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17546

PROJECT N° US/THA/87/089

U.N.I.D.O. / E.M.I. CONTRACT N° 88/24

PROJECT OF AN INSTANT BABY FOOD

MANUFACTURING UNIT IN THAILAND

FINAL REPORT

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**A - MARKET INFORMATION**

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**Foreword**

The plant production is aimed at two markets :

- The local market for Instant Baby Food.
- The export market (EUROPE - JAPAN - USA - CANADA) for fruit - tuber and vegetable flakes.

The regional market (countries of the A.S.E.A.N.) might also offer a marketing outlet for instant baby food, fruit and tuber flakes.

The Instant Baby Food local market study was carried out by a well-known Thai market-survey company ("C.S.N.").

The export market for fruit flakes has been carried out by the "S.I.A.S.S" (French company specialized in agro-food industries).

**I - Instant Baby Food market in Thailand**

**I.1 Market qualitative evaluation**

It is detailed in the C.S.N. market survey report (See Annex IV).  
Its main conclusions are the following.

.../...

- 2 -

There exists several Thai baby food brands, among which CERELAC and NESTUM (both Nestlé) are the most well known.

The survey results show that every housewife admits the important role played by supplementary baby food in the healthy development of their children.

The baby food product therefore offers a high potential, especially if consumers are aware that the product is "fresh", new and preservativeless.

Factors related to product nutrition or special recommendations have been found to be chief deciding factors of the respondent's buying decision.

Contacts with hospitals and doctors consequently ought to be given a top priority in the product marketing promotion.

Most respondents viewed that baby food products should be in powder form, with milk added before consumption if necessary, rather than already mixed. Most respondents bought such products in department stores.

In respect of packaging and size, cans of a one month lasting size were deemed to be the preferential choice.

It should be noticed that, except for some local brands, all imported brands are conditioned in cans. However, since the end of 1988, well-known brands as Nestlé (LACTOGEN) have developed products packed in polyethylene/aluminium complex, overpacked in cartons (200 g and 500 g) which allows a decrease in selling prices. This trend is common to most countries.

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## I.2 Quantitative evaluation

Because of the difficulty to obtain reliable figures concerning the market size (Baby foods are not identified as such in Customs lists but are absorbed into enriched milk or dehydrated products - Brands are reluctant to give information - Instant baby food and enriched milk powder are not separated in department stores) we had to assess the market size from the findings of the market survey carried out by C.S.N. Associates Cy. Ltd. and demographic data of Thailand.

. Total population : 53,400,000 inhabitants.

Urban population : 30 % i.e. : 16,000,000.

Number of families : 10,700,000 i.e. 5 people per family.

Population annual growth rate : 2.2 %

. Findings of the qualitative local market survey concerning purchase frequency :

. 28 % do not buy.

. 20 % have bought once but do not intend to buy more.

. 52 % buy regularly, of which :

- 52 % once a month

- 20 % 2.5 times a month

- 6 % once a week

- 14 % less than once a week.

Note : Once box weighs 200 to 400 according to brand

. Basic hypothesis for the evaluation :

The urban population only is presently buying instant baby food. In the short/medium term, the market will be localized in urban areas.

.../...

Findings of the qualitative local market survey concerning quantities bought by purchasing :

- 72 % buy 1 box or can by purchasing
- 22 % buy 2 boxes or cans by purchasing
- 6 % buy more than 2 boxes or cans by purchasing

Which approximates to :

- 75 % buy one box or can by purchasing
- 25 % buy two boxes or cans by purchasing

Each interviewed housewife is - for simplification - supposed to have 1.5 baby who is a possible instant baby food consumer.  
(Each housewife is supposed to have 1 to 2 babies aged from 0 to 3).

The findings of the consumption habits survey are thus assimilated to general consumption habits.

The housewives sample surveyed is supposed to represent the urban population.

Quantitative evaluation for 1988 :

- Number of births in urban areas per year : 360,000.
- Number of baby consumers (0 to 3 years old) :

$$\frac{1 \text{ million}}{1.5} = 670,000$$

.../...

Consumption habits	Number of babies	Number of purchases per year	Number of boxes/cans per year
28 % do not consume	187,600	0	0
20 % consume once	134,000	134,000	167,000
52 % consume regularly	348,400		
52 % once a month	182,000	2,184,000	2,730,000
20 % 2.5 times/month	70,000	2,100,000	2,625,000
6 % once a week	20,000	1,086,000	1,357,000
14 % once every 2 months	46,800	292,000	365,000
		TOTAL.....	7,244,000
		i.e.....	7,250,000 =====

which represents, according to the size of the boxes or cans (280 g and 400 g) 2,000 to 2,900 million tons or an average of some 2,500 million tons.

This assessment should be regarded with cautious as it is not totally sure that the sample interviewed is fully representative of the urban population. This figure hence indicates consumption potentialities rather than the actual consumption.

.../...

. Consumption forecast

Assumptions

- The demographic growth is supposed constant.
- The babyfood consumption is supposed to remain in urban areas.
  
- Lower hypothesis : Consumption per baby remains constant.
  
- Upper hypothesis : Supplying a local product sold at a non-prohibitive price shall lead to a significant consumption increase over the first three years (+ 10 % per year during 3 years, i.e. : 1990 : 2.75 Kg per baby, 1991 : 3 Kg per baby, 1992 : 3.3 Kg per baby).  
The consumption growth shall then follow the demographic growth.

.../...

YEAR	TOTAL POPULATION (1,000,000)	Number of births in urban areas (rounded)	Number of babies aged 0 to 3 (rounded)	Babyfood consumption in M T (rounded)	
				Lower hypothesis *	Upper hypothesis *
1988	54.6	360,000	1,000,000	2,500	2,500
1989	55.8	370,000	1,080,000	2,700	2,700
1990	57.0	375,000	1,105,000	2,760	3,040
1991	58.3	385,000	1,130,000	2,800	3,390
1992	59.5	390,000	1,150,000	2,870	3,800
1993	60.8	400,000	1,175,000	2,940	3,900
1994	62.2	410,000	1,200,000	3,000	3,960
1995	63.6	420,000	1,230,000	3,070	4,060
1996	64.9	430,000	1,260,000	3,150	4,150
1997	66.4	440,000	1,290,000	3,220	4,260
1998	67.8	450,000	1,320,000	3,300	4,360
1999	69.3	460,000	1,350,000	3,370	4,460
2000	70.9	470,000	1,380,000	3,450	4,550

\* : As mentioned above, these figures indicate potential consumption rather than actual consumption.

.../...

## II - Instant fruit flakes export market

Major conclusions of the market survey are as follows (See Annex IV "Market Survey of Dehydrated Fruit Flakes") :

The world market of dehydrated fruit flakes on cylinder breaks up into two categories :

1/ The banana flakes world market, existing since long ago and stabilized, which amounts to approximately 2,500 to 3,000 Tons per year.

The Ecuador has a quasi monopoly of world output (80 %) and the major outlets are the E.E.C. (1,000 to 1,300 Tons), the United States (750 to 1,000 Tons) and Japan.

2/ The world market of other fruit flakes which amounts to approximately 1,000 Tons, all flavours included. This market is new and dominated by the French.

This market was created and developed over the last decade by the French company JOUDINAUD, world leader for these products and now having its own international marketing network.

Exotic fruits are still almost unknown within the present products range because of their high prices (a few tons per year).

Therefore, the output of the proposed unit shall not, in the beginning, be based on an existing market, because though the dehydrated fruit flakes market is currently developing, that of exotic fruit flakes remains yet to be created, and such creation implies major efforts in terms of research and innovation on the part of final using processing industries.

.../...

The creation of a market for exotic fruit flakes appears nevertheless as foreseeable in the short/medium term, in so far as dehydrated flakes are used or may be used in growing sectors of the food industry and/or where constant innovation is the main fueling source of development : babyfood, biscuit and pastry, sweets, cereals or cereal bars (Muesli), snacks...

Furthermore, exotic fruit flakes can be used as substitutes to traditional raw materials (pulp) in sectors such as ice creams. Stability and regularity in quality would be a major asset here.

Prospects of marketing openings are also reinforced by the evolutions in nutrition behaviours in most western countries : destructuration of meals and growing consumption of individual snacks, growing taste for exotic and new types of food, growing desire for "healthy" and "natural" food, leading to a valorize image of fruit based food, hedonism...

In addition, the JOUDINAUD Company is interested in the present project and intends to take part in it, offering both its technological know-how and its marketing networks, as well as its own experience in market creation for new products.

It must be stressed, however, that the production of dehydrated exotic fruit flakes can obviously only be started as a complement to a prior basic activity (infant flours) ensuring the rentability of the unit.

Rapid complementary profits are to be expected, as soon as production costs enable the marketing with selling prices comparable to those of traditional flavours.

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## B - TECHNICAL DOCUMENT

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### I - Plant location

The plant shall be located in SAMROIYOD - Western Sub-Region, some 250 Kms South of BANGKOK, on the land concession of the existing dehydration plant of SAMROIYOD (See Annex III).

This location offers significant advantages :

- 1/ The new plant shall be using the existing supply facilities of the dehydration plant : water from the tank and the deep well. Steam from the two boilers.
- 2/ Part of the existing plant buildings can be used for offices and laboratory of the envisaged baby food plant.
- 3/ In view of the fruits and vegetables production area (defined in Annex II), the plant shall be well located.
- 4/ The raw material supply department can be shared by both entities (existing dehydration plant and Instant Baby Food and Fruit Flakes) as well as the laboratory, including related administrative and maintenance departments.
- 5/ In this area, agro-industrial investments can benefit from B.O.I. facilities.

.../...



## II - Basic data

### II.1 End-products

- Instant baby foods
- Instant exotic fruit flakes
- Instant tuber and vegetable flakes

### II.2 Production control

The production control is carried out at 3 levels :

- a) Checking of raw products upon their reception by type and supply lot. One sample per lot is taken out in case of a counter-valuation.
- b) Checking during processing.
- c) Checking of end-products : physico-chemical and bacteriological tests.

Definition and methodology shall be defined and specified in the "Process-book" (Transfer of know-how).

.../...

## II.3 Raw materials

### 2.3.1 Instant Baby Foods

According to the instant baby food formula, raw materials available or to be imported would be as follows :

- Flours :	Rice	local
	Tapioca	local
	Arrow-root	local
	Corn	local - imported
	Soya	imported
	Wheat	imported
	Barley	local or imported
- Germs :	Wheat	imported
	Corn	imported
- Malt extracts :		local and/or imported
- Refined oils :	Soy bean	local/imported
	Corn	local/imported
	Sesame	local/imported
	Palm	local/imported
- Milk powder :		imported
- Glucose, dextrose, saccharose :		local/imported
- Honey :		local
- Malto dextrines :		imported
- Vitamins.		
- Ethyvanilline.		
- Powder flakes of vegetables, tubers and fruits :		Citrus, bananas tomatoes, spinash, carrots, parsley, taro, pumpkin...

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### 2.3.2 Exotic fruit flakes

- Pineapple (fresh)	local
- Banana (fresh)	local
- Mango (fresh)	local
- Passion fruit (fresh)	local
- Guava (fresh)	local
- Papaya (fresh)	local

### 2.3.3 Tuber and vegetables (fresh or powder or purée)

- Taro	local
- Yam	local
- Potatoes	local
- Sweet potatoes	local
- Pumpkin	local
- Chinese cabbage	local
- Chinese radish	local
- Carrots	local
- Tomatoes	local

More information on the availability and prices of the above raw materials in Thailand, can be found in Annexes I and II.

### 2.3.4 Packaging

Instant baby foods :

Packed in bags of Plastic + Aluminium complex.

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Two sizes are considered : - Individual bags of 10 - 35 g  
- Bags of 200 g

Bags of 400 g might be considered as well.

Bags of 200 g (or 400 g) shall be placed in carton boxes bearing all required printed information, such as : name and logo of the product - composition - directions for use - required legal data.

For 10 - 30 g doses, such information shall be printed directly on bags.

Exotic fruit and tuber/vegetable flakes :

They shall be packed in plastic bags of 15 Kgs and overpacked in corrugated cardboard boxes.

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II.4 Capacity of the plant

2.4.1 Production

400 M T per year of baby foods and exotic fruit and tuber flakes.

2.4.2 Drum-dryer sizing

The drum-dryer is the limiting factor of the plant; its average output is subordinate to :

- . Total dry matter content,
- . Components and formula of products to be dried.

Average drum-dryer yield, per square meter :

- . Instant baby food ..... : 20 Kgs / sq. meter / hour
- . Exotic fruits and tuber flakes : 10 Kgs / sq. meter / hour
- . Average for both types ..... : 15 Kgs / sq. meter / hour

The plant shall be in operation 250 days per year, with 2 shifts per day, i.e. 4 000 hours per year (including 10 % for cleaning purposes).

The actual number of production hours shall thus be : 3 600.

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A 7.4 sq. meter drum-dryer shall be selected :

$$\frac{400\ 000\ \text{Kg}}{15\ \text{Kg/sq.meter/h} \times 3600\ \text{hours}} = 7.40\ \text{sq. meter}$$

#### 2.4.3 Storage and packaging equipment

End-products shall be stored by processing lot during 5 days (time period required for bacteriological analysis). 15 containers of 1.5 cubic meter are therefore necessary.

Owing to this after-processing storage requirement, the packaging output is not linked with the processing output.

Two equipments have been selected :

. One for 10 to 30 g bags - Capacity : 35 to 40 bags/minute.

. One for 200 g bags .... - Capacity : 25 to 30 bags/minute.

.../...

### III - Process Description

#### III.1 Instant Baby Food

Main components (flours, sugar, fruits and/or fruit pulps, aroma, vitamins, mineral salts...) are mixed with water (potability in conformity with World Health Organization) according to selected formula.

This mix is sent on a scrapped-surface heat exchanger in order to :

- . Jellify starch
- . Sterilize product

The thick product obtained is then dried on the drum-dryer : the product to be dried (fluid, viscous or pasty) is spread out in a thin and even film on to the outside surface of a metal drum heated from the inside by saturated steam and revolving round a horizontal axle. Before the drum stops rotating, the dry product is scrapped off by a blade.

It is then pre-crushed and sent to a flaker in order to obtain the required granulometry.

Flakes are then stored, checked and finally packed.

.../...

### III.2 Instant flakes of exotic fruits and tubers

Through normal process, fruits and tubers are turned into pulp and/or purée. A special attention shall be paid to the high homogeneity of the product.

Additives or other components may be added according to raw materials and formula selected.

The drying and flaking process is the same as for instant baby foods; only the yield is lower (by 40 to 50 %) as these pulps and purées contain more water than most baby food mixtures.

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## IV - Equipement

### 4.1 Fruits, vegetables and tubers pulp processing line

#### 4.1.1 Washing tank (concrete)

Within the scope of Civil Works.

#### 4.1.2 Sorting and peeling belt

Including shalves for peeling and spouts for waste.

- . Length : 6 meters
- . Width : 0,50 meter
- . Motor : 0.75 KW
- . Made of stainless steel

#### 4.2.3 Pineapple peeling and rounding equipment

- . Capacity : 500 to 800 Kg of pineapple per hour.
- . Motor : 2 KW
- . Semi-automatic.

#### 4.2.4 Passing fruit extractor (semi-automatic)

- . Capacity : 700 Kg of passion fruit per hour.
- . Motor : 4 KW.

.../...

4.1.5 Belt elevator

- . Length elevator : 3 meters
- . Width : 0,50 meter
- . Motor : 0.75 KW

4.1.6 Slicing equipment

- . Capacity : 1 000 Kg/hour of fruits, tubers.
- . Motor : 3 KW
- . Made of stainless steel with cutters-holder of cast aluminium.

4.1.7 Breaker - crusher

- . Capacity : 1 000 Kg/hour of fruits/tubers.
- . Power : 2 KW

4.1.8 One continuous cooker an blanching equipment

- . Capacity : 100 to 500 Kg/hour .
- . Steam consumption : 100 Kg/hour.
- . Motor : 3 KW

Includes :

- . One feeding hopper.
- . One screw-device for feeding and stirring of the product.
- . One valve to inject steam of hot water.
- . Indirect heating set.
- . Regulation set.

.../...

4.1.9 One chopper

- . Capacity : 1 000 Kg/hour
- . Power : 5.5 KW
- . Fitted with perforated grids to enable different grades of crushing.
- . Made of stainless steel.

4.1.10 One destoning and pulping machine

- . Cylindrical grid with rotating beaters and special device for mangoes destoning.
- . Capacity : 600 Kg/hour.
- . Motor : 5.5 KW
- . Made of stainless steel.

4.1.11 Two refiner-finishers

- . Capacity : 900 Kg/hour each.
- . Motors : 2 x 5.2 KW
- . Includes :
  - feeding hopper.
  - cylindrical grid with rotating beater.
- . Made of stainless steel.

4.1.12 One crusher-finisher

For obtaining a very homogeneous product.

- . Capacity : 800 Kg/hour
- . Motor : 5.5 KW
- . Made of stainless steel.

.../...

4.1.13 Two mobile cars

Each including :

- . One 200 liters tank
- . One volumetric pump - output : 300 to 1000 liters/hour.
- . Motor : 2.2 KW

4.1.14 One set of pipings with all necessary valves and connections.

4.1.15 One control panel with electrical wiring for the above  
process equipment

4.2 Drying line

4.2.1 Mixing

- . Two mixing tanks :
  - . Capacity : 600 liters each.
  - . Motor : 5.5 KW each.
  - . Including : lid, two-speed decentred agitator, process water inlet and product outlet.
  
- . Metallic frame of galvanized mild steel for supporting of tanks, footbridge...

.../...

- . One footbridge of galvanized steel and aluminium (floor).
  
- . One flow-splitter made of stainless steel.
  
- . One dosing and feeding pump :
  - Simple effect piston
  - Variable output : 0 to 600 liters/hour
  - A coarse mesh grid is provided for in front of the pump so as to protect it from foreign matters.
  
- . One cleaning pump :
  - Centrifuged
  - Output : 10 cubic meters/hour
  - Made of stainless steel

4.2.2 Sterilizing and cooking set

- . One scrapped surface heat-exchanger
  - 0.6 sq. meter
  - Machine badged at 10 bars.
  - Speed control system.
  - Easy dismantling device for cylinder heads and rotor allowing an easy maintenance.
  - Supporting frame in stainless steel.

.../...

. Heating and regulation set

Including :

- One automatic steam relief valve from 12 bars to required pressure.
- Control of outgoing product temperature :
  - . Temperature recorder - automatic valve for controlling steam input into heat-exchanger.
- Ancillary equipment.

4.2.3 Drying - flaking set

Including :

. One drum-dryer

- Surface area : 7.5 sq. meter
- Drum diameter : 960 mm
- Drum length : 2 500 mm
- Badged at 10 Bars.

. Complementary equipment

- Air and water feeding devices
- Pneumatic control of cutter holder and counter-plate.
- Cylinder driven by a variable speed motor (from 2 to 12 rpm).

.../...

. Feeding satellite rollers with cooling device and variable speed motor.

. Dry product collecting equipment :

Including :

- Shredding screw with variable speed motor.
- Screw elevator.
- Flaker with supporting frame, flakes hopper, rotor...

. Ancillary equipement :

- Steam relief valves from 12 bars to required steam pressure.  
Pneumatic regulation, valves...
- Draining device with accessories.
- Haze intake equipmert : stainless steel hood, centrifugal exhaust pump, removal stove (length 3 meters).
- Supporting frame with footbridges.
- Sliding panel to ensure safety of workmen when equipments are in operation.
- Footbridge (galvanized steel and aluminium) for the flaker.

. Feeding equipement of the pasty product to the dryer

- Feeding cylinder, fixed feed racks...

.../...

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- . Pneumatic control set for steam, cutter holder...
  
- . Piping connections for utilities (cool and hot water, compressed air, steam).
  
- . Process piping made of stainless steel.
  
- . Control panel and electrical wiring
  
- . Two washing tanks :
  - One for the heat-exchanger rotor
  - One for the dryer product supplying device.
  
- . Washing sets for tanks and dryer :
  - Operating pressure : 4 to 5 bars.
  
- . One blade sharpener

#### 4.3 Storage

- 15 containers of 1.5 cubic meter each
- Description of each container :
  - . Length : 1,245 mm
  - . Width : 1,090 mm
  - . Height : 1,760 mm

.../...



- . Tank and feet made of stainless steel.
- . Frame in galvanized mild steel.
- . Feeding inlet (Diameter : 400 mm).
- . Outlet device with butterfly valve.
- . Piling-up device.

#### **4.4 Packaging**

##### **4.4.1 Dosing-packaging machine for 10 to 30 grammes bags**

- . Output : 35/45 bags per minute
- . Film : Printed aluminium/polyethylene complex.
- . Including : - Motor : 2.5 KW
  - Dust aspiration device
  - Photo-electric cell
  - Printer
  - Spare parts for two years operation

##### **4.4.2 Dosing-packaging machine for 200 grammes bags**

- . Output : 25/30 bags per minute
- . Film : aluminium/polyethylene complex (not printed).
- . Including : - Motor 5 KW
  - Continuous film supplying device
  - Electronic speed variator
  - Feeding hopper with level control and feeding screw.
  - Spare parts for two years operation.

.../...

#### 4.4.3 Packaging belt

Bags are placed manually inside carton boxes.

- . Length            6 meters
- . Width            0.50 meters
- . Motor            0.75 KW

#### 4.4.4 Overpacking machine

- . Output : 30/35 boxes per minute.
- . Size of boxes : from 75 mm x 50 mm x 19 mm  
to 305 mm x 205 mm x 100 mm
- . Overpacking film : Pryphane or polypropylene, not printed.
- . Includes : - Motor 2 KW
  - Feeding conveyor with speed variator
  - Outlet conveyor

#### 4.4.5 Two packing tables

For manual filling of carboard boxes with carton boxes or bags, two packing tables are provided for.

- . Size of each table : 2 x 1 x 0.75 meter
- . Made of stainless steel.

#### 4.4.6 Packaging machine for plastic bags of 15 to 20 Kg.

.../...

## V - Utilities

### 5.1 Compressed air

- Plant consumption : 80 N cubic meters / hour.
- Required power : 15 KW.
- The compressed air unit includes :
  - . Compressor
  - . Air-dryer
  - . Storage tank
  - . Filters
  - . Pipes, valves, pipes supports.

### 5.2 Water

#### 5.2.1 Process water

- . Instant output : 2 cubic meters per hour.
- . Daily consumption : 10 cubic meters.

#### 5.2.2. Industrial water

- . Instant output : 20 cubic meters per hour.
- . Daily consumption : 15 cubic meters.

#### 5.2.3 Water supply equipments

The plant shall be supplied with potable water from the town's network. The potability of the water shall be in conformity with the World Health Organization norms.

.../...

. One water booster

- Output : 30 cubic meters/hour
- Power : 10 KW

. One water treatment set

including :

- One chlorination set
- One storage tank - 125 cubic meters
- One activated coal filter for process water.

**5.3 Steam**

Plant consumption : 800 Kg per hour.

The plant shall be supplied by the boilers of the existing dehydration plant (See Annex III).

Steam equipments will only include insulated pipes and their supports for supply of the new plant from the existing boilers.

.../...

5.4 Electricity

5.4.1 Installed capacity

. Fruits, vegetables and tubers pulp processing line	45 KW
. Drying line	45 KW
. Packaging line	15 KW
. Utilities	50 KW
. Laboratory and building lighting	30 KW
. Air conditioning for laboratory, packaging room, offices	45 KW
. Maintenance shop	20 KW

---

TOTAL..... 250 KW

5.4.2 Electricity supply equipment

- . Transformer
- . Low Voltage Panel
- . Process control panel
- . All wiring from the panels to the lines.
- . Standby generator : 225 KVA.

.../...

VI - Laboratory equipment

It will include all necessary equipments to carry out physico-chemical and bacteriological analysis of raw materials and end products.

.../...

**VII - Buildings - Infrastructures**

The plant shall be located in the area II (about 3,000 sq. meters) of the existing dehydration plant (See Annex II). All major facilities shall hence be already existing.

The offices and laboratory shall be located in the existing B and C buildings (See Master Plan - Annex III) and shall cover about 80 sq. meters.

A building of approximately 1,080 sq. meters (i.e. 45 x 24m) shall house processing equipments, utilities complementary to the already existing as well as the storage of raw material and end-products :

- . Raw materials and input storage..... 220 sq. meters
- . Processing room ..... 220 sq. meters
- . Flaking, storage and packaging room..... 200 sq. meters
- . Packaging materials storage..... 140 sq. meters
- . End products storage..... 105 sq. meters
- . Utilities - Spare parts storage.... 170 sq. meters
- . Toilets - Changing room..... 25 sq. meters

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Some rooms shall be fitted with special equipments :

- . Processing room..... Steam extractor  
Air filtering equipment
  
- . Flaking - storage and packaging  
room..... Air conditioning system (+ 20 ° C)
  
- . Laboratory..... Air conditioning system (+ 20 ° C)
  
- . Offices..... Air conditioning system (+ 20 ° C)



## C - FINANCIAL AND ECONOMIC STUDY

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### 1. ECONOMIC CONTEXT AND BASIC DATA

#### 1.1 Currency

The project is assessed in the Thai national currency, i.e. the Bath, which exchange rate into French Francs has been as follows :

##### Exchange rate of Bath for 1 French Franc

1984	1985	1986	1.6.87	25.4.89
2.70	3.04	3.74	4.23	4.05

The following rate is considered in all calculations herein :

4 BATHS = 1 F.F.

It must be stressed that the major part of investments (73 %) has been quoted in French Francs and then converted into Baths, which implies that any major exchange rate fluctuation shall have to be taken into account when settling investment and financing matters. The effects on operation shall have to be studied also.

#### 1.2 Taxation

##### 1.2.1 General tax system in Thailand

The general tax system in Thailand is described in the ANNEX I (Extract from a note of the "International Legal Counsellors Thailand Ltd." written in French and a note - no indication of origin - in English).

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### 1.2.2 The B.O.I. system applicable to the project

The activity concerned by the present study is subject to a special tax system ("Investment Promotion Act" of 1977) with prior approval by the "BOARD OF INVESTMENT" (See Annex II : Extract from "A Guide to Investing in Thailand" published by "The Office of the Board of Investment" March 1988).

The proposed activity uses national farm products and transforms them; it appears therefore quite certain that the relevant legal or tax advantages are granted (provided however that official agreement procedures have been duly followed). In the present case, the following conditions are therefore assumed as prevailing :

- . Tax exemption on imported material,
- . Corporate income tax exemption for a period of 8 years.
- . As for business tax, the proposed activity shall be liable for a tax amounting from 1 to 40 % (See Annex I). For the products concerned, such tax amounts to 7 % + 10 % = 7.7 %.

### 1.3 Charges on salaries and wages

They amount to 5 % of the amount of salaries.

### 1.4 Other regulations

There exists no specific Thai law relating to prices or profit margins in Thailand.

.../...

### 1.5 Realization planning - Progression to operating conditions

The manufacturing plant shall be built within one year. The full operating conditions shall be attained according to the following progression schedule :

	%	Infant flours	Fruit flakes
. YEAR 1	50 %	125 Tons	75 Tons
. YEAR 2	100 %	250 Tons	150 Tons

This simplified hypothesis assumes major efforts in terms of sales promotion on the local market as well as the export market, from the first year of project completion.

### 1.6 Budget assessment method - Basic assumptions

The project budget assessment takes into account the advantages resulting from the B.O.I. official agreement. The amounts are quoted free of tax on turnover.

Regarding Instant Baby foods, it is impossible to obtain an accurate market study which cost is included in the first settlement expenses, and which is dependent on the production planning, formula by formula. It appears furthermore probable that formulas shall be of the European type in the beginning and gradually replaced by other types defined according to the valorization of national raw materials.

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Our approach has been consequently based on average estimates computed on a sample of four finished products, average regarding both procurement price and actual cost with various packing types.

Our hypothesis assumes that half of the Instant baby food production shall be milk flour and the other half shall be fruits and vegetables compositions. Besides, half the finished products are assumed to be packed in 200 g bags and the other half in 30 g bags.

Regarding dehydrated fruit flakes, the distribution of volumes of production among the various fruits (114 tons of bananas and 36 tons of mango, passion fruit, pineapple & papaya) is also theoretical. It is based - apart from fruits availability - on the fact that the only market currently existing is that of bananas and that 110 tons can be easily marketed by the European partner of the project, whereas the market of flakes using other exotic fruits remains to be created. Actually, the distribution considered herein is bound to change with time and other raw materials shall be also introduced later on.

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**2. INVESTMENTS - FINANCING**

**2.1 Investments**

Investments include the supply of equipments as well as :

Transport of material and equipment to the site, engineering, know-how, erection of installations, plant start-up.

The purchasing value of the land area is not included because SAMROIYOD agrees to let the land area at free disposal.

Designation	Imported 10 <sup>3</sup>		Local 10 <sup>3</sup> Baths	Total Baths	Amortization
	F.F.	Equivalent in Baths			
. Land area			-		
. Building			8,280	8,280	20 years
. Equipments (Start-up)					
. Reception/preperation line	1,550	6,200	1,320	7,520	10 years
. Drying/flaking	7,530	30,120		30,120	10 years
. Temporary storage			1,320	1,320	10 years
. Conditioning	2,200	8,800	200	9,000	10 years
. Labo. equipment			1,280	1,280	10 years
. Utilities			1,200	1,200	10 years
. Miscellaneous			1,300	1,300	10 years
. Transport from Bangkok			1,000	1,000	10 years
. Office furniture & equipment			100	100	5 years
. Vehicules			800	800	5 years
<b>TOTAL AMOUNT</b>	<b>11,280</b>	<b>45,120</b>	<b>16,800</b>	<b>61,920</b>	
rounded off to.....				62,000	

.../...

## 2.2 Working capital required

The amount of working capital required is assessed to the value of three months' turnover, i.e. 5.3 millions of Baths in first year and 10.6 millions of Baths in second year.

## 2.3 First settlement cost

Initial expenses of first settlement include the cost of the market survey of baby foods in Thailand, the cost of corporation setting-up, operating fixed costs for two months before plant start-up and interim interests (year of plant erection).

Provided that promoters bring in own resources amounting to 35 % of total financing, requiring a loan with a 12 % interest rate for the remaining 65 %, initial expenses may be distributed as follows :

Designation	F.F. 10 <sup>3</sup>	Equivalent in Baths 10 <sup>3</sup>	Amortization
. Market survey	600	2,400	5 years
. Corporation setting-up	50	200	5 years
. Fixed costs before operation		200	
. Interim loan interests*		4,600	
. TOTAL AMOUNT.....		7,400	

\* Initially approximated to 2/3 of annual interests.

.../...

## 2.4 Financing requirements and financing sources

Total financing requirements are assessed to 80 millions of Baths in normal year (Investments + working capital). Because of the progressiveness of working capital requirements which can be partly self-financed by the unit, 25 millions shall be brought in as own resources + 3 millions self-financed (i.e. 28 millions of Baths are covered by own resources allowing to abide by a 35 % ratio of total share financed by own resources). A complementary credit of 52 million Baths is therefore necessary.

Investments.....	69,400
Working capital required in 1st operating year....	5,300
Working capital required in 2nd operating year.... (additional)	5,300
	-----
TOTAL AMOUNT.....	80,000
Own resources input.....	25,000
Long Term Credit.....	52,000
Self-financing.....	3,000
	-----
TOTAL AMOUNT.....	80,000
TOTAL AMOUNT OWN RESOURCES.....	28,000
Percentage of own resources in total requirements.	35 %

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## 2.5 Amortization of investments

	Amount 10 <sup>3</sup>	%	Annual amortization during the five first years
. Buildings	8,280	5	414
. Equipment over 10 years	52,740	10	5,740
. Equipment over 5 years	300	20	180
. First settlement expenses over 5 years	7,400	20	1,480
<b>TOTAL AMOUNT</b>	<b>69,320</b>		<b>7,814</b>

## 2.6 Loan redemption and financial costs

10 <sup>3</sup> Baths	0	1	2	3	4	5	6
. Payment	52,000						
. Principal reimbursement beginning of period			10,400	10,400	10,400	10,400	10,400
. Balance due beginning of period	52,000	41,600	31,200	20,800	10,400	0	
. Financial interests (12%)	4,600	6,240	4,992	3,744	2,496	1,248	0
Management commission 0.25%	130						
Commitment commission 0.50%	260						

.../...



### 3. TURNOVER ASSESSMENT

#### 3.1 Instant baby food - unit prices

Prices are quoted free of tax and the normal annual output is supposed to amount to 250 tons produced, including 190 tons of milk flours and 120 tons of various fruits and vegetables compositions. Such products are conditioned in 200 g bags for the one half and in 30 g bags for the other half.

The prices considered are meant for products delivered to Bangkok exclusive of distribution margin which have been indicated as most likely and which were further confirmed by some price enquiries carried out on the retail market.

#### 3.2 Dehydrated fruit flakes - unit prices

Prices considered are those of the world market, valid on the date of edition of the present report (F.O.B. prices).

. Banana.....	14 F.F.
. Pineapple.....	30 F.F.
. Mango.....	48 F.F.
. Papaya.....	54 F.F.
. Passion fruit.....	50 F.F.

.../...

## 3.3 Turnover forecast

	Unit Quantity Normal year	Unit Value Baths	Turnover 10 <sup>3</sup> Baths
<b>. Baby food</b>			
- Diastase rice cream 130 T			
. 200 g : 65 T	325,000	16	5,200
. 30 g : 65 T	2,167,000	3.5	7,584
- Fruits 40 T			
. 200 g : 20 T	100,000	26	2,100
. 30 g : 20 T	667,000	5	3,335
- Rice & carrots 40 T			
. 200 g : 20 T	100,000	19	1,900
. 30 g : 20 T	667,000	5.4	3,602
- Vegetables 40 T			
. 200 g : 20 T	100,000	24	2,400
. 30 g : 20 T	667,000	5	3,335
- BABY FOOD TOTAL TURNOVER.....			29,456
<b>. Dehydrated fruit flakes</b>			
	Quantity T	FOB Value	Turnover 10 <sup>3</sup> Baths
- Banana 114 T	114 T	56	6,384
- Pineapple 9 T	9 T	120	1,080
- Mango 9 T	9 T	192	1,728
- Papaya 9 T	9 T	216	1,944
- Passion fruit 9 T	9 T	200	1,800
- DEHYDRATED FRUIT FLAKES TOTAL TURNOVER.....			12,936
- TOTAL TURNOVER.....			42,392
- % EXPORT.....			30 %

.../...

In the first manufacturing year, the turnover shall amount to half the figure indicated before for each product category.

.../...

#### 4. OPERATING COST ESTIMATES - UNIT COSTS

##### 4.1 Raw materials

##### 4.1.1 Instant baby food

The cost of raw materials is based on formulas of instant baby foods manufactured in Europe.

Such formulas - with technical ratios very well known - are used as basic hypothesis.

The actual operation shall be orientated, in as far as possible, towards the substitution to their respective raw materials for products locally available.

Approximately 1.2 tons of raw materials shall be required for 1 ton of baby food finished products, manufactured within one working day of 8 hours (i.e. 250 T per year).

Basic raw materials as the following :

- Flour : wheat, rye, soya.
- Rice - tapioca - barley.
- Malt extract
- Wheat germs
- Lactose
- Saccharose
- Vegetable fats
- Dicalcic phosphate
- Vitamins
- Ethylvanillin

.../...

- Milk powder
- Malt-dextrin
- Powders : Lemon - Spinach - Tomato - Banana - Parsley -  
Carrot, etc...
- Various additives (iron ore)

Instant baby foods to be produced shall be gradually manufactured from national raw materials and adapted to the local demand.

The costs of raw materials used by basic formulas taken into account in the present study are as follows (in Baths) :

	For 1 Kg	For 100 g	For 30 g
- Diastase rice cream	13.64	2.73	0.41
- Fruit mixture	59.55	11.91	1.79
- Rice - carrots	30.4	6.08	0.92
- Vegetable mixture	50.02	10	1.5

.../...

#### 4.1.2 Dehydrated fruit flakes

The cost of raw materials (fruits) necessary for the production of dehydrated fruit flakes involves several elements :

- . Price off field
- . Cost of transport
- . Losses and miscellaneous
- . Yield of raw material (quantity of fresh product for one kilo of dry product)
- . Prices of fresh products and transport are averaged from prices indicated in Annex 2 of the project, except for bananas which are subject to a harsh competition and for which the unit shall be using the lowest priced raw materials.
- . Yields taken into account are averaged. It shall be therefore necessary to check, upon very first manufacturing tests, if the results actually obtained are the same and if not, to modify accordingly costs calculations.

The cost of fruit flakes raw materials shall therefore be as follows :

Product	Finished Product*	Raw Mat. Fresh Prod.*	Yield	Fresh Product Price (B)		Price of raw mat. by kg fin. product
				Range	Average	
. Banana	114	760	6.7	2.5	2.5	16.75
. Pineapple	9	138	15.3	1.8/2.6	2.2	33.70
. Mango	9	60	6.7	2.5/5.5	4	26.80
. Papaya	9	120	13.3	2.5/3	2.75	36.6
. Passion fruit	9	170	18.9	3	3	56.7

\* : in tons

Additive : The cost of additive by kilogram of dehydrated flakes which should be further added amounts to : 6 Baths/Kg.

.../...

## 4.2 Packing

### 4.2.1 Instant baby food

Instant baby foods shall be conditioned in unit packings of 200 g and 30 g.

30 g bags should normally be sold as such to consumers. However, an intermediate conditioning gathering 5 or 10 bags might be adopted, according to the market survey results.

300 g bags shall be overpacked in polychrome individual carton boxes which shall be also overpacked with a pryphane film.

30 and 200 g bags shall be overpacked in cardboard boxes enclosing a number of units deemed as the most convenient one for distributors and possibly opening in the shape of a display stand (to be determined according to market survey).

Costs taken into account are meant delivered to the plant.

- 200 g conditioning..... 2.44 Baths
- 30 g conditioning..... 1 Bath

.../...

### 4.2.2 Dehydrated fruit flakes

They are packed in polypropylene bags of 20 Kg overpacked by pair of bags in cardboard boxes of 40 Kg each.

The cost of this conditioning amounts to 1.34 Baths/Kg of dehydrated product.

All these conditionings are produced in Thailand.

## 4.3 Labour costs

### 4.3.1 Personnel requirements and unit costs

EXECUTIVE PERSONNEL	Salary per month	Social charges	Other charges	Total Baths per month
1 General manager	15,000	5 %	5,000	20,750
1 Head of Procurement Dept.	6,000	5 %	1,000	7,300
0.5 Head of Laboratory (1)	6,000	5 %		6,300
1 Laboratory assistant	3,000	5 %		3,150
0.5 Chief accountant (1)	5,000	5 %		5,250
1 Junior accountant	3,000	5 %		3,150
2 Secretaries	6,000	5 %		6,300
2 Storekeeper	2,500	5 %		2,625
2 Maintenance technicians	5,000	5 %		5,250
<b>MANUFACTURING SHIFT PERSONNEL</b>				
3 Foremen	3,000	5 %		3,150
10 Skilled workers	2,000	5 %		2,100
25 Unskilled workers (2)	57/day	5 %		60/day

(1) These functions shall be shared between SAMROIYOD and the new plant.

(2) Varying according to productions.

.../...



87 new jobs shall hence be created. The output shall be achieved over 250 days/year - 11 months - i.e. 4,000 working hours (2 shifts of 8 hours each).

10 % of this time shall be considered as spent on cleaning. The effective number of production hours shall consequently amount to 3,600 hours.

4.3.2 Cost of salaries

<u>EXECUTIVE PERSONNEL</u>	(Baths)
. General manager	248,000
. Head of Procurement Department	87,600
. Head of Laboratory	75,600
. Chief accountant	31,500
. Junior accountant	37,800
. Secretaries	151,200
. Storekeeper	63,000
. Maintenance technician	126,000
	<hr/>
AMOUNT.....	821,700
 <u>MANUFACTURING PERSONNEL (2 SHIFTS)</u>	
. Foremen	226,800
. Skilled workers	504,000
- Unskilled workers	750,000
	<hr/>
AMOUNT.....	1,480,800
	<hr/>
TOTAL AMOUNT.....	2,302,500
	=====

The total annual amount of salaries and charges rises to 2,302,500 Baths.

The direct cost of production labour (computed on a basis of 3,600 hours) amounts to 412 Baths/hour.

Concerning fruit dehydration, 412 Baths per hour shall correspond to 700 Kg of raw material.

The yield capacity of each variety of fruit shall be taken into account in computing the labour cost to be allocated to each type of finished product.

#### 4.3.3 Training requirements

It should be stressed that the investments of the project include transfert of technological know-how and start-up of installations (See Chapter 2.2) which both include local personnel training.

A special budget of technical assistance shall be further added during the two first operating years, providing for 4 annual visits of 2 weeks each (See Chapter 6).

The training of locally employed staff shall be carried out during such periods, with help of foreign participants in the missions.

.../...

## 4.4 Utilities

### 4.4.1 Instant baby food

The utilities consumption required for 8 1/2 manufacturing hours is assessed as follows :

. Electric power	75 KWh x 8.5 x 1.69 Bath/h	1,080 B
. Water	20 m <sup>2</sup> x 9.41 Baths	190 B
. Fuel oil	estimated to	3,520 B

---

AMOUNT FOR 8 1/2 working hours..... 4,790 B

### 4.4.2 Dehydrated fruit flakes

The dehydration of 10 Kg of fresh fruit requires the following consumption of utilities :

. Electric power	0.60 KWh x 1.69 B/KW	1,014 B
. Water	50 liters - 9.41 Bath/m <sup>3</sup>	470 B
. Fuel oil	0.75 Kg - 3.15 Baths/Kg	2,362 B

---

AMOUNT FOR 10 Kg of fresh fruit..... 3,846 B

Differences in yield capacities according to fruit varieties should be also taken into account in computing the consumption of utilities required, such consumption decreasing as the yield capacity increases.

.../...

## 4.5 Products marketing - Promotion

### 4.5.1 Instant baby food

In addition to the marketing survey budget provided for in the financing of first settlement expenses, and amounting to 600,000 F.F., a commission fee rising to 6 % of selling prices shall be included for covering sales marketing and promoting.

### 4.5.2 Dehydrated fruit flakes

A 3 % commission of F.O.B. prices is provided for, as it is commonly done for such sales.

## 4.6 Maintenance

Buildings and equipments maintenance costs account for 1 % of the corresponding investments and are therefore assessed to 620,000 Baths/year.

## 4.7 Overheads

Management costs are provided for as follows :

. Telephone, telex, fax.....	400,000 B
. Office stationery.....	50,000 B
. Miscellaneous.....	100,000 B
	<hr/>
TOTAL AMOUNT.....	550,000 Baths

.../...

## 5. UNIT COSTS

### 5.1 Fixed costs with breakdown

A distinction is made, for each type of product, between direct cost and fixed charges. Fixed charges to each product in proportion to the turnover.

The calculation is based on the second operating year which corresponds to the unit's first year of full capacity. The second year is also the year of highest financial costs and consequently of highest product cost in normal year.

Total fixed charges are the following :

. Cost of salaries (Executive personnel).....	821	10 <sup>3</sup>	Baths
. Maintenance.....	620	10 <sup>3</sup>	Baths
. Overheads.....	550	10 <sup>3</sup>	Baths
. Financial costs.....	4,992	10 <sup>3</sup>	Baths
. Amortization.....	7,814	10 <sup>3</sup>	Baths

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FIXED COSTS TOTAL AMOUNT..... 14,797 10<sup>3</sup> Baths

### 5.2 Instant baby food

The four major types of products are studied hereafter.

.../...

### 5.2.1 Diastase rice creams

1,400 Kg of raw material allow to obtain 1,275 Kg of finished product within 8.30 working hours.

	by Kg (1)	200 g	30 g
<b>DIRECT COSTS</b>			
. Raw material	13.64	2.73	0.41
. Utilities	3.76	0.75	0.11
. Direct labour	2.75	0.55	0.08
. Packing		2.44	1
. Transport to Bangkok		0.05	0.01
. Trading expenses		0.9	0.21
<b>DIRECT COSTS TOTAL AMOUNT</b>		7.42	1.82
<b>UNIT FIXED COST</b>		5.58	0.36
<b>FULL UNIT COST</b>		13	2.18
<b>SELLING PRICE</b>		16	3.5

(1) : For the record only.

.../...

## 5.2.2 Fruit mixtures

1,770.8 Kg of raw material allow to obtain 1,275 Kg of finished product within 8.30 working hours.

	by Kg(1)	200 g	30 g
<b>DIRECT COSTS</b>			
. Raw material	59.55	11.91	1.79
. Utilities	3.76	0.75	0.11
. Direct labour	2.75	0.55	0.08
. Packing		2.44	i
. Transport to Bangkok		0.05	0.01
. Trading expenses		1.56	0.3
<b>DIRECT COSTS TOTAL AMOUNT</b>		<b>17.26</b>	<b>3.29</b>
<b>UNIT FIXED COST</b>		<b>7.32</b>	<b>1.67</b>
<b>FULL UNIT COST</b>		<b>24.58</b>	<b>4.96</b>
<b>SELLING PRICE</b>		<b>26</b>	<b>5</b>

.../...

## 5.2.3 Rice - carrots

1,660 Kg of raw material allow to obtain 1,361 Kg of finished product within 8.30 working hours.

	by Kg (1)	200 g	30 g
<b>DIRECT COSTS</b>			
. Raw material	30.4	6.08	0.92
. Utilities	3.52	0.7	0.10
. Direct labour	2.57	0.51	0.08
. Packing		2.44	1
. Transport to Bangkok		0.05	0.01
. Trading expenses		1.14	0.33
<b>DIRECT COST TOTAL AMOUNT</b>		10.92	2.44
<b>UNIT FIXED COST</b>		6.35	1.88
<b>FULL UNIT COST</b>		17.27	4.32
<b>SELLING PRICE</b>		19	5.4

.../...



### 5.2.4 Vegetable mixtures

1,332.20 Kg of raw material allow to obtain 1,159 Kg of finished product within 8.30 working hours.

	by Kg (1)	200 g	30 g
<b>DIRECT COSTS</b>			
. Raw material	50.02	10	1.5
. Utilities	4.13	0.83	0.13
. Direct labour	3.02	0.6	0.09
. Packing		2.44	1
. Transport to Bangkok		0.05	0.01
. Trading expenses		1.44	0.20
<b>DIRECT COST TOTAL AMOUNT</b>		<b>15.36</b>	<b>3.03</b>
<b>UNIT FIXED COST</b>		<b>2.02</b>	<b>1.74</b>
<b>FULL UNIT COST</b>		<b>23.38</b>	<b>4.77</b>
<b>SELLING PRICE</b>		<b>24</b>	<b>5</b>

.../...

## 5.3 Dehydrated fruit flakes

Bath per kg	BANANA	PINEAPPLE	MANGO	PAPAYA	PASSION FRUIT
<b>DIRECT COSTS</b>					
. Raw material	16.75	33.70	26.80	36.6	56.7
. Utilities - Fuel oil	1.58	3.61	1.58	3.14	4.47
- Electric power	0.68	1.55	0.68	1.35	1.92
- water	0.31	0.72	0.32	0.63	0.89
. Additives	6	6	6	6	6
. Direct labour	3.95	9.03	3.95	7.85	11.15
. Packing	1.34	1.34	1.34	1.34	1.34
. Transport, FOB delivery	0.33	0.33	0.33	0.33	0.33
. Trading expenses	1.68	3.6	5.76	6.48	6
<b>DIRECT COSTS TOTAL AMOUNT</b>	<b>32.62</b>	<b>59.88</b>	<b>46.76</b>	<b>63.72</b>	<b>88.9</b>
<b>UNIT FIXED COST</b>	<b>19.54</b>	<b>41.88</b>	<b>67.00</b>	<b>75.38</b>	<b>70.87</b>
<b>FULL UNIT COST</b>	<b>52.16</b>	<b>101.76</b>	<b>113.76</b>	<b>139.10</b>	<b>159.67</b>
<b>F.O.B. SELLING PRICE</b>	<b>56</b>	<b>120</b>	<b>192</b>	<b>292</b>	<b>200</b>

.../...

#### 5.4 Results valuation

The present analysis of production costs by major fruit families shows a profitability of all products to be manufactured in the proposed unit. This remains true also in the second operating year when costs are at their peak levels owing to financial costs.

It should be stressed however, that these calculations remain theoretical because product compositions, compositions respective distribution within productions, as well as packing are likely to be changed according to the results of the market survey and to be adapted to national raw material productions.

Concerning dehydrated fruit flakes, yield figures taken into account are average figures and should be checked as soon as the unit is put into operation.

.../...

## 6. ESTIMATED WORKING ACCOUNTS OVER FIVE YEARS

During the first year, productions shall be only half those of following years. However, Right from the first year, the activity shows a significant Self-Financing Gross Margin (1.3 Million Baths) and a major net result (5 Million Baths) in the second year, improving each year onwards.

For all products as a whole, the profitability break-even point is reached - right from the second year - at approximately 210 tons, i.e. twice the planned schedule of the proposed unit.

5 year working accounts are as described on the table hereafter.

.../...

103 BATHS Suite 3107e	1	2	3	4 <b>Emi</b>	5
<b>TURNOVER</b>					
. Instant baby food turnover	14,728	29,456	29,456	29,456	29,456
. Fruit flakes export turnover	6,478	12,936	12,936	12,936	12,936
<b>TOTAL TURNOVER</b>	<b>21,196</b>	<b>42,392</b>	<b>42,392</b>	<b>42,392</b>	<b>42,392</b>
<b>VARIABLE CHARGES ON BABY FOOD</b>					
. Raw material	3,496	6,992	6,992	6,992	6,992
. Utilities	473	945	945	945	945
. Direct labour	346	692	692	692	692
. Packing	2,846	6,693	5,693	5,693	5,693
. Transport to Bangkok	37	73	73	73	73
. Trading expenses	644	1,288	1,288	1,288	1,288
<b>TOTAL AMOUNT OF VARIABLE CHARGES ON BABYFOOD</b>	<b>7,842</b>	<b>15,683</b>	<b>15,683</b>	<b>15,683</b>	<b>15,683</b>
<b>VARIABLE CHARGES ON FLAKES</b>					
. Raw material	1,647	3,293	3,293	3,293	3,293
. Utilities	240	481	481	481	481
. Additives	450	900	900	900	900
. Direct labour	369	738	738	738	738
. Packing	101	201	201	201	201
. Transport, FOB delivery	25	50	50	50	50
. Overheads	194	388	388	388	388
<b>FLAKES VARIABLE CHARGES TOTAL AMOUNT</b>	<b>3,026</b>	<b>6,051</b>	<b>6,051</b>	<b>6,051</b>	<b>6,051</b>
<b>VARIABLE CHARGES TOTAL AMOUNT</b>	<b>10,868</b>	<b>21,734</b>	<b>21,734</b>	<b>21,734</b>	<b>21,734</b>
<b>FIXED CHARGES</b>					
. Maintenance	620	620	620	620	620
. Executive staff	822	822	822	822	822
. External assistance *	800	800			
. Overheads	550	550	550	550	550
. Financial costs	6,240	4,992	3,744	2,496	1,248
<b>FIXED CHARGES TOTAL AMOUNT WITHOUT AMORTIZATION</b>	<b>9,032</b>	<b>7,784</b>	<b>5,730</b>	<b>4,488</b>	<b>3,240</b>
<b>CHARGES TOTAL AMOUNT WITHOUT AMORTIZATION</b>	<b>19,900</b>	<b>29,518</b>	<b>27,464</b>	<b>26,222</b>	<b>24,974</b>
<b>SELF-FINANCING GROSS MARGIN</b>	<b>1,296</b>	<b>12,874</b>	<b>14,928</b>	<b>16,170</b>	<b>17,418</b>
<b>AMORTIZATION</b>	<b>7,814</b>	<b>7,814</b>	<b>7,814</b>	<b>7,814</b>	<b>7,814</b>
<b>NET RESULT</b>	<b>6,518</b>	<b>5,060</b>	<b>7,114</b>	<b>8,356</b>	<b>9,604</b>

\* An external technical assistance program is provided for during the two first operating years, with a budget amounting to 200,000 F.F. per year, including 4 annual visits of 2 weeks each, and being used as personnel training as well.

.../...

## 7. FINANCING SCHEDULE

The financing schedule includes a financing of own resources amounting to 28 million Baths, i.e. 35 % of total financing requirements (Investments, realty and working capital for cruise years).

The initial financial supply amounts to 25 million Baths, the 3 additional millions corresponding to self-financing of part of the increase of working capital required.

Thanks to its high self-financing gross margin, the company shall be in a position to self-finance the working capital's increase, while facing the reimbursement of its long term credit.

Right from the 3rd operating year, dividends on profits left in the second year shall be paid (Assumption : 20 % of net profits).

Estimated financing schedule : See table on next page.

.../...

ESTIMATED FINANCING SCHEDULE (10<sup>3</sup> Baths)

(1) for the record only.

	0	1	2	3	4	5	6
<u>Assignment</u>							
- Investments							
. Buildings	8,280						
. Equipments	53,720						
. Settlement expenses	7,400						
	-----						
SUB/TOTAL.....	69,400						
- Working Capital		5,300	5,300				
- L.T. Credit reimbursement			10,400	10,400	10,400	10,400	10,400
- Dividends (20% of net profits)				1,010	1,420	1,670	1,920
- Corporate Tax (1)							
<b>ASSIGNMENTS AMOUNT</b>	<b>69,400</b>	<b>5,300</b>	<b>15,700</b>	<b>11,410</b>	<b>11,820</b>	<b>12,070</b>	<b>12,320</b>
<u>RESOURCES</u>							
- Own resources	25,000						
- Self-financing gross margin	-	2,296	12,874	14,928	16,170	17,418	18,666
- Long Term credit	52,000						
- Short term credit	-						
<b>RESOURCES AMOUNT</b>	<b>77,000</b>	<b>1,296</b>	<b>12,874</b>	<b>14,928</b>	<b>16,170</b>	<b>17,418</b>	<b>18,666</b>
<b>BALANCE</b>	<b>7,600</b>	<b>(4,004)</b>	<b>(2,826)</b>	<b>3,518</b>	<b>4,350</b>	<b>5,348</b>	<b>6,346</b>
<b>CUMULATIVE BALANCE</b>	<b>7,600</b>	<b>3,596</b>	<b>770</b>	<b>4,288</b>	<b>8,638</b>	<b>13,986</b>	<b>20,332</b>



## 8. ECONOMIC AND SOCIAL INTEREST OF THE PROJECT, PROFITABILITY AND CONCLUSIONS.

The economic and social interest of this project is unquestionable, because the project allows to :

- . Satisfy local nutritional needs while valorizing a farm raw material and creation products that can be used as substitutes to imported products.
- . Realize one third of the unit's turnover in exports.
- . Create 87 permanent jobs.
- . Attain a noticeable profitability, provided main assumptions of the present study are confirmed, thanks to the following :
- . Positive self-financing gross margin right from first operating year.
- . Net profit/Turnover ratio = 12 % in second operating year, 23 % in fifth year.
- . Invested capital rotation : 0.61
- . Return on investment . after a little more than 5 years (Cumulative self-financing gross margin of 63 million Baths for 69 million Baths invested.

.../...

These achievements are performed with a cautious cruise production equal to approximately 60 % of the unit's nominal capacity.

The profitability might be highly improved, according to the market trends - of dehydrated fruit flakes in particular - without any further investment.

To conclude with, we recommend the implementation of the present project.

However, owing to the specificity of products and markets, it appears essential to consider a partnership between the project promoters and a European firm specialized in such products so as to assure a successful realization.

A significant partnership based on reciprocal commitment of involved parties may reserve to the French group a share of 30 to 35 % of the registered capital.

9. LIST OF APPENDED DOCUMENTS

ANNEX (I) : TAX SYSTEM IN THAILAND.

I/A - Extract from a note of the "International Legal  
Counsellors Thailand, Ltd." in French.

I/B - Note in English, no indication of origin.

ANNEX (II) : SPECIAL SYSTEM

Extract from "A Guide to Investing in Thailand" published  
by the Office of the Board of Investment (March 1988).

ANNEX (III) : CHAPTER 8 (GENERAL CONCLUSION) IN FRENCH.

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### Les impôts

La société en question doit tenir compte de 4 sortes d'impôts : l'impôt sur le revenu des personnes physiques, l'impôt sur le revenu des sociétés, l'impôt sur le chiffre d'affaire et l'impôt sur l'envoi de fonds en pays étranger.

#### (a) l'impôt sur le revenu des personnes physiques (personal income tax)

Un individu qui réside en Thaïlande pour une période excédant 180 jours dans une quelconque année fiscale est considéré comme habitant en Thaïlande. Il doit verser l'impôt sur le revenu dérivant de son travail en Thaïlande. Le taux du dit impôt est nivelé jusqu'à 65% .

#### (b) l'impôt sur le revenu de la société (corporate income tax)

Les sociétés commerciales qui sont constituées selon la loi thaïe sont redevables de l'impôt sur le revenu de la société. En outre, les sociétés qui sont constituées selon la loi étrangère sont aussi redevables de l'impôt sur le revenu de la société si celles-ci font des affaires en Thaïlande et obtiennent un revenu dérivant des dites affaires.

L'impôt sur le revenu de la société est basé sur le revenu net de la société durant l'année fiscale. La société commerciale doit être soumise à l'impôt de 40% sur le revenu net. Dans la détermination du «revenu net», les dépenses des affaires et les réductions de dépréciation (depreciation allowances) pour un taux de 5% peuvent être déduites. Par ailleurs, les déficits nets (net losses) peuvent être reportés pendant 5 années fiscales de suite.

La feuille de déclaration d'impôt doit être soumise au fonctionnaire concerné dans un délai de 150 jours à compter de la fin de la période de comptabilité du contribuable.

#### (c) L'impôt sur le chiffre d'affaire (business tax)

Tous les commerçants doivent soumettre une demande pour l'enregistrement de l'impôt sur le chiffre d'affaire dans une période de 30 jours à partir du commencement de leurs affaires. L'impôt sur le chiffre d'affaire est exigible aux catégories d'activités au tableau d'impôt annexé au code fiscal.

La feuille de déclaration d'impôt sur le chiffre d'affaire doit être mensuellement soumise le 15 du mois suivant.

INTERNATIONAL LEGAL COUNSELLORS THAILAND LTD.  
 • KAPLAN, RUSSEN & VECCHI •

Tableau abrégé de l'impôt sur le chiffre d'affaire

<u>la catégorie d'activités</u>	<u>le taux</u>	<u>le contribuable</u>
1. vente de marchandises	01-40%	vendeur, importeur ou producteur dirigeant
2. scierie	4.0%	dirigeant
3. louage d'ouvrage (hire of work)	3.0-5.0%	entrepreneur
4. location de bien mobilier	2.5%	bailleur
5. entrepôt	2.5%	dirigeant
6. hôtel, restaurant, boîte de nuit	2.0-15%	dirigeant
7. transport	0.5%	dirigeant
8. prêt sur gage	2.5%	dirigeant
9. Courtage et l'intermédiaire (brokerage and agency)	5.5%	courtier, intermédiaire
10. vente de profession ou pour le bénéfice sur le bien immobilier	3.5%	vendeur
11. banque	3.0-15.0%	dirigeant
12. assurance	2.5-3.0%	assureur

(d) l'impôt sur l'envoi de fonds en pays étranger (tax on remittance aboard)

L'envoi de fonds en pays étranger doit obtenir l'approbation de contrôle des changes. Par conséquent, l'envoi de fonds en pays étranger ne sera pas approuvé s'il n'y a pas justification de l'assujettissement à l'impôt. La société qui envoie des fonds représentant des bénéfices doit être normalement soumise à un impôt de 25% sur la somme de bénéfice net en plus de l'impôt sur le revenu de la société. De toute façon, pour trouver le bénéfice net, une déduction de 40% est admise selon la loi thaïe.

# TAXATION

## Taxes on Income under the Revenue Code

The principal taxation law in Thailand is the Revenue Code (the "Code"), which imposes taxes on income other than income subject to the Petroleum Income Tax and also imposes a stamp duty on certain documents.

The Code prescribes three classes of taxes on income. The first class of income tax is the corporate income tax, and is applicable to companies (including branches of foreign corporations), registered ordinary partnerships, registered limited partnerships, foundations, associations, certain joint ventures between two or more companies or partnerships or between companies or partnerships and individuals. Business activities of foreign governments or their agencies may also be deemed those of a company for the purposes of the Code. The second class of tax is the personal income tax, applicable to individuals. All income as defined by the Code as being taxable is taxed at the ordinary income rates prescribed for each of the two preceding classes after allowance is made for applicable deductions, allowances and exemptions. Some capital gains are treated as taxable income. Individual taxpayers may, however, elect to pay a separate capital gains tax for income derived from selling immovable property provided that the property was not acquired for business or on speculation for resale purposes. The third class of tax is a business (sales) tax, based on the gross receipts derived from most business activities conducted in Thailand, at rates depending upon the classification of the activity.

The remittance or retention abroad of profits by companies and juristic partnerships is subject to additional income taxes. Certain payments made to non residents, including foreign companies not doing business in Thailand, (for example, dividends, interest, royalties and fees) are subject to income tax withholding.

The Civil and Commercial Code and The Accounts Act (N.E.C. Announcement No. 285) establish requirements for the keeping of books of account and supporting documents. Copies of a company's balance sheet and profit and loss statement must be filed annually with the Registry of Partnerships and Companies, Department of Commercial Registration and must also be filed with the Revenue Department within one month after the taxpayer's year-end financial statements are approved by the Annual General Meeting of the company's shareholders. All balance sheets and profit and loss accounts so submitted must be certified by a licensed Thai auditor.

**CORPORATE INCOME TAX:** Ordinarily companies and other entities treated as companies for tax purposes pay income tax at the rate of 35% of net profits. "Registered" companies listed on the Securities Exchange of Thailand pay a reduced rate of 30% of net profits. Foundations and associations engaging in business activities pay tax at the rate of 10% of gross business income (reduced to 2% for certain types of income). Companies engaged in the business of international transport pay (subject to the effect of relevant avoidance of double-taxation treaties) 3% of gross ticket receipts collected in Thailand for transporting of passengers and 3% of gross freight charges collected for the transportation of goods from Thailand in lieu of tax on net profits.

All companies and partnerships which are registered under Thai law or which are formed under foreign laws and carry on business in Thailand are subject to the corporate income tax. All income of companies and partnerships registered under Thai law is subject to this tax. Companies and partnerships registered under foreign laws and carrying on business in Thailand are taxed on their net profits arising from their business carried on in Thailand.

The definition of "carrying on business in Thailand" for income tax purposes is very broad and includes the following:-

"If a juristic company or partnership incorporated under a foreign law has in Thailand, for carrying on its business an employee, a representative or a go-between and thereby derives income or gains in Thailand, such company or juristic partnership shall be deemed carrying on business in Thailand, and such employee, representative or go-between, whether a natural or juristic person, shall, insofar as the said income or gains are concerned, be deemed to be the agent of the said company or juristic partnership and shall have the duty and liability to file a return and pay tax".

Special rules apply to independent sales agents, and Thailand's numerous evidence of double taxation treaties all include more favorable provisions whereby a foreign company will, for many purposes, not be taxable on the basis that it is carrying on business in Thailand unless it has a "permanent establishment" here.

The corporate income tax is imposed on the net profits of the business received during a taxable year. In determining net profits, most usual business expenses and depreciation allowances, at rates ranging from 5% to 20% depending on the item, are allowed as deductions from gross income. (Depreciation rates are set forth in Royal Decree Nos. 22 and 148. Note, however, that supplementary Royal Decrees on this subject are implemented from time to time). Net losses may be carried forward for five consecutive years; there is no provision for the carry-back of losses. Special provisions may be applicable to a company promoted under the Investment Promotion Act.

Corporate income tax is payable on a semi-annual basis, with the first installment to be paid on an estimated basis within two months after the close of the first half of a company's fiscal year. The annual income tax return is then filed together with payment of the balance of tax due for the year within 180 days of the close of the fiscal year. Any fiscal year may be selected.

Employers are required to withhold personal income taxes attributable to salaries and other compensation paid to employees (Code, Section 60). A return must be filed within seven days from the of the month in which the payment is made.

Under temporary measures promulgated from time to time by Royal Decree, interest paid on certain qualifying foreign currency loans to Thai borrowers may be exempted from companies income tax.

**BUSINESS TAX:** The business tax is a major tax in Thailand. It is a gross receipt tax and levied on those categories of businesses which are listed in the Business Tax Schedule of the Revenue Code. An additional surtax of 10% of the business tax is levied as a municipal tax under the Municipal Income Act 2497 (1954)

#### Summary of Business Tax Schedule

##### Summary of Business Tax Schedule

Business Category:	Rate:	Taxpayer:
1. Sale of goods (depending on the item in question)	1.5 - 40%	seller, importer or manufacturer
2. Sawmilling	3.5%	operator
3. Sale of listed securities on the SET	0.1%	seller
4. Hire of work	3.0 - 10.0%	contractor
5. (1) Letting of movable property	2.5%	lessor
(2) Leasing (approved activities only)	3.0% of gross profit	lessor
6. Warehousing	2.5%	operator
7. Hotel, restaurant and night - club	2.0 - 15%	operator
8. Transport	0.5 - 2%	operator

9.	Pawnbroker	2.5%	operator
10.	Brokerage and agency, including certain Management Services	5.5%	broker, agent or performer of service
11.	Sale of immovable properties as a business or for profit	3.5%	seller
12.	Banking	3.0 - 15.0%	operator
13.	Insurance	2.5 - 3.0%	insurer
14.	Entertainment	15.0 - 20.0%	operator

Within 30 days following commencement of business activity, every "trader" must file an application for business tax registration. A "trader" is defined as being any natural or juristic person or group of persons carrying on in Thailand a business whose activities fall within a category listed in the Business Tax Schedule. Traders are required to keep records of all gross receipts and must file a monthly business tax return and pay the business tax, if any, for each month by the 15th day of the following month regardless of whether they have had gross receipts during the month in question.

With respect to the sale of goods, the business tax is generally collected from manufacturers and importers. Retailers ordinarily are not subject to this tax. With respect to other categories of businesses, the tax is collected from the persons specified in the Business Tax Schedule. One broad category of business that is subject to the business tax is "hire of work" wherein a person, called the "contractor", agrees to perform work for another person in return for remuneration. "Hire of work" is a broad concept and includes most service activities. The contractor is liable for payment of the tax. Where the employer of a contractor is a government organization, the business tax will be withheld at its source and be remitted to the Revenue Department (Code, Section 78 quidecim). Withholding is also applicable where the contractor is a foreign company or partnership responsible to pay business tax (Code, Section 78 septandecim). When there has been withholding, the contractor is nevertheless generally responsible to file a return.

In most cases, the business tax is administered by the Revenue Department. In the case of imported goods, the tax is collected by the Customs Department at the time import duty is paid. The business tax on imported goods is based on the total of the CIF price plus import duty and specified assumed standard profit.

**TAXES ON REMITTANCES ABROAD:** All remittances of funds into and out of Thailand require exchange control approvals. In connection with outward remittances, approval will not be given unless tax liabilities are accounted for. Except for outward remittances for the purchase of goods, certain business expenses, principal on loans and return of capital investment most business remittance are subject to tax under either Section 70 or 70 bis of the Revenue Code.

Profits remitted or retained abroad are dealt with Section 70 bis of the Code under which a juristic company or partnership which remits out of Thailand funds representing profits, or which were set aside out of profits, from a business carried on in Thailand must pay, in addition to the corporate income tax, a tax at the rate of 20% on the amount of the remittance representing net profits (i.e. 18.65% of the gross remittance). A return must be filed and the tax paid within 7 days from the date of remittance. This 20% tax applies, for example, to the transfer of profits from a Thailand branch office of a foreign corporation to its head office abroad. This tax does not apply to dividends or interest remitted out of Thailand by a company or partnership; such remittances are taxed at the time of payment as described below.

Income paid to foreign juristic entities is the subject of Section 70 of the Code which is to the effect that when a company or partnership incorporated under a foreign law and not carrying on business in Thailand received "assessable income" paid either from or in Thailand the payer of the assessable income is usually required to deduct income tax at the rate of 25% on the gross remittance. A standard deduction is allowed for certain



categories of income. For example engineering fees for services abroad may qualify for a 40% deduction, making the effective tax rate 15%. Interest paid to a foreign bank or insurance company is taxed at a flat 10%. (Exemption from this tax on interest may be available where the lender or the borrower is a government entity or under temporary measures introduced by the government from time to time). A tax return must be filed and tax paid within 7 days from the end of the month in which the payment is made. "Relevant assessable income" is as defined in Subsections (2), (3), (4), (5) and (6) of Section 40 of the Revenue Code and includes, for example, dividends, loan interest, service fees, royalties and rent. Other types of assessable income not included in these subsections are not subject to withholding of tax under Section 70. With respect to dividends, the 25% withholding tax rate was reduced to 20% by Royal Decree No. 92 (1980).

A physical remittance of funds may not be required in order to incur either of the above two taxes. These taxes may be incurred by making book entries.

**PERSONAL INCOME TAX.** Personal income tax rates are as follows:-

Net income not exceeding Baht 40,000		7%
Net income exceeding 40,000 but not exceeding 80,000	80,000	10%
Net income exceeding 80,000 but not exceeding 150,000	150,000	15%
Net income exceeding 150,000 but not exceeding 220,000	220,000	20%
Net income exceeding 220,000 but not exceeding 300,000	300,000	25%
Net income exceeding 300,000 but not exceeding 400,000	400,000	30%
Net income exceeding 400,000 but not exceeding 550,000	550,000	35%
Net income exceeding 550,000 but not exceeding 750,000	750,000	40%
Net income exceeding 750,000 but not exceeding 1,000,000	1,000,000	45%
Net income exceeding 1,000,000 but not exceeding 2,000,000	2,000,000	50%
Net income exceeding Baht 2,000,000		55%

Every person, resident or non-resident, who derives assessable income from employment or business carried on in Thailand is subject to the personal income tax, whether such income is paid in or outside of Thailand. Exemptions are granted to certain persons such as U.N. officers, diplomats and certain visiting experts, under the terms of international and bilateral agreements.

An individual who is present in Thailand for more than 180 days in any tax year (calendar year) is treated as a resident of Thailand, although residence for tax purposes can be established by other factors. Residents are also subject to income tax on income from foreign sources to the extent that such income is brought into Thailand. The exchange control laws require that all foreign exchange acquired by a resident (whether or not derived from employment or business in Thailand), be brought into Thailand within seven days of acquisition unless permission to the contrary is obtained.

Personal income taxes are payable (to the extent not already paid by withholding) and tax returns for each year are to be filed prior to the end of March of the year following that in which income was earned.

A standard deduction of 30%, but not exceeding 40,000 Baht, is allowed against income from employment. Standard deductions ranging from 10 to 85% are allowed against other categories of income but generally the taxpayer may elect to itemize expenses in lieu of taking the standard deduction.

The following annual personal exemptions are allowed:

For taxpayer	13,000 Baht
For taxpayer's spouse	13,000 Baht
For each child	6,000 Baht
For each child's education (in Thailand)	2,000 Baht
For taxpayer and spouse with respect to	7,000 Baht

contributions to an approved Provident Fund  
For tax-payer and spouse with respect to interest on loans for purchasing, hire-purchasing, or constructing of residential buildings

or actual contribution if less 7,000 Baht  
or actual contribution if less

Children of the taxpayer or of his/her spouse qualify for the child allowance. Children eligible for the above allowance must not exceed three in number. This limitation only applies to children born on or after 1st January 1979. However, in computing the number of children, a child born prior to 1979 must also be counted. Thus, a taxpayer with four children born before 1979 continues to qualify for an aggregate allowance of Baht 24,000. A fifth child born in 1979 is not eligible.

There is no reduced tax rate for joint returns filed by husband and wife. Where a joint return is filed, all income is attributed to the husband. Separate returns may, however, be filed for income in the form of salaries and wages but in this event special rules apply as to the attribution of income allowances and deductions between spouses.

Additional taxes can be assessed within a period of 5 years from the date of filing a return. If a person fails to file a return, an assessment may be issued within a period of 10 years from the due date for filing. A tax identification number must always be used on all returns.

**TAX WITHHOLDING.** As noted above, income tax at the rate of 20% must be withheld from payments of profits abroad by a branch office in Thailand and at the rate of 25% (or applicable lower rate under the Code or relevant double-tax treaty) from payments of income such as loan interest, royalties, management fees or rentals paid to a foreign juristic entity not doing business in Thailand (Code, Sections 70 and 70 bis). The withholding tax rate on dividends is 20%.

As also noted above, employers are required to withhold income tax from salaries etc., paid to employees (Section 50) and business tax must be withheld on "hire of work" remuneration paid by the Thai government or to certain foreign contractors (Code, Sections 78 quinquies and Section 78 septies).

In addition to the foregoing, an obligation to withhold tax and remit the tax to the revenue authorities may arise in other circumstances, as follows:

1. Every private individual, partnership, company, association or other body of persons paying most types of "assessable income" to a person or entity of the type liable to pay personal income tax must withhold tax, at each time of payment, at the personal income tax rates, except as mentioned below. This will include, for example, a dividend paid by a Thai company to an individual shareholder.
2. Central government or local government agencies are required to deduct income tax at the rate of 1.0 per cent, at each time of payment in an aggregate amount over Baht 10,000, for income other than salaries, services fees, royalties, interest, dividends and payments related to the purchase of immovable property from an individual or a group of persons liable to pay personal income tax.
3. Virtually all payments of interest to persons or groups of persons liable to pay personal income tax are subject to tax withholding except with respect to interest paid by an individual to a person who is resident of Thailand, in which event no withholding is required.

Interest on bank deposits or on finance company notes, or a discount on a finance company note, and interest on certain government bonds, are subject to tax withholding at a flat 15.0 per cent on payments made between 1986 and 1988 paid to persons liable to pay personal income tax. After 1988, the standard personal income tax rates will apply. The recipient may elect to treat the income on which 15.0 per cent tax was withheld separately from other income and pay no more tax on such income.

4. By Section 69 bis of the Code, central government and local government agencies paying "assessable income" to any company, partnership or joint venture shall deduct income tax at the rate of 1%

from such payments. The tax deducted is available as a credit against income tax due for the accounting period in which the deduction is made.

- 5 By Section 78 quattuordecim of the Code, where a non-resident which has or which is deemed to have a branch in Thailand sends goods to a party exempt from business tax, the importer may be required to deduct applicable business taxes from the price payable for the goods.

**TAX ON DIVIDENDS, ETC.:** Dividend income of a natural person is subject to tax at the standard personal income tax rates and must, for the purpose of computing and withholding personal income tax, be included as additional income without special allowance or deduction except for dividends received from "mutual funds" or financial institution specially established by Thai law for financing the agricultural, commercial, or industrial sectors. In these cases, the first Baht 10,000.- or the actual amount received, whichever is less, is exempt, and a deduction is allowed of 30% of that part of the remainder not exceeding Baht 400,000.-.

However, according to Section 47 bis of the Code, 30% of dividend income derived from a Thai company and payable to a recipient who is a resident of Thailand is available as a tax credit. The tax credit is also regarded as taxable income. The taxpayer must add the credit to other income to arrive at the total gross income and applicable rate of tax payable and then deduct, after other eligible allowances and deductions, the value of the credit.

Capital gains from the sale of securities in a "registered company" or an "authorized company" listed on the Securities Exchange are exempt from personal income tax if the sale is executed through the medium of the Securities Exchange. However, the exemption is not applicable to income from the sale of debentures, non-governmental bonds, governmental bonds only for the proceeds in excess of the savings interest described by the Bank of Thailand. The exemption is likewise applicable to gains from sale of investment units in designated mutual funds.

In the case of dividends paid between companies organized in Thailand:

- (1) If the recipient company is a "registered company" listed on the Securities Exchange, the company is allowed to exclude all such dividends from the computation of its taxable profits;
- (2) If the recipient company is not a "registered company", it is allowed to exclude 50% of the dividends.

Exclusions under (1) and (2) above are not allowed if the total dividends paid to the recipient company exceed 15% of its gross income and the shareholding is shorter than 3 months or the share has been transferred before the end of the third months from the date of dividend declaration.

Where an unincorporated consortium or joint venture operating in Thailand (which is taxable on its profits as if it were a company) distributes its after tax profits to a participant which is a juristic company or partnership incorporated in Thailand or incorporated abroad but carrying on business in Thailand, the distributed profits are exempt from tax under the Revenue Code.

**TAX CLEARANCE CERTIFICATE:** Before an alien may leave Thailand he must obtain a tax clearance certificate from the Revenue Department showing that all taxes due have been paid and/or that a surety has guaranteed the payment of taxes, if any. This requirement is not usually enforced if the alien has no assessable income and has been in Thailand less than 90 days without a work permit. A tax clearance certificate is normally issued for a period of 15 days. Tax clearance certificates valid for 6 months will be issued if the alien makes frequent journeys in and out of Thailand in the usual course of business.

### The Petroleum Income Tax

The Petroleum Income Tax Act B.E. 2514, as amended in 1973 and 1979, imposes a special tax on income from "petroleum operations" derived by a company which owns an interest in a petroleum concession granted by the Thai government or which purchases oil for exportation purposes from a concession holder. Income from petroleum operations includes revenues from the production, transport or sale of oil and gas, the value of oil or gas delivered to the government as royalty and the proceeds of a transfer of interests in a concession. Subject to the special treatment applicable in certain cases under the 1979 amendment, the tax

rate is 60% on relevant profits; the 12.5% royalty payable in cash or in kind to the government is creditable against tax payable, except that royalty on exported crude oil may be expensed; and income subject to the petroleum income tax is exempt from taxes under the Revenue Code, including the tax on remittances of profits and dividends.

#### Other Taxes

**STAMP DUTY:** A number of documents and transactions listed in the Stamp Duty Schedule of the Revenue Code are subject to stamp duty. Rates depend upon the classification of the transaction contained in the instrument.

**EXCISE TAX:** Excise taxes are levied on a number of goods, including the sale of petroleum products, tobacco, liquor, soft drinks, fruit juice, matches and cement.

**SIGNBOARD TAX:** This tax is levied at rates specified in the Signboard Tax Act B.E. 2510.

**PROPERTY TAXED:** Owners of land and/or buildings in designated areas may be subject to annual taxes under either the Local Development Tax Act B.E. 2508 (1965), under which rates per unit vary according to the appraised land value, or the House and Land Tax Act B.E. 2475 (1932), under which annual tax is levied at the rate of 12.5% of the assessed annual assumed rental value of the property.

#### Avoidance of Double-Taxation Treaties

Thailand has avoidance of double-taxation treaties with Sweden, Denmark, Norway, Japan, West Germany, the Netherlands, France, Singapore, South Korea, Italy, Belgium, Pakistan, The United Kingdom, Indonesia, Malaysia, Philippines, and Poland. Negotiations are in progress with the U.S.A., Canada, and Australia. Generally these treaties place a taxpayer in a more favourable position for Thai income tax purposes than under the Revenue Code, by providing that profits shall only be taxable if the taxpayer has a "permanent establishment" in Thailand. Reduced rates of tax are provided for certain dividends, interest, royalties, and other items of income and provisions are made for favourable tax treatment to visiting experts. A system of tax credits is also established where income is otherwise taxable in both countries.

#### Tax Courts

As tax cases are regarded as different in nature from regular civil cases, the Tax Court Establishment and Procedure Act was therefore enacted on August 20, 1985 and has been in effect since September 5, 1985 to provide special and accelerated procedures for tax litigation.

Tax courts have the authority to hear and adjudge the following tax cases:-

1. Appeals against the decisions of the tax officers or committees.
2. Disputes over the claims of the State on tax obligations.
3. Disputes over tax refunds.
4. Disputes over the rights or obligations regarding tax collection obligations.
5. Other cases made subject to the Act as prescribed by other laws.

The judgments or decisions of the tax courts may be appealed to the Supreme Court within one month after the date of the judgment.

### The Remaining 67 Provinces

**Target Activities**, which meet one of the following criteria.

- (i) export at least 80% or are classified under category 5.49;
- (ii) use agricultural products or natural resources as raw materials, are agro-based industries, or support the use of domestic agricultural products;
- (iii) manufacture engineering products;
- (iv) are considered by the Board to have special importance.

- 1 Tax exemption on machinery
- 2 50% reduction of import duty and business tax on raw or essential materials used in production for the domestic market for 1 year.
- 3 Exemption of import duty and business tax on raw and essential materials for a period of 5 years for the manufacture of exports.
- 4 Corporate income tax exemption for 4 years, extendable yearly up to a maximum of 8 years for projects which satisfy one or more of the following criteria:
  - 4.1 save or earn net foreign exchange of at least US\$1 million a year.
  - 4.2 are agro-based activities, or encourage the use of domestic agricultural products, or use agricultural products as the main raw material, or use domestic supplies for at least 50% of total value of raw material usage.
  - 4.3 employ at least 200 full-time persons;
  - 4.4 are considered by the Board to have special importance;
  - 4.5 locate their factories in industrial estates.
- 5 Special privileges under Section 35 of the Investment Promotion Act B.E. 2520 as follows:
  - 5.1 reduction of business tax by 90% on sales of products for 5 years from the date of income earning.
  - 5.2 reduction of corporate income tax by 50% for 5 years after the exemption period.
  - 5.3 the following, to be granted on a case-by-case basis:
    - (i) double deduction from taxable income of water, electricity and transport costs for 10 years from the date of income earning.
    - (ii) deduction from net profit of 25% of the costs of installation or construction of the project's infrastructure facilities

FRENCH TRANSLATION OF CHAPTER 8 : INTERET ECONOMIQUE ET SOCIAL  
DU PROJET, RENTABILITE et CONCLUSIONS.

Ce projet a incontestablement un intérêt économique et social :

- . Satisfaction de besoins nutritionnels nationaux en valorisant une matière première agricole et en créant des produits se substituant aux importations.
- . Le tiers du chiffre d'affaires de l'entreprise se fera à l'exportation.
- . Création de 87 emplois à caractère permanent.
- . Sous réserve des hypothèses émises en cours d'étude et qu'il conviendra de vérifier, on observe que la rentabilité est bonne, puisque :
  - Marge Brute d'Auto-financement positive dès la 1ère année d'exploitation.
  - Rapport bénéfice net/chiffre d'affaires : 12 % en 2ème année d'exploitation, 23 % en cinquième année.
  - Rotation du capital investi de 0,61.
  - Retour sur investissement en un peu plus de 5 ans (M.B.A. cumulée de 63 millions de Baths pour 69 millions de Baths d'investissement).

.../...

Ces performances sont atteintes avec une production de croisière prudente représentant 60 % environ de la capacité nominale de l'unité. En fonction de l'évolution du marché - en particulier des flocons déshydratés de fruits - la rentabilité pourrait être nettement améliorée sans investissement complémentaire.

En conclusion, nous recommandons que ce projet soit mis en place.

Cependant, compte tenu de la spécificité des produits et des marchés, il nous paraît indispensable que les promoteurs du projet envisagent un partenariat avec une entreprise européenne spécialisée dans ces produits afin de garantir le succès de cette opération.

Un partenariat significatif qui engagerait réciproquement les parties pourrait réserver au groupe français 30 à 35 % du capital social.

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