.m. VN$10,000,000

c. Electric power:

Capacity required: 200 KW
Load factor : 75%
Source of supply: Vietnam Power Company
Annual consumption: 360,000 KWH
Annual cost: (at VN$10 per KWH) VN$ 3,600,000

d. Steam and heat generating:

Fuels: 200,000 liters x VN$5 VN$ 1,000,000

e. Water

For production, sanitation, and
fire protection (estimated) VN$ 50,000

f. Drainage

Gravity drain waste.

9. PERIOD OF PLANT CONSTRUCTION

a. Start plant construction: Within 3 months

b. Completion of plant construction: Within 12 months

c. Start sales: Within 13 months
(from the date of granting import license).

10. MANPOWER REQUIREMENTS

Category	VN	Foreign
Management	2	-
Technical	1	-
Administrative	5	-
Skilled	5	-
Unskilled	24	-
Total:	37	

Estimated annual labor cost: VN$5,000,000

11. MARKETING (This section should be rewritten according to advices to be obtained from MR-2/US economic personnel).

a. Estimated demand

It is difficult to forecast the demand for fish meal as it depends upon many factors. If based only on import statistics, the following figures are noted for food wastes:

1968	7,067 MT	VN$108,874,000
1969	24,624 MT	345,977,000
1970 (est.)	30,000 MT	370,000,000

The above statistics includes animal feed of both animal and vegetal origins.

Vietnam also imports some 20,000 MT per year of "oils, fats and waxes" for industrial uses, most of which can be replaced by fish oil, especially in the soap manufacturing industry.

From the national point of view, this project can be considered as an import-substitution project.

Regarding more specifically the demands in MR-2, this project capitalizes upon the growing pattern of the regional industry. (Forecast of local demand to be completed by US field personnel).

b. Trend: (to be completed by US field personnel).

c. Sales: Expected sales in domestic market:

Products	Year 1		Year 2	
	Volume	Value	Volume	Value
	MT	VN$	MT	VN$
Fish meal	1,750	105,000,000	2,500	150,000,000
Fish oil	350	14,000,000	500	20,000,000
Total sales:		119,000,000		170,000,000

d. Distribution:

(1) Geographic areas: MR-2, and possibly MR-1.

(2) Channels: Wholesalers and industrial end-users.

e. Major customers:

(1) For fish meal: Animal farms.

(2) For fish oil: Soap manufacturers.

f. Brand: The product will be sold under "TIGER" brand name.

g. Pricing of Products: (per metric ton)

Products	Proposed selling price (VN$)	Compared to imported products	
		CIF US$	Wholesale VN$
Fish meal	60,000	270	80,000
Fish oil	40,000	240	60,000

12. **FINANCING**

a. **Sources of Fund**

Equity capital (100% VN)	VN$35,000,000
IDC Loan	20,000,000
Bank Loan	10,000,000
Total Fund:	VN$65,000,000

b. **Cost of Investment**

Equipment		VN$30,000,000
Land		10,000,000
Building		10,000,000
Installation (5% equipment)		1,500,000
Organization and Preliminary expenses		3,500,000
Working capital:		
Labor (one month)	420,000	
Raw fish (one week)	1,930,000	
Supplies (one month)	600,000	
Utilities (one month)	400,000	
Maintenance (one month)	150,000	
Admin. & sales (one month)	400,000	
Finished products (2 weeks)	5,100,000	9,000,000
Contingencies:		1,000,000
Total cost of investment:		VN$65,000,000

13. **FINANCIAL ESTIMATE**

	Year 1	Year 2
Revenues		
Income from sales:		
Fish meal	105,000,000	150,000,000
Fish oil	14,000,000	20,000,000
Gross income	119,000,000	170,000,000
Less: 7.2% Production tax	8,570,000	12,240,000
Net sales income:	110,430,000	157,760,000

	Year 1	Year 2
Expenses		
Labor	5,000,000	5,000,000
Raw materials	75,020,000	107,170,000
Interests: IDC loan 15%	3,000,000	3,000,000
Bank loan 20%	2,000,000	2,000,000
Rent (office)	120,000	120,000
Utilities	3,500,000	4,650,000
Maintenance: Equipment 5%	1,500,000	1,500,000
Building 2½%	250,000	250,000
Depreciation: Equipment 10%	3,000,000	3,000,000
Building 5%	500,000	500,000
Organization 20%	1,000,000	1,000,000
License tax 1% over sales	1,200,000	1,600,000
Sales expenses 2% over sales	2,400,000	3,200,000
Management expenses 1% over cost	1,200,000	1,500,000
Total expenses:	99,690,000	134,490,000
Profits		
Net Profit (income tax exempted 5 years)	10,740,000	23,270,000
Financial Ratios		
Debt/Equity	85.7%	85.7%
Net Profit/Net sales	9.9%	14.7%
Net Profit/Equity	30.6%	66.5%
Net Profit/Cost of investment	16.5%	35.9%

14. **ESTIMATED FOREIGN EXCHANGE SAVINGS**

	Year 1	Year 2
a. Value of import		
Fish meal at $270/MT	$472,500	$675,000
Fish oil at $240/MT	$ 84,000	$120,000
Total:	$556,500	$795,000

	Year 1	Year 2
b. Dollar cost of local production:		
Antibiotics and Chemicals	$ 1,400	$ 2,000
Depreciation 10%	$ 20,000	$ 20,000
Spare parts 2%	4,000	4,000
Fuels: Fuel oil at $0.013/l	1,820	2,600
Diesel oil at $0.025/l	2,100	3,000
Total:	$ 29,320	$ 31,600
c. Net FX saving:	$527,180	$763,400

15. I declare that I have examined this application, including accompanying attachments. To the best of my knowledge, it is accurate and completely based upon all information available to me at this time. I also declare that I have a definite intention to implement the proposed project as herein described.

Signature: /s/

Applicant: Nguyen Van Xuong

Date: June 22, 1971

Attachment:
Application for SBC Notice for Proposed Procurement.

IND:PAF:ntka/6/22/71

PROFORMA

91

VN-205 APPLICATION FOR SBC NOTICE OF PROPOSED PROCUREMENT

To: Office of Small Business, CIP UNITED STATES A.I.D. MISSION SAIGON - VIETNAM	1. Date June 22,71
2. Signature X	
3. Importer	Nguyen Van Xuong General Manager
4. Address	VAN XUONG CONG TY 201, Hoang Dieu, Nha Trang
5. Matriculation No. 2006	6. Telephone No. 71 Nha Trang
7. Commodity and 2-digit Code No. FEED MILL MACHINERY	8. Estimated Total C&F Cost $200,000

DO NOT WRITE IN THIS BLOCK

9.

Quantity	Unit	10-digit Code No.	Description & Specifications
			EQUIPMENT AND MACHINERY CAPABLE OF PROCESSING ONE TON OF RAW MATERIAL PER HOUR TO PRODUCE WHOLE FISH MEAL AND INDUSTRIAL FISH OIL -
			Major items of equipment include but are not limited to the following:
			Packaged type steam boiler, complete with feed pump, water treatment set, condensate receiver, oil burner and automatic controls, valves, piping, electric motors, switches and starters.

Centrifugal oil separators connected to settling and storage tanks, complete with holding tanks with steam heating coil, automatic temperature control, oil and stickwater discharge devices, pumps, switches, starters, special tools, etc.

Fish prebreaker for reducing oversized material, with drive motor, to be integrated in the process.

All necessary transporting/conveying equipment connecting and feeding the above equipment.

TERMS AND CONDITIONS:

1. Quotations shall include spare parts sufficient for two years of normal operation, and technical services for equipment installation and plant start-up, and training of local technicians.

2. Individually itemized FOB prices and Freight charges to Saigon shall be submitted for equipment, spare parts and technical services.

3. Electricity available: 220/380 volts, AC, 3 phases, 50 cycles. All electrical equipment, including drive motors, shall be provide for operation in high lumidity tr

4. Offers for

guarantees

consid

Seminar, MR-II - June, 1971

PROFORMA ANALYSIS PAPER
Case Study

TO: Mr. William Brister, AUCCA/CA

THRU: Mr. G. Edward Thompson, AD/IND

FROM: Frank A. Flower, IND/PE&DI

SUBJECT: IND input re VAN XUONG Application for Equipment Import under CIP.

A. PROJECT

VAN XUONG CONG TY, a new establishment, 100% VN, located in Central Vietnam, has applied for US$200,000 of CIP financing to purchase from the US a complete fish meal and fish oil plant. The projected plant capacity is 2,500 MT/year of high protein fish meal suitable for the preparation of animal feed, and 500 MT/year of high grade industrial fish oil.

B SUMMARY

The Industry Division considers this project technically and economically feasible and recommends CICCC approval.

C. TECHNICAL FEASIBILITY

1. The project calls for modern, highly automated equipment which is available from the US. The OSB notice was written on a functional basis to ensure bidding by US manufacturers, and appears to be in order.

2. The proposed continuous fish meal process is required in order to prevent high rate of spoilage of raw materials since fish and fish wastes deteriorate very rapidly in warm climate such as at Phan Thiet. Further, this evaporation or indirect drying, process will also assure a high protein recovery percentage of the fish meal intended for animal feed, and a low rate of fish oil oxidation necessary for subsequent industrial uses. It is anticipated that this advanced process will remain the normal practice for many years to come.

3. With proper care and maintenance, this type of equipment can last 10-15 years.

4. Based on the estimated cost of equipment, it appears that the proposed equipment is properly sized for the intended volume and quality of production. The plant will work basically 8 hours per day, allowing

MT, as compared to imports valued at US$270 and US$240 C&F respectively.

5. The company's financial planning appears to be adequate and follows normal business practice.

From the financial estimate, we have identified the following ratios for the year of full production operation:

Debt/Equity	(30/35)	85.7%
Net Profit/Net sales	(23/158)	14.7%
Return on Equity	(23/35)	66.5%
Return on Investment	(23/65)	35.9%

The debt/equity ratio indicates an unusual strong financial position. The return on investment ratio, based on an assumed income tax exemption for 5 years, indicates that the project would pay off in 4 years. In case of no income tax exemption, the company would have at net profit of (23,370,000 - 28.8% for corporate tax) VN$18,640,000, and the return on investment would be changed to 28.7%, that is a pay-off in 5 years.

6. Depending where one stands, the project can both save and earn foreign exchange. Inasmuch as the project will help reduce imports, the potential FX saving amounts to $527,180 for the first year of commercial operation, and to $763,400 for the second year of operation and there after.

The FX saving in one year is well over two times the requested value of the productive equipment. It is noted that fish meal and fish oil are exportable products. This project is also a potential FX earner.

7. Mr. Xuong experience in foodstuffs marketing will represent a solid managerial asset for the future company.

8. Overall, the project is well conceived and adequately financed, and has a good chance to be properly managed.

9. In its related analysis paper, MOE stated that this project is economically feasible and is in accord with development priorities of Vietnam.

10. If approved, this project will obtain all investments privileges envisioned under Decree-Law No. 2/63, since it falls under category 4 of List A, and category 1 of List B of GVN industrial priorities.

E. RECOMMENDATION

The Industry Division recommends approval of the VAN XUONG CONG TY project.

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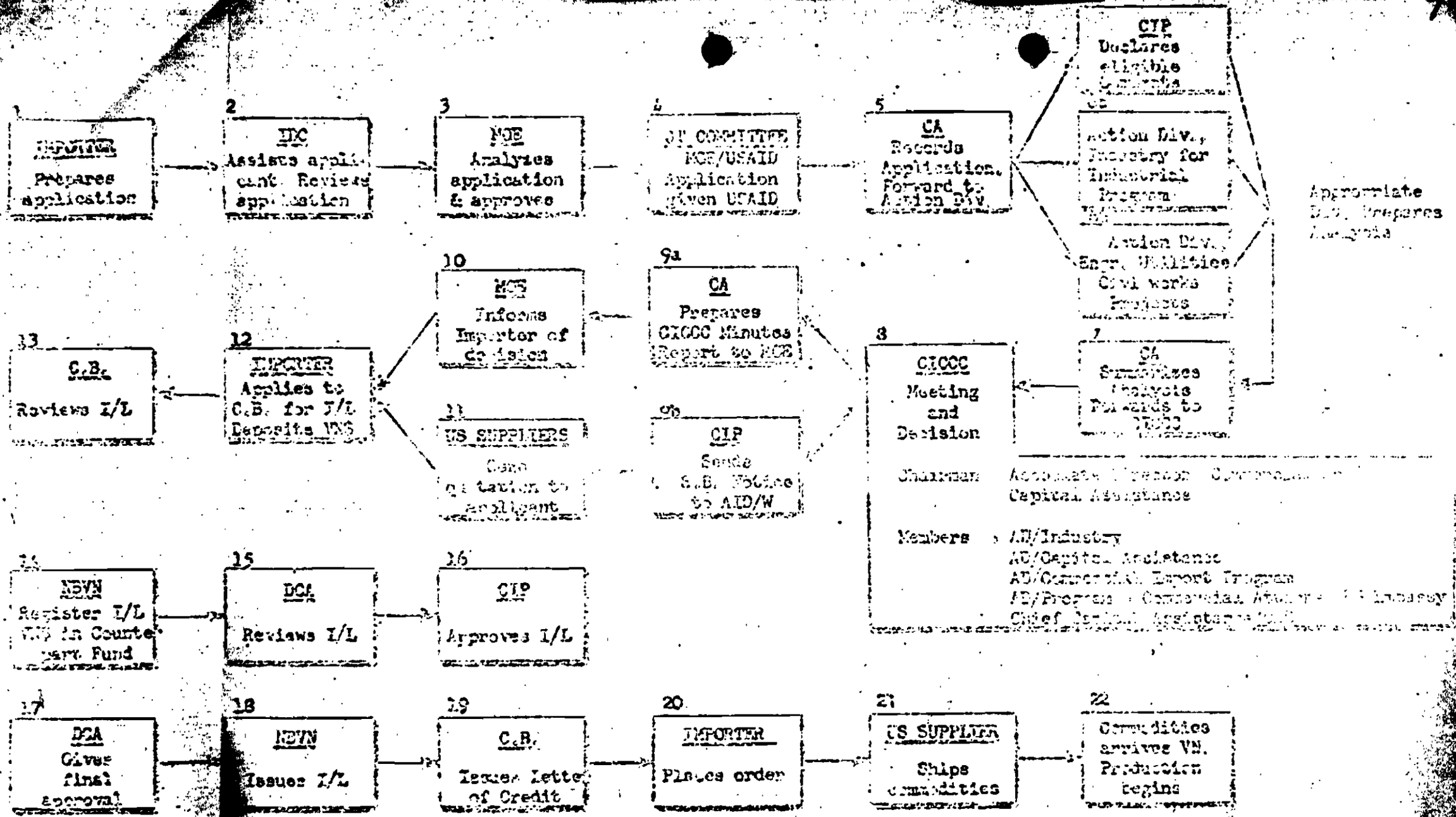

IDC - Industrial Dev ment Center
MOE - Ministry of Ec y
DCA - Directorate of mercial Aid, MOE
CA - Capital Assist Office USAID
CIP - Program Office, USAID

CICCC - Commercial Import Capital Commodities Committee
S.B. - Small Business Notice, AID/W
I/L - Import License
NBVN - National Bank of Vietnam
C.B. - Commercial Bank