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COLD MEAT PRODUCTION

BY

AL-TAGHZIA SAL:

A FEASIBILITY STUDY

A Research Topic
Presented to Business Division
Beirut University College

In Partial Fulfillment
of the Requirements for the Degree
Master of Science in Business
Management

By

Bane Nouredine

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P.O. BOX 98 13-5053

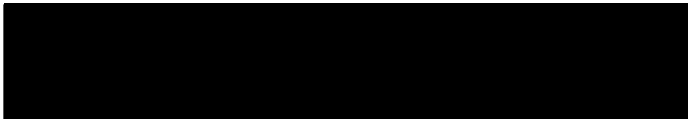
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APPROVAL OF RESEARCH TOPIC

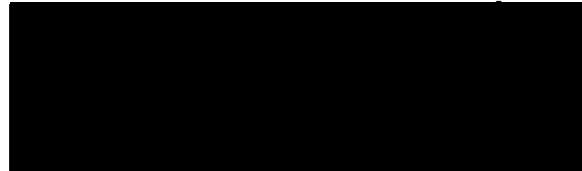
CANDIDATE BANE NOUREDDINE DATE JUNE 1990
DEGREE MASTER IN BUSINESS MANAGEMENT ADVISOR DR YUSUF SHIBL
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The following professors nominated to serve as the advisors of
the above candidate have approved her research work

ADVISOR



NAME



SECOND READER

NAME

SIGNATURE

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CHAPTER ONE

INTRODUCTION: BACKGROUND, PURPOSE, SIGNIFICANCE, AND METHODOLOGY OF THE STUDY

The starting point of an industrial project is an idea that to manufacture a certain product is profitable and desirable. This idea then is translated into reality if certain investment criteria confirm economic feasibility. A case in point is Al-Taghzia SAL, a factory established in 1986 for the production of processed cold meat products, and the focus of this study.

A- Historical Background and Beginning of Al-Taghzia SAL -----

In Lebanon in 1975, a group of Lebanese businessmen made the decision to open a factory for the production of cold meat products. They chose Beit Chabab for the location of their plant and hired a German production manager. They brought all the necessary machinery and equipment from France and started with a trial cooking which showed positive signs of a quality

product. The Lebanese Civil War, however, which broke out at this time, forced the German production manager to leave the country without training his assistant to continue the work during his absence.

The assistant production manager tried to carry on using all technical knowledge and resources at his disposal, but the cooking was not as successful as before. The product showed some moisture inside the meat resulting in goods that became defective in a short period of time. The Company's performance thus started to deteriorate causing financial losses rather than gain.

Later in 1975, the financial and security considerations were discussed at the Board of Directors' meetings and the decision was made to quit the business. Thus it was that only six months of hard investment and continuous work, the factory was shut down. The partners decided to divide the machinery and equipment in order to reimburse their capital, and each one received two or three machines.

In 1986, Al Taghzia SAL was established by Goodies SAL and Zaatari Bros., who accepted the challenge and opened a new factory for cold meat production during the critical Lebanese economic and financial crisis. It remains the sole producer up to this time. The factory is located at Bir Hassan St, near the Golf Club, in a building rented in 1986. It utilizes for its products red and white veals, chicken and turkey, as well

as pistachios and spices as raw materials. The founding expectation was an invasion of Lebanese and foreign markets through its products to become a major supplier of Mortadelle and Jambon within a determined period.

In 1988, one of the members of the original company contacted the owners of Al Taghzia SAL, and sold them his share of machinery.

At the time of this study, the factory has been producing for three years, and the owner managers are looking to the future prospects based on a sizable equipment investment and expanded advertising merchandising campaign. A feasibility study is thus called for.

B- Purpose of the Study

The purpose of this study, then, was to investigate the economic viability of Al Taghzia SAL factory based on a pre-designed feasibility model. To do this, research was carried out to answer the following questions :

- a- Are the present industry and market conditions suitable for this project?
- b- What are the variables involved in this project?
- c- What are the total costs and needed investment?
- d- How profitable is this project?

To determine the feasibility of the project, all information given by the investor was examined based on the

analysis of the different factors involved within the limitations of the data available and the surrounding economic framework. Solutions were studied, and supporting data are presented in systematic form. All was evaluated to reach a conclusion and enable a decision to be taken on whether to undergo the present project.

The feasibility study in this particular case is reduced to a detailed analysis of the formulation, evaluation and decision stages.

C- Constraints and Data Limitation of the Study

The main problem of determining feasibility exists in defining the policy guidelines along which the project should be continued, trying not to repeat the same errors and losses of the previous factory. These were partly outlined by the investors as their points of interest and partly visualised by the consultant as the task to be performed. They can be summarized as follows:

- 1- Selecting the best available resources (materials, equipment and labor) at the best market price.
- 2- Setting up an organized framework within which the factory should operate. To this time, there has been no established managerial hierarchy.
- 3- Designing a marketing strategy. The procuring of clients and the distribution network for the company have so far

been carried out through the company's salesmen and drivers; the current plan, however, is to go to the use of wholesalers.

4- Determining the amount of investment and the time required:

a- to break-even on the short run

b- to generate long-run profit after the necessary production level is attained.

Official statistics on the meat production industry is outdated and the different variables affecting demand for production could not thus be measured. Therefore, an assumption was made that yearly demand would increase at the same rate as the average growth rate of the cold meat industry, which as calculated in Chapter Four is set at 7 percent.

Data collected from interviews proved to be limited as interviewees were very reluctant to supply information they considered confidential. The figures thus obtained tend to be only approximate and are based on historical demand for cold meat in the Lebanese market.

D- Research Methodology

The main data source for this study was personal interviews with Al Taghzia SAL people, professionals in the fresh and cold meat importing business, and official representatives in importing foods and commodities. In addition, a number of

books and articles on marketing, cost accounting, finance, industrial organization and engineering were consulted. The legal aspects were examined with the lawyer of the Company, while the financial problems were discussed with a Branch Manager of a bank specializing in industrial loans.

The research procedure was as follows: first, a general overview was made of the industry and market in Lebanon; second, the plant location layout was examined and supply needs were analyzed and studied with the production process in both its technical and administrative aspects ; third, a series of economic and financial evaluation tests as well as a suggested financial plan were carried out as the basis for the evaluation and decision stage; and fourth, recommendations and a suggested course of action in the light of the empirical results obtained were drawn up. This paper presents all stages of the procedure and their results.

CHAPTER TWO

ASSETS OF AL TAGHZIA SAL FACTORY:
OWNERSHIP, EQUIPPED FACILITIES,
AND PRODUCTIONA- Ownership

Goodies Sal is a large store that offers a first class delicatessen with a wide variety of refined food products. It has put together several companies to provide its clients with the best choice of international and local food products. Their international division handles foreign trade activities as well as marketing promotion, one of their imports being fresh and frozen meats.

Zaatari Bros. is a well-known trader, importing live cattle, coffee, and all kind of wheats, and exporting fruits and vegetables to the Arab Countries from their agricultural land in South Lebanon. In addition, it owns a factory for the production of carton boxes.

The combined experience and resources of the two founders can thus be designated as major assets of the Al Taghzia SAL company.

B- Manpower and Legislation Requirements

Another asset for the Al Taghzia SAL factory is that it can be seen to fulfill and meet the manpower and legislation requirements for the successful operation of cold meat production.

They can be summarized as follows:

1- Production Staff

The persons in the laboratory room are in good health, without varix or flat foot as this profession requires long standing hours. They have good sight and the capacity to work for the long hours this profession requires.

2- Hygiene Requirements

Security and hygiene, local installation, material, personnel and products follow certain hygienic requirements as detailed below:

a- The Atelier

The local installation has sufficient dimensions so that the professional activities can be exercised in satisfactory hygienic conditions. Particular placements are reserved for

- Reception of raw materials which will be used by the laboratory
- Freezers
- Sanitary installations of the personnel

b- Wall and Ground

- 1) The height is at least equal to 2.5 m with the walls covered up to a height of 1.75 m by materials of a light color.
- 2) The ceilings are constituted of plane surfaces of light colors.
- 3) The ground is composed of impervious materials easy to clean. They are constructed in such a way as to conduct the water off towards evacuation orifices since it is forbidden to throw used water on public roads.

c- Ventilation

The inside management is carried out in such a way that the interior ventilation is assured to allow the rapid elimination of odors and smokes.

d- Light

The rooms have sufficient light, natural or artificial, without color modification.

e- Materials

Tables, cutting surfaces, recipients and utensils are constituted or covered by a hard material, impervious, resistant to accidents, and easy to clean so as not to transmit any odors or abnormal tastes.

C- Installation and Ramification

The factory is one floor underground in the shelter of the building and occupies a space of about 1000 M² in four rooms. There are two deep freezers and four refrigerators. Refrigerator maintenance and repairs were carried out before the factory was declared valid for operations. The four rooms were equipped in order to help in manufacturing the Charcuterie de Boeuf:

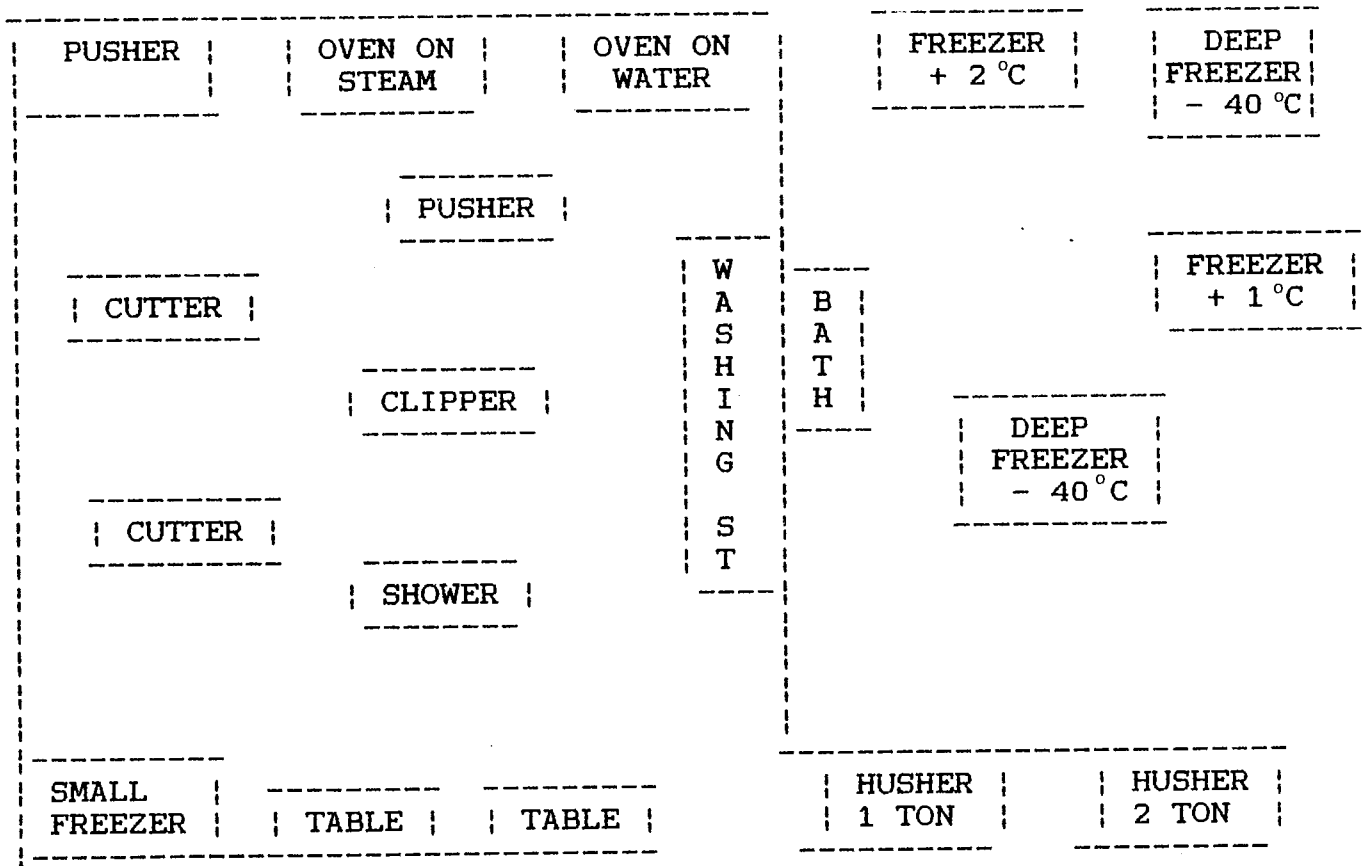
- One room, 120 M², is the laboratory equipped with all the necessary machinery and equipment to cook the Charcuterie.
- One room, 100 M², is a store room to stock the spices.
- One room, 36 M², is an office for the manager and production manager.
- One room, 9 M², is an office to prepare the mixture.
- One room, 25 M², is a cold room to dry the meat.

One of the Company's new prospects for expansion is the floor that was created inside the factory. Since its location is in the shelter, and the ceiling is 6 meters high, the partners decided to place a new ceiling 3 meters high, making offices in the upper level. The space above the laboratory and freezers was exempt from the enlargement since they should not be covered.

By doing this, the laboratory and packing areas could be enlarged to install the new equipment needed for expansion. A proposal is suggested in Figure 1 and 2 to maximize the design of the new factory sectors.

Figure (1) is a proposal for the new internal factory sectors for the laboratory and freezers:

PLANT'S LAYOUT FIRST FLOOR



E
C
N
A
R
T
N
E

NEW CLIPPER

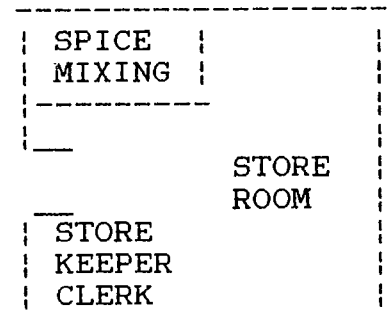
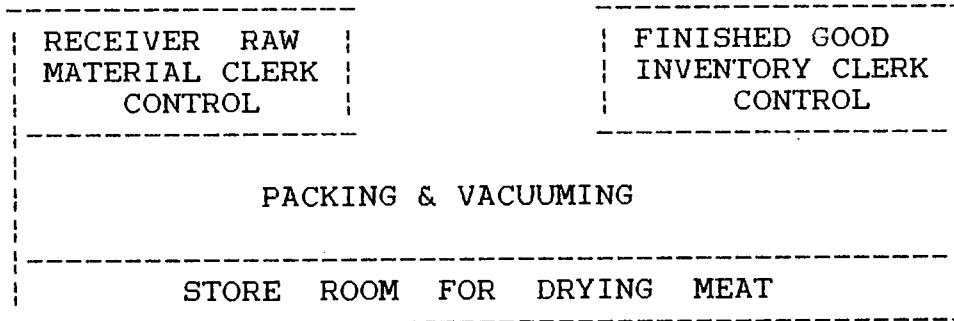
NEW OVEN

PACKING & VACUUMING ROOM

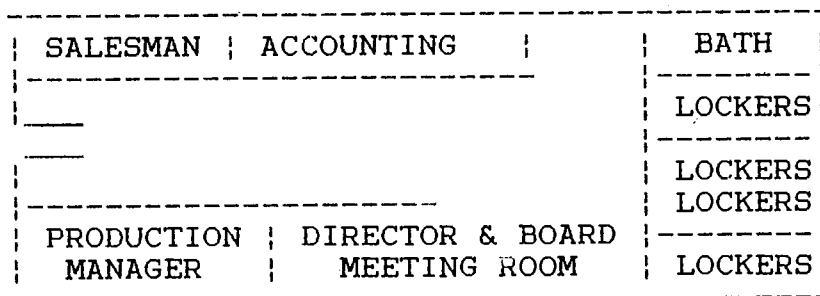
Figure (2) is a proposal for the new internal factory sectors of the store room, packing and vacuuming room, and the new floor for offices:

PLANT'S LAYOUT SECOND FLOOR

E
N
T
R
A
N
C
E



1 1
1 E 1
1 C 1
1 N 1
1 A 1
1 R 1
1 T 1
1 N 1
1 E 1
1 1



D- Production Process

The laboratory, which cost in the first year about USD 58,560, was all equipped from France. It was composed of the followings:

- Hasher and mixer
- Pusher
- Injector for the Saumure
- Oven on steam
- Oven on water
- Vacuum and clipper machine
- Two scales : one for spices and another for meat

There were other imports from France:

- Moulds utilised for cooling hashed meats
- Spices of over ten different types used especially for Charcuterie
- Bowels or animal intestines or a channel of caoutchouc used to give the Charcuterie a tube form.

Additional equipment bought from the previous cold meat factory was as follows:

- Cutter 100L
- Pusher
- Mixer
- Hasher (two tons)

All other preliminary equipment necessary to make a good kitchen were bought in Lebanon.

The production of cold meat follows several stages according to its type.

1- Cleaning and Salting the Meat

The meat is cleaned from the bones and cut into pieces of 5 to 10 cm. Iodized salt is then used in order to remove the blood that is usually within the cavities, and the salted meat is kept in a freezer from 12 to 24 hours at a temperature of 0 °C.

This process requires two workers to put out an average of one ton per day.

2- The Husher and Cutter

The first husher machine, called a sterminio, has four blades and four sieves. This husher transforms the salted meat into cream with the output kept in a freezer at a temperature of 0 °C so that the meat does not become black and bad for human consumption. This husher operates at a speed of 1 to 1.5 tons of salted meat per hour.

There is a second husher machine which performs the same operations but for a smaller quantity. It is kept at standby in case the first husher is out of order; alternately, it is used in rush periods to accelerate the work. This husher operates at a speed of about one ton of salted meat per hour. The meat obtained is harder and not as creamy as that of the first husher.

There are two cutters with the following outputs :

- 80 KGS per 10 minutes]
- 70 KGS per 10 minutes] 2500 turns per minute

The creamy meat is placed in the cutter with ice. Later the spices and additional ingredients are added to the mixture until there is a hard jelly. The flavoring, such as green olives, pistachio, mushroom, grease, etc, is then added to the output.

3- The Pusher

The pusher is used for vacuuming the meat and packing it into the moulds of different sizes such as 500gr, 2500gr, 5000 gr. After this process, the mould passes to the clipper in order to close the mould firmly. The total performance of the pusher is 250kg every 15 minutes.

4- Cooking

The moulds are placed in the oven at 80°C for 4 and 4.5 hours. The factory has two ovens :

- one contains 6 cookings of 75KG each = 450kg
- the second contains 3 cookings of 75KG each = 225KG

The ovens work at full capacity eight hours per day with the following output:

$$[(6 \times 75\text{KG}) + (3 \times 75\text{KG})] \times 2 = 1350\text{KG per day.}$$

5- Douche

After applying high temperatures during the cooking process, the moulds are removed and placed under running water for about 10 minutes. This process prevents the transformation of bacteria inside the moulds.

E- Existing Production System

The American Society of Mechanical Engineers (ASME) has standardized the set of five symbols which are most commonly used in constructing process charts for production systems like that of Al Taghzia SAL.

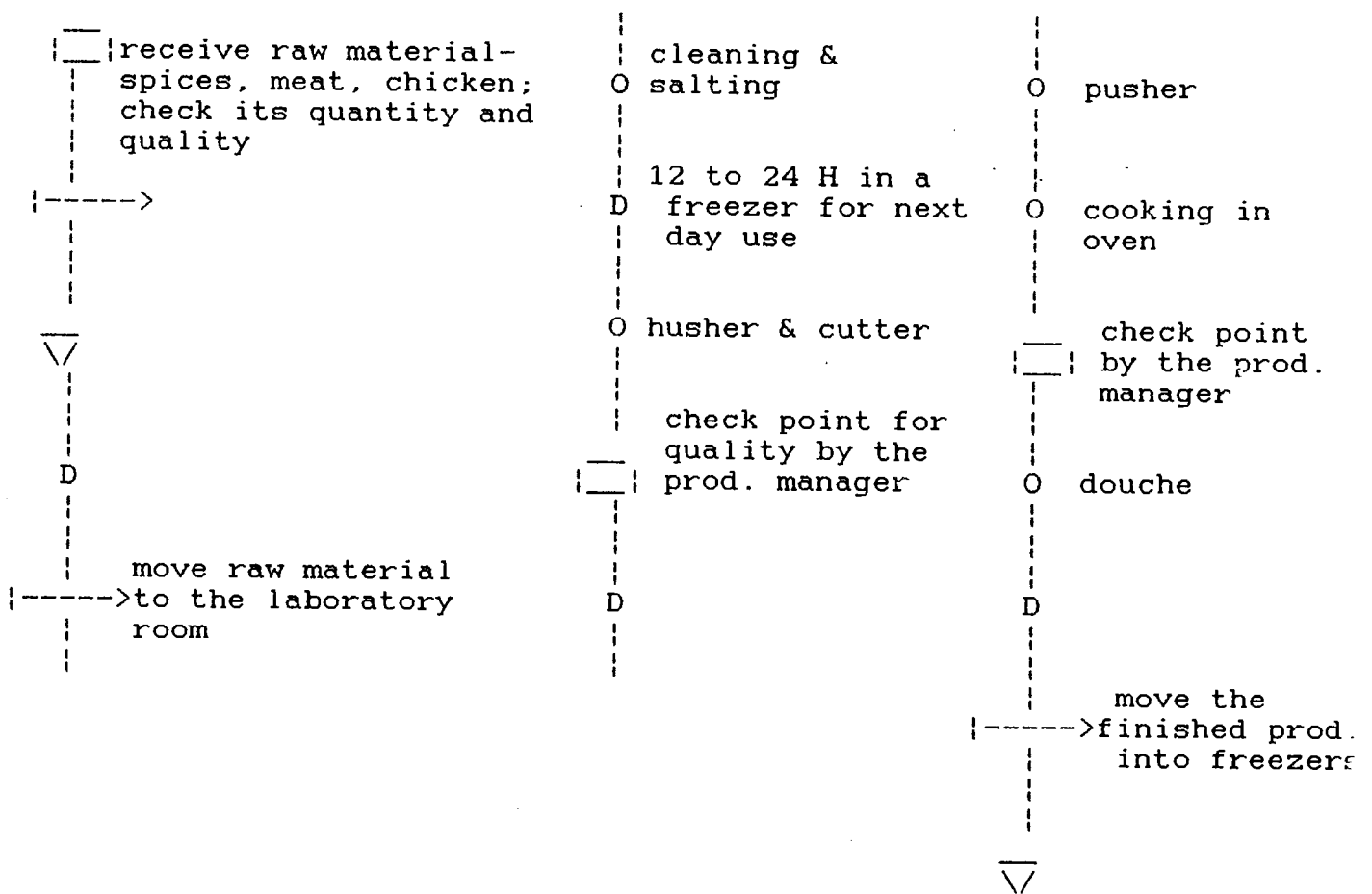
- 1- A large O denotes an operation
- 2- A large |-----> denotes a transportation or movement of worker or material over three feet
- 3- A large | | denotes an inspection for quality and quantity
- 4- A large letter D denotes a delay
- 5- An inverted triangle ∇ indicates a storage (1)

(1) Harold E. Fearon, William A. Rush, R. Reck, V. Renter, Fundamentals of Production Operation Management, 2nd edition (St Paul, 1983), pp.159-65.

Applying this to the Al Taghzia SAL cold meat factory,
we can see how its production system conforms:

Figure 3

AL TAGHZIA SAL PRODUCTION SYSTEM



F- Types of Cold Meat Products

The production process of Al Taghzia SAL factory results in several different types of cold meat:

- Mortadelle red veal with olives, pistachio, pepper, paprika, mushrooms, grease
- Mortadelle chicken with olives, pistachio, mushrooms
- Mortadelle turkey with olives, pistachio, mushrooms
- Jambon red and white veal, chicken and turkey
- Roasted red and white veal, chicken and turkey
- Hot Dog red veal, chicken and turkey
- Bastirma, red veal
- Soujouk, red veal
- Salami, red and white veal
- Galentine, red veal and chicken

These varieties do not undergo the same process of production. All types of mortadelle and hot dogs follow the process of cleaning and salting, husher and cutter, pusher, cooking, and douche. These products give for every kilogram of meat, chicken or turkey, one and one-half kilogram of mortadelle. Jambon and roasted products follow the process of cleaning and salting in bigger pieces, the mixer (for the jambon and salami only), which scratches the meat, and the pusher. The product is kept for 24 hours in the freezer, under normal temperature and the next day the product is cooked in the oven with no need for douche. Salami products follow the pro-

cess of cleaning and salting, husher number 2 - hard output - grease, mixer, cooking but no need for douche. Bastirma products follow a different type of production process. The meat is cleaned and kept in one piece. It is then hung up in the "cold room for drying meat" for about 4 days to one week until the meat is perfectly dried. Then it is covered with red hot paste pepper and wax. The bastirma is preserved for another week in the "cold room for drying meat".

In summary, the whole production process requires about 7 hours per day for the production of mortadelle and about 5 hours per day for the production of jambon and salami. Then the finished goods are weighted, stamped with production and expiry date, checked by the inventory control clerks and kept in freezers as stock of finished goods. Each kilogram of red and white veal, chicken or turkey requires about 100gr of spices which is added in the cutter during the production process. All products lose about 1.5kg of weight after they are kept in the freezers. Shelf life of the products is one year preserved in a freezer under a temperature of (+) 2°C .

G- Conclusion

Al Taghzia SAL can be seen to fulfill most of the necessary requirements for operating a good factory. The creation of the second floor is a real asset since it will help in separating the laboratory room from the offices. The one area

of weakness in the present process is the fact that the present pusher doesn't give the moulds a unified weight and shape. For this reason, the management of the Company proposes buying a new, fully automatic packer.

The factory runs at full capacity being in continuous operation all day, either in preparing the meat for the next day or by cooking the semifinished goods. The production of 1350 KG per day is enough to cover the existing demand of the local market and supply of the Gulf countries as shown in the next chapter.

CHAPTER THREE
ORGANIZATIONAL STRUCTURE OF AL TAGHZIA SAL

Goodies SAL and Zaatari Bros., the founders of Al Taghzia SAL, presently manage the factory. Its subordinate staff is composed of new talent and newly-graduated personnel: production manager and 6 butchers, 5 workers for packing, 4 salesmen, one stock-keeper, 2 drivers, and 2 accountants. At present, departments are not yet divided in standard form and some positions are not yet filled.

A procedure of hierarchy is proposed hereunder to give Al Taghzia SAL a new organizational outlook.

A- Administrative and Financial Management Department

The firm's administrative and financial management will be composed of a general manager and a secretary.

The manager, who will be chosen by the investors, should be a man who has a good knowledge of the market, and has had not less than ten years experience in the production industry. He would assist a consulting firm in planning for a marketing strategy. The director's office will be in charge of personnel, administrative and finance. The secretary will be mainly in charge of typing and filing.

B- Accounting Department

All accounting issues will be covered by the Accounting Department. The Chief Accountant, who will be chosen by the Director, will work in coordination with an Auditor of the Company who will check and approve all the coding and calculation according to the Lebanese chart of account. Two accountants, who are already hired, will participate in this Department to accomplish the work correctly and accurately.

This Department will check all the incoming and outgoing invoices. It will control the inventory calculation, and will have a cost accounting system in order to price the finished goods. It will prepare all the requested reports by the Director who will be able in his turn to prepare his next step for budgeting and planning.

Since types of raw materials for production of cold meat are neither assorted nor difficult to handle, the Accounting Department will be responsible for searching, collecting, analyzing, and selecting the best vendor and carrying out the purchasing functions.

Negotiation and buying agreements are made to assure that the firm will obtain the right quality at the right time, in the right quality, in the right place, and at the right price. (2)

(2) Fearon, et al., p.85.

The chief accountant is responsible for large amounts of the Company's money, and the failure to achieve any of these objectives will result in a less profitable activity. He'll report to the Director by pointing out the best offer; then in a Board meeting, the investors will approve or refuse the offer according to its profitability.

The stock-keeper and his assistant will look after the inventories of the factory: raw materials, goods-in-process, and finished goods. These inventories represent a considerable amount of the company's assets and these personnel will be carefully selected for their performance.

Adequately controlled, the firm can be efficient. Inadequately controlled, the firm loses money through excess storage and handling cost, obsolescence, pilferage, breakage, and the opportunity cost of having too much or too little inventory on hand. (3)

C- Production Department

The Production Manager is responsible for the quality of the production. He will verify the quality of raw materials, check the work in-process of products, and assure that the quality of finished goods have been met. He'll coordinate with the Sales Department in order to forecast the demand of the local market and the claims (if any) of the clients about the

(3) Fearon, et al., p.97.

quality and taste of the cold meat.

A particular misconception is that quality should be maximized. Although customers may want higher quality, they may not be willing to pay the resulting price. The rational manager sets a quality standard that is acceptable to the customer and yet economically feasible to produce. Like other production decisions, it is a matter of finding a balance between too much and too little quality. (4)

The production Manager will supervise the work of the butchers and the packing employees.

D- Sales Department

The Sales Manager will be responsible for defining the target market of the Company. He will cooperate and coordinate with the salesmen in order to collect orders from the retailers. This Department will be able to identify the competitors who are operating within this line of products and be able to determine the product's position in the market and of its retail price relative to competing products.(5)

The salesperson requires a broad knowledge. He or she must be able to communicate effectively, get along with people, and be creative in identifying and solving problems. He or she must be patient and

(4) Fearon, et al., p.161.

(5) Francis Buttle, "How to Price by Market," Management Today (July 1980), p.23.

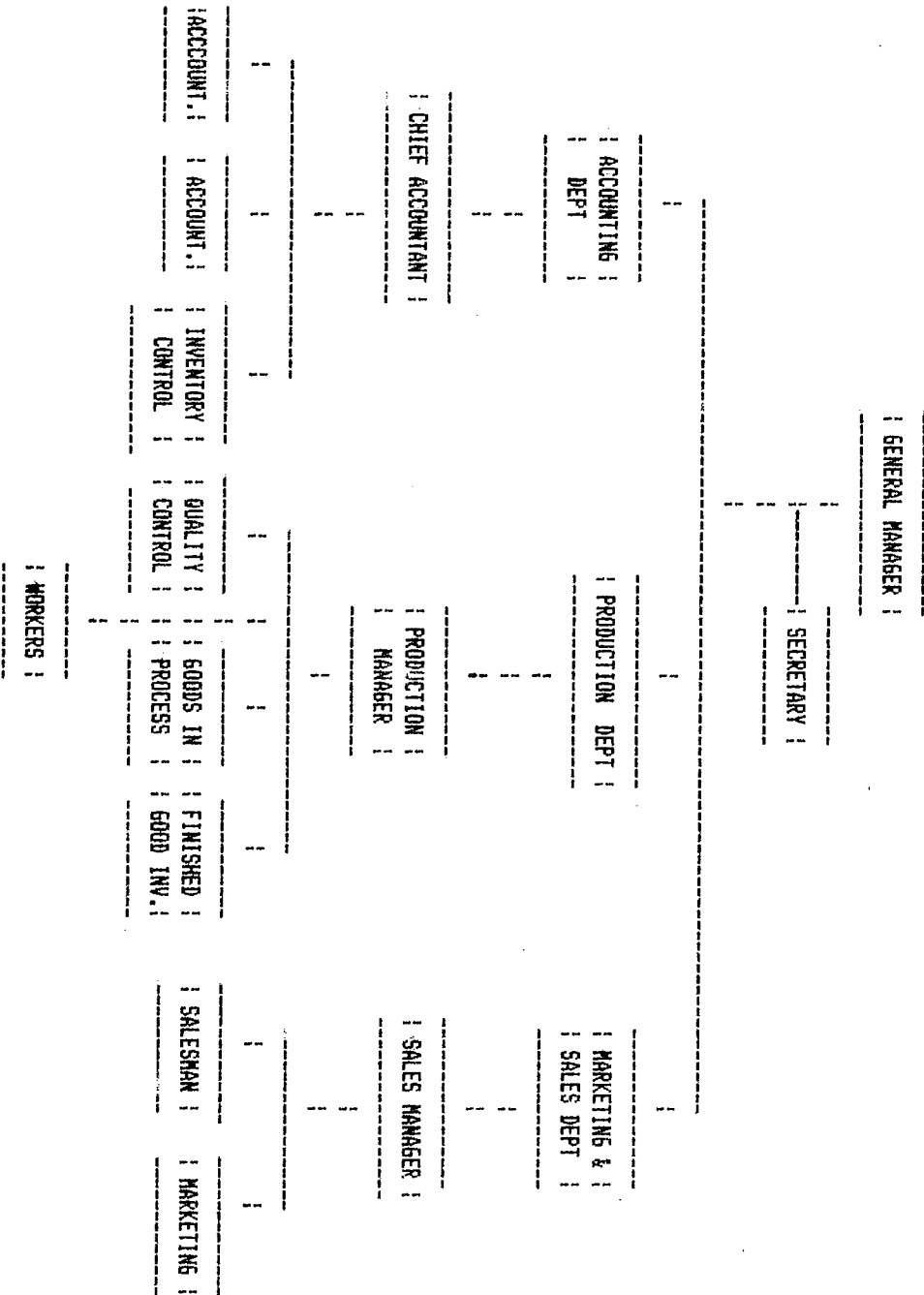
persistent, because many selling opportunities requires months or years of work before an order is written. (6)

For the future program of Al Taghzia SAL, the Sales Manager will coordinate the new expanded program of advertising and the use of wholesalers.

(6) G.David Hughes, Marketing Management: A Planning Approach (The Philippines, 1978).

FIGURE 4

A PROPOSED HIERARCHY FOR AL TASHZIA S&L FACTORY



CHAPTER FOUR

DEMAND FOR THE MEAT: ESTIMATION AND FORECAST

Many different forces affect the organization and operation of marketing. Some of these forces are economic, social, political, legal, cultural, and technological, lying outside of the marketing system itself but giving it shape and direction. All of these are factors in our study of the demand for cold meat in Lebanon and abroad for the current and potential market for Al Taghzia SAL.

A. Review of Literature

Many empirical studies on the market for fresh meat have been conducted in the U.S. and Europe, the most noted study being carried out by V. I. West.(7) He considered that meat prices, meat consumption, and income of any given year were inside or endogenous variables. These in turn were dependent upon the outside or exogenous variables:

- 1- production of meat
- 2- investment expenditures

(7) Spencer and Siegelman, Managerial Economics : Decision Making and Forward Planning, 3rd Edition (Homewood. Ill., 1959),p.249.

3- income of the previous year

4- time

The quantity of meat demanded was assumed to be influenced by retail prices, real income in the given year and previous year, and a time trend encompassing consumer desires and habits. In order to express these relationships in equation form, the following X's were used to represent endogenous variables and Y's to designate exogenous variables:

X1 = quantity of meat demanded per capita in a given year

X2 = real (deflated) retail meat prices in the given year

X3 = real (deflated) disposal income per capita in the given year

Y4 = production of meat per capita

Y5 = real (deflated) investment expenditure

Y6 = time, annual (origin 1921)

Y7 = real disposable income per capita of previous year
[X3 (t-1)]

m = variables not specifically included in the demand equation but which affect demand.

The slope of the "demand curve" (change in consumption, DX1, per unit change in price, DX2) is $-.91$, the elasticity of demand at the point of average is $-.63$.

The single equation model took the following form:

$$X1 = 156.07 - .88X2 + .63X3 - .54Y6 + .3Y7$$

B- The Cold Meat Market in Lebanon

The best available empirical data on the Lebanese market for cold meat is that to be obtained from the Al Taghzia SAL factory itself, as the factory in Lebanon which produces the mortadelle and jambon de boeuf. One of the founders, Mr. Halwany, gave information about how their preliminary idea for cold meat production became a viable project.

He explained that due to the high inflation rate in Lebanon the importation of products like mortadelle, salame, or jambon de boeuf, became very expensive and unprofitable for the wholesalers. As they imported less, the product became scarce. The need then became insistent: to find Lebanese firms who could satisfy their customers. It was Al Taghzia SAL who responded to the situation and decided to compete in the international market of Mortadelle by introducing its unique quality product, using pure veal meat with no artificial or forbidden materials. It showed that the same products on sale in the Lebanese market imported from foreign countries are and can be produced in Lebanon, at prices lower than those of other quality competitors.

Although, at the present time, Al Taghzia SAL has no local competitors, there is no legal restriction against entry into the field of cold meat production in Lebanon. A license is delivered two or three months after an application is filled with the legal authorities. Should competition arise, brand loyalty, quality and promotion will be the determining factors for Al Taghzia SAL's competing with any other producers.

C- Lebanese Consumption Behavior

All human beings have five basic needs: physical, safety, belonging and love, esteem, and self actualization. The manner in which they meet these needs varies greatly according to differences among the customers and their environments; culture, religion, education, age, personal values, and life styles, all influence how an individual meet these needs. The environment too will have considerable influence. (8)

In Lebanon, religion and ethnic ties are important factors affecting cold meat consumption; as Islam prohibits the eating of pork meat, the production will be restricted to veal meat (red and white), turkey and chicken.

Tourism and internal security are major determinants, yet they can hardly be measured due to the present situation. Foreigners exhibit a high demand for cold meat, but at present cannot safely be in the country; tourism, which in former days was a large factor in Lebanon, is non-existent today. Income is

(8) Hughes, p.205.

another major factor, as can be seen in the correlation between per capita income and the demand for Mortadelle.

D- Competition

There are two different types of competitors for a cold meat product in the local market:

- 1 - Other cold meat products (like sausages, plumrose ...)
- 2 - Other cold meat brands (La Piara, Dack ...)

The consumption of any cold meat product deprives the others from a potential market.

The market of cold meat is a very competitive one with respect to price. It does fix the selling price of the product available and each wholesaler and retailer decides his own price. The means of meeting the competition has mainly been quality improvement and, in a few cases, promoting sales through advertisement of its brand "Carnie".

Through advertising, the manufacturer is able to bring his products to the attention of an audience of worldwide buyers. Advertising also adds for the buyer the intangible psychological satisfaction that gratifies his wants (the desire to know more about the product he is buying or to reduce the risk of disappointment). Thus advertising can play an important role in stimulating demand and will be utilized as Al Taghzia SAL's strategic weapon to invade the market, through posters on the highways and radio promotion.

E- Distribution of AL TAGHZIA SAL Products

The factory distributes its products through its own trucks and distribution network in Beirut. In other cities in Lebanon, it has its own representative who takes care to distribute the goods in his area. The representatives earn on this activity a 3% commission on the value of the order. For the foreign export, the factory delivers the products F.O.T (Free on Truck), where the beneficiary takes care of the transportation. All the external orders were to the Arab countries and dispatched by refrigerated truck.

F- Demand of Fresh Meat vs Cold Meat

The study estimated the demand for cold meat by utilizing two techniques:

- 1- the econometric model where the consumption of meat is related to per capita income in Lebanon.
- 2- mechanical extrapolation where the consumption of meat is extrapolated against time.

The first technique should be applied with caution due to the unreliability of the per capita income in Lebanon. We used instead minimum wage as proxy to per capita income. We have fitted a power function of the type $C = aI^b$ where C = consumption of meat; I = minimum wage; a and b constant. The coefficient b represents income elasticity, $C = 7.47I^{0.26}$ and

²
R = 0.69. This shows income elasticity of 0.26 which means any time minimum wage is doubled, consumption of meat will increase by 26%. Figures are collected from Table 1 and Table 2. Table 1 shows the sudden cut in minimum wages from 1972 to 1986 expressed in US Dollars. Table 2 shows total imports of fresh meat: beef and veal, mutton and lamb, chicken, fresh and frozen parts of meats, frozen chicken, and cold and smoked meat.

Official statistics on cold meat import is outdated. The last years for which statistics are workable are 1972, 1973 and 1977. Since then, The Chamber of Commerce has no data on any type of commodities entering Lebanon, whether it is food stuffs and clothes, or machineries and metals. This is due to the instability of the Lebanese political situation and the opening of different illegal ports, where customs duties are not collected and figures therefore are not recorded.

An interview was held with Dr. Chawki Chaaban, General Director of the Lebanese Customs. Dr. Chaaban explained that the customs is continuing to circulate the work at the legal Lebanese ports, where taxes are collected as should be. But due to unlimited illegal entries, either by sea, land or air, imported goods can not be controlled as should be; therefore statistical figures are not accurate and any statistical work is useless. He added that the figures that can be based on international statistical figures are collected from expor-

Table 1

TREND OF MINIMUM MONTHLY WAGE
FROM 1972 TO 1988
(IN LL & USD)

YEAR	MINIMUM WAGE LL	MINIMUM WAGE USD
1972	205	68.0
1973	225	89.0
1974	275	117.8
1975	310	135.2
1977	415	135.2
1980	675	196.5
1981	800	185.4
1982	925	195.6
1983	1100	242.9
1984	1260	193.5
1985	1500	81.1
1986(6 months)	2200	85.4
1986 " "	3200	64.0
1987 " "	4300	38.9
1987 " "	8500	25.0
1988(9 months)	15000	39.4
1988(3 months)	25000	50.5

Source: Etude comparative de l'evolution des prix et des salaires 1972 - 1984, Institut de recherches et de consultations, Beyrouth 1985 . 1985 - 1987, Dr. K. Hamdan, "Inflation et Salaire", Ecochifres Liban, 1987. 1988, collected data.

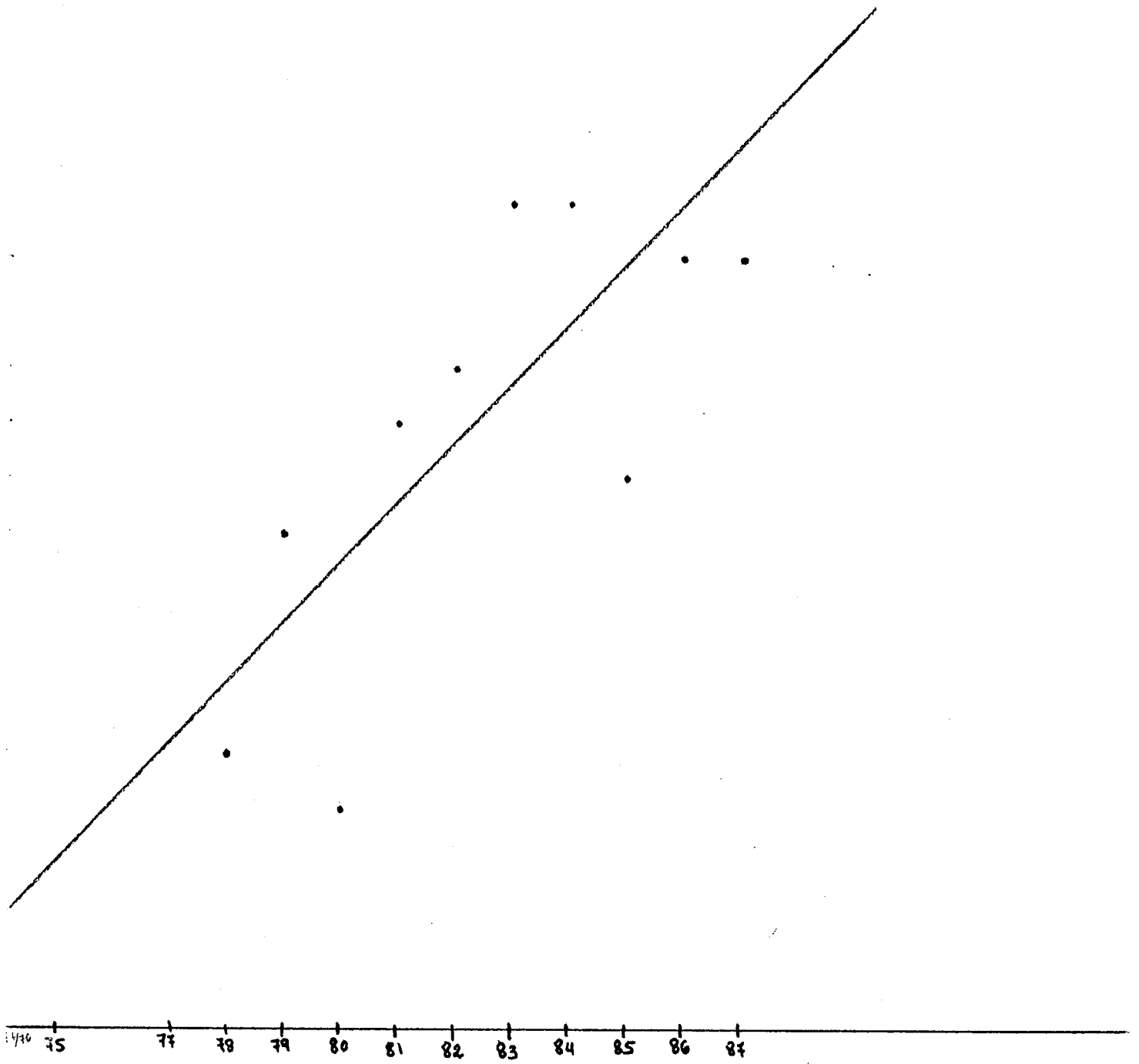
TABLE 2
MEATS IMPORTS (IN THOUSAND TONS)
(8)

TYPE	1972	1973	1974/76	1975	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
BEEF & VEAL	11	5	5	4	-	8	10	3	9	9	14	14	11	13	13
MUTTON & LAMB	22	18	9	8	-	9	11	13	14	15	13	13	11	13	13
TOTAL	33	22	14	12	-	17	21	16	23	24	27	27	22	26	26
CHICKEN	0.03	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-
MEATS PARTS: FRESH & FROZEN	7	5	-	-	-	-	-	-	-	-	-	-	-	-	-
FROZEN CHICKEN	0.11	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
COLD & SMOKED MEAT	0.03	0.03	-	-	0.05	-	-	-	-	-	-	-	-	-	-

(8) YEAR 1972/73/77: CHAMBER OF COMMERCE & INDUSTRY, STATISTIC OF EXTERNAL COMMERCE IN LEBANON.
YEAR 74/76, 78/79 - 87: STATISTICAL YEAR BOOK, UNITED NATIONS.

(-) DATA NOT AVAILABLE.

FIGURE 5
MEAT IMPORTS IN GRAPHIC FORM



ting countries by confirming the quantities received by each country of destination. In this way, approximate figures can be obtained about the total consumption of the Lebanese market.

Because of this, the demand for cold meat will be evaluated in comparison to fresh meat, studying its replacement and customer behavior.

The data in Table 3 is extracted from Table 2.

Table 3

DEMAND FOR FRESH MEAT					
YEAR	Q(Y) TONS	TIME INDEX (X)	X ²	XY	
1974/76	14000	0	0	0	
1975	12000	1	1	12	
1978	17000	2	4	34	
1979	21000	3	9	63	
1980	16000	4	16	64	
1981	23000	5	25	115	
1982	24000	6	36	144	
1983	27000	7	49	189	
1984	27000	8	64	216	
1985	22000	9	81	198	
1986	26000	10	100	260	
1987	26000	11	121	286	
	-----	-----	-----	-----	-----
	255000	66	506	1581	

The second technique, which is one of the major techniques to forecast demand for a certain product, is the mechanical extrapolation where the independent variable is time.

The least square method involves fitting a regression line through a series of observed data points in such a way that the squared deviations from this line are minimized. It is represented by the equation $Y = a + bt$, where a & b are parameters to be determinant and t is time. (10)

 (10) K.K.Seo, Managerial Economics; Text, Problems & Short Cases, 6th edition (Homewood, Illinois, 1984), p.267.

prices have increased so much lately due to the inflation rate. These companies import mortadelle and jambon pork; the quantities were excluded from our tables since the factory Al Taghzia SAL does not produce pork. Moreover, the suppliers of this line of product have changed very much in the last seven years due to the Lebanese civil war. Trading went uncontrolled by the government and new intruders tried to invade the Lebanese market by compatible products with lower prices. Some agents of international brands stopped importing whereas others took the opportunities to introduce new brands. Table 4 is limited to three years.

Table 4

QUANTITY IMPORTED 1986-1987-1988
IN TONS

SUPPLIERS	MORT. OLIVES			MORT. PISTACHIO			MORT. PEPPER			MORT. PLAIN		
	86	87	88	86	87	88	86	87	88	86	87	88
CO. X	3.0	2.75	3.5	2.0	2.0	2.5	0.75	.75	1.0	.85	.75	1.0
CO. Y	1.0	0.75	1.5	.75	.75	1.5	.15	.15	.2	.15	.15	.30
CO. Z	.75	.85	2.0	.75	.90	1.85	.7	.85	1.6	.50	.50	.75
	4.75	4.35	7.0	3.5	3.65	5.85	1.65	1.75	2.85	1.5	1.4	2.05
				1986	1987	1988						
TOTAL IN TONS				11.4	11.15	17.75						

The quantities produced in Kgs at Al Taghzia SAL factory are shown in Table 5.

Table 5

PRODUCTION OF AL TAGHZIA SAL
IN KGS

TYPE	1986 2 months	1987	1988	1989 2 months
----	-----	-----	-----	-----
Mort. Veal	5070	51292	149454	28750
Mort. Chicken	1337	4048	6684	1625
Mort. Turkey	1419	900	3056	655
Veal: Soujouk, Salamé Jambon, Roti	2426	4350	11263	2637
White Meat: Jambon	1282	364	---	49
Turkey: Salamé, Roti	1324	643	561	138
Chicken: Salamé, Roti	764	403	310	75
	-----	-----	-----	-----
Total	13622	62000	171328	33929

To figure the total consumption of Al Taghzia SAL's cold meat in the Lebanese market for the years 1986, 1987, and 1988, the amounts shown in Table 4 would be added to those in Table 5 less the quantities exported to the Gulf. This amount was 23 Tons to Kuwait in 1987 and 56.13 tons in 1988 to Kuwait, Bahrein, Abu Dabai, and Jordan. Table 6 presents the results.

Table 6

TOTAL CONSUMPTION OF COLD MEAT IN LEBANON

YEAR	Q(Y) IN TONS
----	-----
1986	25
1987	50
1988	133

If we compare these figures with the ones revealed by the Statistics of External Commerce in Lebanon for the years 1972, 1973, and 1977, we realise that consumption fluctuated in the same range, except for the year 1988 which reflected the stability of the Lebanese political situation in that period and the deterioration of the Lebanese citizen's income. Therefore demand for cold meat is studied only for the years 1986, 1987, and 1988 due to the big range between the previous years. The consumption is shown in Table 7.

Table 7

DEMAND FOR COLD MEAT

YEAR	Q(Y) IN TONS	P(X)	X ²	XY
1986	25	0	0	0
1987	50	1	1	50
1988	133	2	4	266
	-----	-----	-----	-----
	208	3	5	316

$$\begin{cases} Y = Xa + bX \\ \sum XY = a\sum X + b\sum X^2 \end{cases}$$

$$208 = 2a + 3b$$

$$316 = 3a + 5b$$

$$-(624 = 6a + 9b) \quad \}$$

$$632 = 3a + 5b \quad \} \implies b = 8$$

$$\implies a = \frac{208 - 24}{2} = 92$$

The estimated equation is thus:

$$Y = 92 + 8X$$

The forecasted demand for cold meat for the period 1989-92:

YEAR	Q(Y) IN TONS
1989	116
1990	124
1991	132
1992	140

According to this forecast, we can conclude that there is an average growth rate of 7% whereas the growth rate of fresh meat consumption is 1.75%.

It is important to note that price is a major determining factor in the shift in consumption from fresh meat to cold meat. The price comparisons are shown in Table 8.

Table 8

PRICE COMPARISON OF FRESH MEAT/COLD MEAT

YEAR	PRICE IN USD/KG FRESH MEAT	PRICE IN USD/KG COLD MEAT	
		OTHER CO.	AL TAGHZIA SAL
1985	2.30	1.5	
1986	2.15	1.85	1.75
1987	2.15	2.00	1.75
1988	2.25	2.70 *	2.15

* Average price of mortadelle beef with respect to other brands:

LA PIARA	\$3.50	COVONI	\$2.90
DACK	\$1.40	BEEF	\$2.90

It should be pointed out that butchers add a markup of at least 50% to the cost of fresh meat because meat must be cleaned and bones removed. This means that the butcher loses about 10% to 15% of the total weight after cleaning which he must recover in his selling price. On the other hand, the retailer of cold meat has to add only his margin of profit and the product will be ready for sale. In addition, the butcher needs manpower and experience while the cold meat cutter does not.

Income is another factor which affects the demand for cold meat. Due to the deterioration in per capita income and increase in product prices, the Lebanese citizen is not able any more to keep his old life style. He is forced to change his tastes and old habits, and look for a substitute in order to adjust his consumption to his per capita income. Tables 9 and 10 show population numbers and per capita income in order to have an idea about consumption levels.

Unfortunately, official government statistics have not been available lately, so recent changes in population numbers are not reflected in the International Financial Statistics. In addition, the number of foreign visitors in the last ten years has been restricted to only those persons who have business in Lebanon, with tourism nearly eliminated due to

Table 9

NUMBER OF FOREIGN VISITORS vs EXISTING POPULATION
IN LEBANON 1964 - 1974 / 1978 - 1983

YEAR	NO.OF FOREIGN VISITORS (000)	POPULATION (000) +	% OF POPULATION
1964	964	2175	44
1965	1221	2225	55
1966	1515	2276	67
1967	1218	2328	52
1968	1501	2340	64
1969	1587	2400	66
1970	1686	3470	68
1971	2257	2540	89
1972	2281	2620	87
1973	1904	2700	71
1974	2922	2762	106
1978	-	2730	-
1979	-	2700	-
1980	-	2670	-
1981	-	2650	-
1982	-	2640	-
1983	-	2640	-

Source: Ministere du Plan, Recueil de Statistique Libanaises 1973 (for the years 1964 - 1973) IMF, International Financial Statistics, Yearbook 1984 (for the years 1974 - 1978 - 1983).
(-) Not available

the Lebanese War. This would have an important effect on the demand for cold meat. The other important factor would be the drastic inflation which occurred in 1986 and 1987 affecting adversely the purchasing power of the Lebanese citizen and causing a real decline in his per capita income.

Table 10

PRICE INCREASE FOR THE CONSUMER PRODUCT
IN BEIRUT - DECEMBER 1986

	Equilibrium in %	Since Dec 85	Since Mars86	Since June86	Since Dec 86
Alimentary products	42.8	186.9	151.2	82.4	31.6
Clothes	8.55	144.6	120.8	93.4	55.0
Appartments	23.45	159.2	153.4	106.2	52.8
Other Expenditures	25.20	126.5	106.2	72.9	43.0

Total	100.00	162.5	135.0	83.00	38.5

Source: Dr. K. Hamdan, "Inflation et Salaire", in Ecochifres Liban, 1987, p.155.

Note that price increases between Dec.1985 and Dec.1986 reached 162.5%, and the prices of alimentary products increased by 186.9% . Table 11 shows consumer price index between year 1966 and 1987. Table 12 shows the deterioration of wages' purchasing power where the minimum wage in 1986 has lost 48% of its 1974's level, and the average wage in the same period has lost 76% of its value.

Table 11

TREND OF GENERAL PRICES INDEX
(1966 = 100)

YEAR	INDEX
1974	135.2
1977	230.2
1978	251.6
1979	311.9
1980	385.3
1981	460.0
1982	550.2
1983	586.5
1984	737.8
1985	1132.5
JUNE 1987	6893.5

Source: Dr. K. Hamdan, "Inflation et Salaire", Ecochifres Liban, 1987, p.156.

Meat represents about 10% of the alimentary products consumed. It increased as percentage increase in prices for the consumption

- since June 86 220.0
- since Dec 86 96.1
- since Mars 87 12.6

Table 12

DETERIORATION OF WAGES' PURCHASING POWER
(since 1974)

YEAR	% OF DETERIORATION	MINIMUM WAGE	AVERAGE WAGE
1975		5.5	7.1
1977		11.3	17.5
1978		18.9	24.5
1979		17.3	27.2
1980		13.9	26.0
1981		14.5	28.5
1982		16.6	30.0
1983		8.6	27.9
1984		13.6	33.7
1985		35.9	51.0
1986		48.0	76.0

 Source: 1975-1984 Etude comparative de l'evolution des prix et salaires au Liban 1974-1984 , Ministere du Travail 1985.

1985: Estimated

1986: Estimated based on rate of inflation Dec 162%

Because the increase in salaries takes place six months to one year after the due date of the inflation for which they try to compensate, there is a resulting minimization of the real value of the effective amount of retroactive for the adjusted salaries. This deterioration is not only caused by the War, but it is at the same time the economic freedom practiced in Lebanon where there are no brakes or regulators. Salaries are sometimes not enough to buy food.

People forced to look for substitutes for the commodities they used to buy will look for lower prices while trying to keep the same quality. Moreover, cold meat is highly requested by students and children for their sandwiches; it is easy to prepare, with no need for cooking or heating. Because of these factors, we can look for a shift from fresh meat to cold meat.

This type of product is facing a huge innovation in foreign countries. New shapes and new tastes are emerging. It has become an art in itself in preparation and presentation. The more innovative the product the more profitable it tends to be.

CHAPTER FIVE

COST AND REVENUE STREAMS OF THE PROJECT

A- Specific Data in Computations of Financial Statement

The computation of the cash flow statement, the profit and loss statement, and the internal rate of return for the project are based on the following data:

1- Lease of the Land

The management of the factory rented the shelter at LL 400,000 per year. The lease agreement is renewed every year although there is no definite clause mentioning the termination date of the lease. The rent therefore is considered fixed for the years covered by the study.

2- Machinery and Equipment

In 1986, the factory was equipped with its laboratory imported from France. Similarly, most of the necessary machinery cost at that time around FF 380640 which has a contre-value of USD 58,560.

In 1987, in order to fulfill the factory requirements, other equipment was bought in Lebanon costing around USD 12,500.

In 1988, production increased and the need for new equipment became insistent. Management bought a new cutter, meat boxes for the oven, and a machine for bastirma costing around USD 5000. In addition, an old vehicle was traded in for a different type for the amount of USD 3970.

In 1989, a husher, a cutter, and a mixer were bought from the former company at USD 33105.

In 1990, the management is planning to buy a fully automatic clipping machine accompanied by a scale which gives a common weight for the products plus a new oven and machine for ice. These will cost around FF 1,368,000 or approximately USD 240,000.

3- Improvements and Ramifications

In 1988, new improvements were introduced to the offices which cost around USD 5000.

In 1989, the floor under construction was built costing around USD 10,820. Advertisement costing around USD 5000 was very successful; posters were placed on the highways and publicity on the radio was carried out.

4- Life of the project

Life of the project is 13 years which is the life of the machinery and equipment.

B- Cost Stream of the Project

1- Capital Investment

In order to implement this expansion, the partners decided to increase their capital in 1989 by fifteen million Lebanese Pounds or USD 30,000.

2- Investment Cost

The investment cost is what is needed for the acquisition of the machinery and equipment. For this, a short term loan will be given by a bank for the amount of USD 240,000 at 12% interest basis, maturity after 18 months.

3- Cost of Capital

The cost of capital is the weighted average of debt bearing an interest of 12% on the USD borrowed and equity assigned an opportunity cost of 20% .

4- Operating Cost

Inflation in Lebanon was rapid in 1983 and 1988. Nevertheless, adjusting accounting data was open to question in order to retrieve the inflation rate.

The accounting procedure is to match increments of capitalized cost with resulting revenues, but the dollars that comprised the capitalized cost of years past are worth much more than the dollars of revenue that they presumably offset. From the economist's point of view, these accounting practices, by failing

to recognize inflation, result in substantial distortion of the firm's financial position. The company's income is overstated on the income statement, and the value of its assets is understated on the balance sheet.

Many accountants have also recognized this problem, and have offered three different solutions :

- 1- Constant dollar accounting, which is also called the general price level model. This solution restates the historical cost from nominal dollars to constant dollars. The method of attack is to adjust the data by the application of appropriate indexes to obtain measurements in dollars of constant purchasing power. This approach is easy to compute, easy to understand, and completely objective.
- 2- Current value accounting, which abandons historical cost as a basis for valuation in favor of some measure of current value. Proponents of this approach argue that users of financial statement are more concerned with what the enterprise is worth now than what it cost in the past. The major drawback is that not all assets can be objectively evaluated.
- 3- Current value/constant dollar accounting is a method that would change both the unit of measurement and the historical cost model. Proponents of this approach argue that constant dollars should be used to measure current values of assets. (11)

a- Al Taghzia SAL Financial Report 1986-1988

In evaluating the balance sheet and income statement for the years 1986-1988 at Al Taghzia SAL factory, the constant dollar accounting method is used in order to retrieve the inflation rate of USD during these periods.

Consumer price index ratios are taken from Table 10.

Year 1986	CPI 3445.9
Year 1987	CPI 28510.5
Year 1988	CPI 51889.1

(11) K.K.Seo, Managerial Economics, 6th edition (Homewood Illinois, 1984), p.439.

Balance Sheets for the years 1986, 1987, and 1988 are stated in Appendix A. Income Statements for the years 1986, 1987, 1988 are stated in Appendix B. Cash flow for the years 1986, 1987, 1988 are stated in Appendix C. Average rate of US Dollars in the Beirut Stock Exchange is stated in Appendix D.

b- Al Taghzia SAL Project Evaluation 1989-1998

In the AL TAGHZIA SAL project evaluation, a reasonable progression of price level changes was taken into consideration.

1) The working capital was figured at one and a half months stock of finished product, two months stock of raw material and three months stock of consumable products. The opening stock of raw material for the year 1989 amount USD 195,540 was divided as follows:

- * USD 45000.00 of moulds not usable since the type is used for smoked meat only. This stock will be used over the coming five years, USD 10000.00 yearly.
- * USD 34600.00 of raw material stock for two months: 24 tons of veal, 0.5 tons of chicken, 0.5 tons turkey.
- * USD 115,940 of spices, flavors and other moulds for six months stock. In the coming period, it will be considered for three months stock, since these products are imported. A letter of credit will be opened, renewed every 3 months.

Table 13 shows the projected consumption of raw

PROJECTED CONSUMPTION OF RAW MATERIALS
AND CONSUMABLE PRODUCTS
IN TONS AND (000) USD

DESCRIPTION	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
QUANTITY PRODUCED	158T	168T	179T	189T	200T	210T	221T	231T	242T	252T
(+) 1(1/2) MONTH STOCK	20T	21T	22T	24T	25T	26T	28T	29T	30T	31T
TOTAL QTYTY PRODUCED	178T	189T	201T	213T	225T	236T	249T	260T	272T	283T
RAW MATERIALS CONSUMED FOR PRODUCTION										
- MEAT USED FOR PROD.	115T	122T	131T	139T	146T	153T	162T	168T	177T	184T
- ADD 2 MONTH CLOSING STOCK	19T	20T	22T	23T	24T	25T	27T	28T	29T	31T
- LESS 2 MONTH OPENING STOCK	24T	19T	20T	22T	23T	24T	25T	27T	28T	29T
- = QTYTY PURCHASED	110T	123T	133T	140T	147T	154T	164T	169T	178T	186T
- STOCK INVENTORY	19T	20T	22T	23T	24T	25T	27T	28T	29T	31T
	x\$1.6	x\$1.85	x\$2.15	x\$2.5	x\$2.9	x\$3.35	x\$3.85	x\$4.45	x\$5.1	x\$5.85
	\$30.4	\$37.00	\$47.3	\$57.3	\$69.6	\$83.75	\$103.95	\$124.6	\$147.9	\$181.35
- CHICKEN USED FOR PROD.	4.3T	5T	5T	5T	5.75T	5.75T	6.5T	6.5T	6.5T	7T
- ADD 2 MONTH CLOSING STOCK	0.7T	0.8T	0.8T	0.8T	1T	1T	1T	1T	1T	1.2T
- LESS 2 MONTH OPENING STOCK	0.5T	0.7T	0.8T	0.8T	0.8T	1T	1T	1T	1T	1T
	4.2T	5.1T	5T	5T	5.95T	5.75T	6.5T	6.5T	6.5T	7.2T
- STOCK INVENTORY	0.7T	0.8T	0.8T	0.8T	1T	1T	1T	1T	1T	1T
	x\$1.15	x\$1.35	x\$1.55	x\$1.8	x\$2.1	x\$2.4	x\$2.75	x\$3.15	x\$3.65	x\$4.2
	\$4.805	\$1.08	\$1.24	\$1.44	\$2.10	\$2.40	\$2.75	\$3.15	\$3.65	\$5.04
- TURKEY USED FOR PROD.	2.5T	2.5T	2.5T	2.5T	3T	3T	3T	3.5T	3.5T	3.5T
- ADD 2 MONTH CLOSING STOCK	0.4T	0.4T	0.4T	0.4T	0.5T	0.5T	0.5T	0.6T	0.6T	0.6T
- LESS 2 MONTH OPENING STOCK	0.5T	0.4T	0.4T	0.4T	0.4T	0.5T	0.5T	0.5T	0.6T	0.6T
	2.4T	2.5T	2.5T	2.5T	3.1T	3T	3T	3.6T	3.5T	3.5T
- STOCK INVENTORY	0.4T	0.4T	0.4T	0.4T	0.5T	0.5T	0.5T	0.6T	0.6T	0.6T
	x\$1.15	x\$1.35	x\$1.55	x\$1.8	x\$2.1	x\$2.4	x\$2.75	x\$3.15	x\$3.65	x\$4.2
	\$0.46	\$0.54	\$0.62	\$0.72	\$1.05	\$1.20	\$1.375	\$1.89	\$2.19	\$2.52
- SPICES, MOULDS, FLAVOUR OPEN.	\$115.94	\$31.-	\$37.8	\$48.-	\$58.6	\$73.-	\$88.5	\$109.-	\$130.-	\$156.4
		+\$10.-	+\$10.-	+\$10.-	+\$15.-					
- ADD QTYTY PURCHASED	\$29,659	\$143.-	\$191.15	\$234.9	\$291.9	\$369.5	\$456.25	\$541.-	\$652.-	\$781.05
- LESS QTYTY CONSUMED	\$124.6	\$151.2	\$190.95	\$234.3	\$292.5	\$354.-	\$435.75	\$520.-	\$625.6	\$749.95
	\$31.-	\$37.8	\$48.-	\$58.6	\$73.-	\$88.5	\$109.-	\$130.-	\$156.4	\$187.5
- = CLOSING STOCK		+\$45.-	+\$35.-	+\$25.-	+\$15.-					

materials and consumable products. Also, it shows the amount of stock inventory of raw materials and finished goods.

- 2) The depreciation was figured according to the maximum fiscal range of rates according to the Ministry of Finance "arrêtés No.422 and 423 dated 9/9/81." Due to inflation in the previous years, Year 1989 has accumulated the differences in depreciation in order to have an accurate figure for the coming years in the study. Table 14 shows the projected depreciation schedule for the years 1989-1998 .
- 3) For the fixed costs, the factory distributes its expenses as a percentage ratio taking into consideration the nature of the expense and its contribution to the cost of production. The final list of cost of production expenses for the year 1988 in details is shown in Table 15. For the projected years, fixed expenses increased by 30% yearly. The financial expenses represents 12% yearly on the investment of USD 240,000 payable USD 15,000 per month. Table 16 shows the breakdown of fixed expenses for the projected years: Technical Cost, Freight and Warehousing, General Administrative, and Financial Expenses.
- 4) One of the fixed expenses that contributes to the cost of production is the labor cost. Table 17 shows salaries given to each department, taking into consideration the qualification and ability of each employee. Salaries increase by 20% yearly and the social securities represent 20% of the salaries.

TABLE 15

AL TAGHZIA SAL

BREAKDOWN OF EXPENDITURES FOR THE YEAR 1988

DESCRIPTION	TECH. %	COST \$	FREIGHT & %	W.H. \$	GENERAL %	ADMIST \$	FINANCIAL %	TOTAL EXP. 1988 \$
FUEL & GAS	30%	2606	70%	6080				8686.00
MAINTENANCE PROD.	30%	3020	70%	7047				10067.00
FACTORY SUPPLIERS	100%	1914						1914.00
OFFICE SUPPLIERS					100%	748		748.00
ELECTRICITY	28%	985	70%	2463	2%	71		3519.00
TRANSPORTATION OF ASSETS			100%	6038				6038.00
PERSONNAL COLLECT TRANSP.			25%	217	75%	651		868.00
POSTAGE & TELEPHONE					100%	603		603.00
TRAVEL & TRANSPORT					100%	1295		1295.00
MAINTENANCE & REPAIRS	28%	1842	70%	4605	2%	131		6578.00
RENT	22.5%	220	75%	734	2.5%	24		978.00
RELATED CHARGES			100%	449				449.00
PERSONNAL MEALS	75%	510	25%	170				680.00
PERSONNAL SERVICES	75%	2339	25%	779				3118.00
ADVERTISEMENT					100%			
INSURANCE	50%	443	40%	335	10%	89		887.00
MEDICAL CARE	100%	137						137.00
OTHER EXTERNAL SERVICES	30%	231	70%	539				770.00
OTHER TAXES			100%	757				757.00
REMUNICATION OF EMPLOYEES	60%	18147	20%	6049	20%	6049		30245.00
SOCIAL SECURITY	60%	143	20%	47	20%	47		237.00
DEPRECIATION	80%	24569	15%	4607	5%	1535		30711.00
FINANCIAL							100%	60449
END OF DUTIES	60%	1133	20%	377	20%	377		1887.00
TOTAL		58239		40774		12159	60449	171621.00

TABLE 16
AL TASHZIA SAL
CONTRIBUTION OF: - DISTRIBUTION & M. HOUSING EXPENSES
- ADMINISTRATIVE EXPENSES
- OTHER MANUFACTURING EXPENSES

DESCRIPTION	%	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
* TECHNICAL COST												
- % CONTRIB.		15160	19708	25620	33306	43298	56288	73174	95126	123664	160763	208992
- SOC. SEC.	60%	143	4056	4867	5840	7008	8410	10092	12110	14532	17438	20925
- RENT	22.5%	220	180	180	180	180	180	180	180	180	180	180
- DEPRECIATION	80%	24569	39862	33682	33350	28427	26956	24490	24490	24185	23778	23650
- SALARIES	60%	18147	20280	24336	29203	35044	42053	50464	60557	72668	87202	10464
* FREIGHT & M.H.												
		58239	84086	88685	100879	113957	133887	158400	192463	235229	289361	264211
* GENERAL ADM.												
- % CONTRIB.		29387	38138	49580	64454	83790	108927	141605	184087	239313	311107	404439
- SOC. SEC.	20%	47	3492	4190	5028	6034	7241	8690	10428	12514	15017	18020
- RENT	75%	734	600	600	600	600	600	600	600	600	600	600
- DEPRECIATION	15%	4607	7474	6315	6065	5330	5054	4592	4592	4535	4459	4434
- SALARIES	20%	6049	17460	20952	25142	30170	36205	43446	52135	62562	75075	90090
* FINANCIAL												
	100%	60449	17250	3150	4095	5323	6920	8996	11695	15204	19765	25695
* TOTAL		171621	194362	204204	243394	290098	353542	433154	538054	670918	839880	961349

Table 17

LABOR COSTS PER YEAR

- ADMINISTRATIVE STAFF

GENERAL MANAGER	USD 500.00/MO.
SECRETARY	USD 120.00/MO.
HEAD ACCOUNTANT	USD 400.00/MO.
ACCOUNTANTS	USD 195.00/MO.
1X\$95.- + 1X\$100.-	

TOTAL : 5 EMPLOYEES USD1215.00 x 12 = USD 14580.00

- PRODUCTION DEPARTMENT (TECHNICAL)

PRODUCTION MANAGER	USD 430.00/MO.
BUTCHERS	USD 860.00/MO.
2X\$190.- + 4X\$120.-	
PACKING EMPLOYEES	USD 400.00/MO.
5X\$80.-	

TOTAL : 12 EMPLOYEES USD1690.00 x 12 = USD 20280.00

- MARKETING DEPARTMENT (FREIGHT & WAREHOUSING)

SALES MANAGER	USD 220.00/MO.
SALESMEN	USD 320.00/MO.
4X\$80.-	
STOCK KEEPER MANAGER	USD 175.00/MO.
ASSISTANT STOCK KEEPER	USD 110.00/MO.
DRIVERS	USD 190.00/MO.
2X\$95.-	
HANDLING EMPLOYEE	USD 85.00/MO.

TOTAL : 10 EMPLOYEES USD1100.00 x 12 = USD 13200.00

- MAINTENANCE DEPARTMENT (FREIGHT & WAREHOUSING)

MAINTENANCE MANAGER	USD 270.00/MO.
ASSISTANT MAINT. MGER	USD 85.00/MO.

TOTAL : 2 EMPLOYEES USD 355.00 x 12 = USD 4260.00

TOTAL EMPLOYEES 29 USD4360.00 x 12 = USD 52320.00

5) The variable cost of meat products is as follows:

Mortadelle Veal	USD 0.93
Veal Products	USD 1.40
Mortadelle Chicken	USD 0.67
Chicken Products	USD 1.00
Mortadelle Turkey	USD 0.67
Turkey Products	USD 1.00
White Veal	USD 4.00

Other variable expenses, like spices, pistachio, olives, moulds and labels, are evaluated by the Company to be 0.60\$/kg. This amount is added to the cost of veal, chicken and turkey. The total cost of production of each type is shown below:

Mortadelle Veal	USD 1.53
Veal Products	USD 2.00
Mortadelle Chicken	USD 1.27
Chicken Products	USD 1.60
Mortadelle Turkey	USD 1.27
Turkey Products	USD 1.60
White Veal	USD 4.60

For the projected years in study, variable cost increases by 15% yearly. Table 18 shows the projected variable cost of goods sold.

- 6) Line of credits was figured at one month credit for the clients and 15 days average for the suppliers as letter of credits are paid at sight.
- 7) Salvage value of machinery and equipment is considered at USD 24000.
- 8) Income tax is 30% of the NIBIT .

TABLE 18
AL TAHZIA SAL
PROJECTED VARIABLE COST OF GOODS SOLD *

DESCRIPTION	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
MORTADELLE MEAT	138Tons x\$ 1.10	146Tons x\$ 1.30	156Tons x\$ 1.50	165Tons x\$ 1.75	174Tons x\$ 2.00	183Tons x\$ 2.30	192Tons x\$ 2.65	201Tons x\$ 3.05	211Tons x\$ 3.50	219Tons x\$ 4.00
	151800	189800	234000	288750	348000	420900	508800	613050	738500	876000
OTHER PROD. MEAT	10Tons x\$ 1.60	11Tons x\$ 1.85	12Tons x\$ 2.15	13Tons x\$ 2.50	13Tons x\$ 2.90	14Tons x\$ 3.35	15Tons x\$ 3.85	15Tons x\$ 4.45	16Tons x\$ 5.10	17Tons x\$ 5.85
	16000	20350	25800	32500	37700	46900	57750	66750	81600	99450
MORTADELLE CHICKEN	6Tons x\$ 0.80	7Tons x\$ 0.95	7Tons x\$ 1.10	7Tons x\$ 1.30	8Tons x\$ 1.50	8Tons x\$ 1.75	9Tons x\$ 2.00	9Tons x\$ 2.30	9Tons x\$ 2.65	10Tons x\$ 3.05
	4800	6650	7700	9100	12000	14000	18000	20700	23850	30500
OTHER PROD. CHICKEN	0.3Tons x\$ 1.15	0.3Tons x\$ 1.35	0.3Tons x\$ 1.55	0.3Tons x\$ 1.80	0.4Tons x\$ 2.10	0.4Tons x\$ 2.40	0.4Tons x\$ 2.75	0.5Tons x\$ 3.15	0.5Tons x\$ 3.65	0.5Tons x\$ 4.20
	345	400	465	540	840	960	1100	1575	1825	2100
MORTADELLE TURKEY	3Tons x\$ 0.80	3Tons x\$ 0.95	3Tons x\$ 1.10	3Tons x\$ 1.30	3.6Tons x\$ 1.50	3.6Tons x\$ 1.75	3.6Tons x\$ 2.00	4.3Tons x\$ 2.30	4.3Tons x\$ 2.65	4.3Tons x\$ 3.05
	2400	2850	3300	3900	5400	6300	7200	9890	11395	13115
OTHER PROD. TURKEY	0.5Tons x\$ 1.15	0.5Tons x\$ 1.35	0.5Tons x\$ 1.55	0.5Tons x\$ 1.80	0.6Tons x\$ 2.10	0.6Tons x\$ 2.40	0.6Tons x\$ 2.75	0.7Tons x\$ 3.15	0.7Tons x\$ 3.65	0.7Tons x\$ 4.20
	575	675	775	900	1260	1440	1650	2205	2555	2940
WHITE JAMBON	0.2Tons x\$ 4.60	0.2Tons x\$ 5.30	0.2Tons x\$ 6.10	0.2Tons x\$ 7.00	0.4Tons x\$ 8.05	0.4Tons x\$ 9.25	0.4Tons x\$10.65	0.5Tons x\$12.25	0.5Tons x\$14.10	0.5Tons x\$16.20
	920	1060	1220	1400	3220	3700	4260	6125	7050	8100
CONSUMABLE PRODUCTS	156Tons x\$ 0.70	168Tons x\$ 0.80	179Tons x\$ 0.95	189Tons x\$ 1.10	200Tons x\$ 1.30	210Tons x\$ 1.50	221Tons x\$ 1.75	231Tons x\$ 2.00	242Tons x\$ 2.30	252Tons x\$ 2.65
	110600	134400	170050	207900	260000	315000	386750	462000	556600	667800
TOTAL USD	287440	356185	443310	544990	668420	809200	985510	1182295	1423375	1700005

C- Revenue Stream of The Project

The products of Al Taghzia SAL are of two types :

- 1) the mortadelle type which increases in weight, every one kilogram giving one and a half kilogram (1KG |---> 1.5KG), and
- 2) the assorted types which do not change in weight (1KG |---> 1KG). Cost of meat is USD 1.4/KG, chicken USD 1.00/KG, turkey USD 1.00/KG. In order to have the real cost per kilogram, total quantity produced of mortadelle will be divided by 1.5, adding to it the quantity produced of other assortments of the same nature. In this way, we will have the supply of meat, chicken, and turkey.

1- Estimated Demand for Cold Meat

Table 19 shows the estimated demand for cold meat packed in the modern way from the year 1989 till the year 1998. It is estimated that the market share of Al Taghzia SAL is 87%. Moreover, the factory has an external market which represents about 50% of the demand for the internal market.

Quantities demanded were increased by an average of 6 tons in order to grasp the extra orders from the suburbs since the factory intends to enlarge its distribution system in a way to cover all the areas. Moreover, the Company intends to have one and a half months' stock of finished products, which in the study is considered to be Mortadelle Meat since it is highly demanded. Table 20 shows the total quantities produced of each type of meat.

Table 19

ESTIMATED DEMAND FOR COLD MEAT (IN TONS)

YEAR	SHARE OF AL TAGHZIA SAL INTERNAL	EXTERNAL	SAL TOTAL	SHARE OF OTHER CO.	TOTAL DEMAND OF LOCAL MKT
1989	101	51	152	15	116
1990	108	54	162	16	124
1991	115	58	173	17	132
1992	122	61	183	18	140
1993	129	65	194	19	148
1994	136	68	204	20	156
1995	143	72	215	21	164
1996	150	75	225	22	172
1997	157	79	236	23	180
1998	164	82	246	24	188

Table 20

FORECASTED DEMAND FOR AL TAGHZIA SAL PRODUCTS
(1989 - 1998)

YEAR	MEAT		CHICKEN		TURKEY		JAMBON WHITE
	MORT.	OTHER	MORT.	OTHER	MORT.	OTHER	
1989	138	10	6	0.3	3	0.5	0.2
1990	146	11	7	0.3	3	0.5	0.2
1991	156	12	7	0.3	3	0.5	0.2
1992	165	13	7	0.3	3	0.5	0.2
1993	174	13	8	0.4	3.6	0.6	0.4
1994	183	14	8	0.4	3.6	0.6	0.4
1995	192	15	9	0.4	3.6	0.6	0.4
1996	201	15	9	0.5	4.3	0.7	0.5
1997	211	16	9	0.5	4.3	0.7	0.5
1998	219	17	10	0.5	4.3	0.7	0.5

2- Revenue Stream

a- Projected sales shown in Table 21 is computed by multiplying the projected demand in physical unit by ex-factory price. Selling price increases by 15% yearly.

b- The projected profit and loss statement is illustrated in Table 22 taking into consideration variable and fixed costs. Other revenues increase by 12% yearly.

c- The projected cash flow statement is illustrated in Table 23 showing the sources and uses of funds during the years in study.

d- The projected balance sheet is illustrated in Table 24 taking into consideration all the assumptions stated previously for the cost and benefit stream of the project.

TABLE 21
AL TAGHZIA SAL
PROJECTED SALES STATEMENT IN USD

DESCRIPTION	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
MORTABELLE MEAT	138Tons	146Tons	156Tons	165Tons	174Tons	183Tons	192Tons	201Tons	211Tons	219Tons
	\$ 3.25	\$ 3.75	\$ 4.30	\$ 5.00	\$ 5.75	\$ 6.60	\$ 7.60	\$ 8.75	\$ 10.00	\$ 11.55
	448500	547500	670800	825000	1000500	1207800	1459200	1758750	2110000	2529450
OTHER PROD. MEAT	10Tons	11Tons	12Tons	13Tons	13Tons	14Tons	15Tons	15Tons	16Tons	17Tons
	\$ 6.25	\$ 7.20	\$ 8.30	\$ 9.55	\$ 11.00	\$ 12.65	\$ 14.55	\$ 16.75	\$ 19.25	\$ 22.15
	62500	79200	99600	124150	143000	177100	218250	251250	308000	376550
MORTABELLE CHICKEN	6Tons	7Tons	7Tons	7Tons	8Tons	8Tons	9Tons	9Tons	9Tons	10Tons
	\$ 3.35	\$ 3.85	\$ 4.45	\$ 5.10	\$ 5.85	\$ 6.75	\$ 7.75	\$ 8.90	\$ 10.25	\$ 11.80
	20100	26950	31150	35700	46800	54000	69750	80100	92250	118000
OTHER PROD. CHICKEN	0.3Tons	0.3Tons	0.3Tons	0.3Tons	0.4Tons	0.4Tons	0.4Tons	0.5Tons	0.5Tons	0.5Tons
	\$ 6.75	\$ 7.75	\$ 8.90	\$ 10.25	\$ 11.80	\$ 13.60	\$ 15.65	\$ 18.00	\$ 20.70	\$ 23.80
	2025	2325	2670	3075	4720	5440	6260	9000	10350	11900
MORTABELLE TURKEY	3Tons	3Tons	3Tons	3Tons	3.6Tons	3.6Tons	3.6Tons	4.3Tons	4.3Tons	4.3Tons
	\$ 3.35	\$ 3.85	\$ 4.45	\$ 5.10	\$ 5.85	\$ 6.75	\$ 7.75	\$ 8.90	\$ 10.25	\$ 11.80
	10050	11550	13350	15300	21060	24300	27900	38270	44075	50740
OTHER PROD. TURKEY	0.5Tons	0.5Tons	0.5Tons	0.5Tons	0.6Tons	0.6Tons	0.6Tons	0.7Tons	0.7Tons	0.7Tons
	\$ 6.75	\$ 7.75	\$ 8.90	\$ 10.25	\$ 11.80	\$ 13.60	\$ 15.65	\$ 18.00	\$ 20.70	\$ 23.80
	3375	3875	4450	5125	7080	8160	9390	12600	14490	16660
WHITE JARBON	0.2Tons	0.2Tons	0.2Tons	0.2Tons	0.4Tons	0.4Tons	0.4Tons	0.5Tons	0.5Tons	0.5Tons
	\$ 7.00	\$ 8.05	\$ 9.25	\$ 10.65	\$ 12.25	\$ 14.10	\$ 16.20	\$ 18.65	\$ 21.45	\$ 24.65
	1400	1610	1850	2130	4900	5640	6480	9325	10725	12325
TOTAL	\$547950	\$673010	\$823870	\$1010480	\$1228060	\$1488240	\$1797230	\$2159295	\$2589890	\$3115625

* SELLING PRICE INCREASE YEARLY BY 15%

TABLE 22
AL TAHZIA SAL
PROJECTED PROFIT & LOSS STATEMENT IN USD

DESCRIPTION	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NET SALES	547950	673010	823870	1010480	1228080	1482440	1797230	2159295	2589890	3115625
LESS VARIABLE COST	(287440)	(356185)	(443310)	(544990)	(668420)	(809200)	(985510)	(1182295)	(1423375)	(1700005)
MARGIN ON VARIABLE COST	260510	316825	380560	465490	559660	673240	811720	977000	1166515	1415620
LESS FIXED COST	(84086)	(88685)	(100879)	(113957)	(133887)	(158400)	(192463)	(235229)	(289361)	(264211)
GROSS PROFIT	176424	228140	279681	351533	425753	514840	619257	741771	877154	1151409
LESS: - FREIGHT & M.H. EXP. (67164)	(67164)	(81637)	(101289)	(125924)	(158027)	(198933)	(251842)	(319524)	(406258)	(517583)
- GENERAL & ADM. EXP. (25862)	(25862)	(30732)	(37131)	(44894)	(54708)	(66825)	(82054)	(100961)	(124496)	(153860)
PROFIT BEFORE FINANCIAL EXP. 83398	119771	141261	180715	213018	249082	285361	321286	346400	47966	47966
LESS FINANCIAL EXP.	(17250)	(3150)	(4095)	(5323)	(6920)	(8996)	(11695)	(15204)	(19765)	(25965)
PROFIT AFTER FINAN. EXP.	66148	112621	137166	175392	206098	240086	273666	306082	326635	454271
OTHER INCOME	22700	25500	28500	32000	36000	40500	45500	51000	57000	64000
NET PROFIT BEFORE INC. TAX.	88848	138121	165666	207392	242098	280586	319166	357082	383635	518271
LESS INCOME TAX 1988	(40998)	(62217)	(72629)	(84176)	(84176)	(95750)	(107125)	(115090)	(115090)	(155481)
NET PROFIT AFTER I.T.	124688	145175	169469	196410	223416	249957	268545	268545	268545	362790
PROFIT FOR LEGAL RESERVE	9566	14517	8984.29	--	--	--	--	--	--	--
NET PROFIT	115102	130658	160484.71	196410	223416	249957	268545	268545	268545	362790

TABLE 23
AL TAHZIA SAL
PROJECTED CASH FLOW STATEMENT IN USD

DESCRIPTION	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
* SOURCES OF FUNDS										
- Revenue	547950,00	673010,00	823870,00	1010480,00	1228060,00	1482440,00	1797230,00	2159295,00	2589890,00	3115625,00
- Depreciation	49897,26	42102,64	40436,90	35534,10	33694,60	30611,83	30611,83	30230,90	29722,92	29561,89
- Provision for Legal Reserve			9566,00	14517,00	8984,29					
- Provision for Inc. Tax			40998,00	62217,00	72629,00	84176,00	95730,00	107125,00	115090,00	155481,00
- Provision End of Serv. Indemnity	32788,92	17170,00	11500,00	14000,00	16500,00	19500,00	24000,00	28500,00	34500,00	41000,00
- Capital Paid			30000,00							
- Uses Of Stock	87875,92									
- Reduction Other Current Assets	202189,46	6000,00	6000,00	6000,00	6000,00	6000,00	6000,00	5500,00	5000,00	
- Increase In Suppliers							8600,00	8800,00	11300,00	13300,00
- Other Income	22700,00	25500,00	28500,00	32000,00	36000,00	40500,00	45500,00	51000,00	57000,00	64000,00
* TOTAL SOURCES OF FUND	943401,56	793782,64	960870,90	1174748,10	1401867,89	1663227,83	2007691,83	2390450,90	2842502,92	3418967,89
* USES OF FUNDS										
- Operating Expenses	481802,00	560389,00	686704,00	835088,00	1021962,00	1242354,00	1523564,00	1853213,00	2263255,00	2661354,00
- Fixed Assets Investment	38355,35	240000,00								
- Inventory Investment	28665,22	3755,00	10740,00	11100,00	12490,00	30100,00	41225,00	42565,00	50500,00	66270,00
- Payment Of Income Tax		8100,00	9800,00	14500,00	14100,00	16300,00	24400,00	23250,00	27550,00	32150,00
- Reduction In Other Current Liability	89615,49	88875,00	90475,00	31050,00	19200,00	19700,00				
- Decrease Of Shareholders Loans		18535,75	18000,00	25000,00	50000,00	50000,00	50000,00	50000,00	50000,00	50000,00
- Increase In C.A.		11185,00	14150,00	16650,00	20950,00	24390,00	30770,00	36010,00	45300,00	54155,00
- Other Exp. (Tax & Leg. Reserve)		50564,00	50564,00	76734,00	81613,29	84176,00	95750,00	107125,00	115090,00	155481,00
* TOTAL USES OF FUNDS	638438,06	930859,75	880433,00	1051130,00	1282532,29	1539649,00	1847885,00	2207913,00	2658820,00	3134500,00
* CUMULATION CASH SURPLUS (DEFICIT)	210365,03	73307,92	153745,82	277365,92	396699,52	520278,35	678085,18	860623,08	1044306,00	1328773,89

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TABLE 24
AL TAGHZIA SAL
PROJECTED BALANCE SHEET IN USD

DESCRIPTION	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
A S S E T S										
‡ UNTANGIBLE ASSETS	1286.00	643.00	--	--	--	--	--	--	--	--
- PRELIMINARY EXPENSES LESS DEPRECIATION	3214.61 1928.61	3214.61 2571.61	3214.61 3214.61							
TANGIBLE ASSETS	149217.91	351879.80	315478.42	281700.34	248005.74	217393.91	186782.08	156551.18	126828.26	97266.37
- MACHINERY & EQUIPMENT LESS ACC. DEPRECIATION	154924.09 31394.63	394924.09 61042.46	394924.09 90690.29	394924.09 120338.12	394924.09 149985.65	394924.09 179633.78	394924.09 209281.61	394924.09 238922.51	394924.09 268432.40	394924.09 297942.29
- VEHICLE LESS ACC. DEPRECIATION	11756.53 4922.49	11756.53 6332.73	11756.53 7580.56	11756.53 8456.56	11756.53 9332.56	11756.53 10208.56	11756.53 11084.56	11756.53 11595.50	11756.53 11756.53	--- ---
- OTHER ASSETS LESS ACC. DEPRECIATION	32007.94 13313.59	32007.94 19593.63	32007.94 25099.35	32007.94 28353.60	32007.94 31524.37	32007.94 31612.37	32007.94 31700.37	32007.94 31779.43	32007.94 31831.43	32007.94 31883.43
- ASSETS RELATED TO PARTICIPATION	160.06	160.06	160.06	160.06	160.06	160.06	160.06	160.06	160.06	160.06
‡ DIFFERED ASSETS	9270.07	5148.54	1756.02	---	---	---	---	---	---	---
- EXP. DISTRIBUTED FOR SEVERAL TURNS LESS ACC. DEPRECIATION	20607.65 11337.58	20607.65 15459.11	20607.65 18851.63	20607.65 20607.65						
‡ CURRENT ASSETS	449195.03	329177.92	438305.82	598183.92	759059.52	947428.35	1195630.18	1474493.08	1776526.00	2213568.89
- INVENTORY R.M. & CONS.PROD.	107665.00	111420.00	122160.00	133260.00	145750.00	175850.00	217075.00	259640.00	310140.00	376410.00
- INVENTORY OF FINISHED PROD.	36000.00	44100.00	53900.00	68400.00	82500.00	98800.00	123200.00	146450.00	174000.00	206150.00
- CUSTOMERS	45665.00	56850.00	71000.00	87660.00	108610.00	133000.00	163770.00	199780.00	245080.00	299235.00
- OTHER DEBTORS	40000.00	35000.00	30000.00	25000.00	20000.00	15000.00	10000.00	5000.00	---	---
- CASH IN HAND	9500.00	7500.00	8500.00	6500.00	5500.00	4500.00	3500.00	3000.00	3000.00	3000.00
- CASH IN BANKS	210365.03	73307.92	153745.82	277363.92	396699.52	520278.35	678085.18	860623.08	1044306.00	1328773.89
T O T A L A S S E T S	608969.01	686849.26	755540.26	879884.26	1007065.26	1164822.26	1382412.26	1631044.26	1903354.26	2310835.26
L I A B I L I T I E S										
‡ SHAREHOLDERS EQUITY	(89666.74)	95624.26	231792.26	390967.26	576936.26	792846.26	1040262.26	1318719.26	1621764.26	2025554.26
- CAPITAL	36796.46	66796.46	66796.46	66796.46	66796.46	66796.46	66796.46	66796.46	66796.46	66796.46
- LEGAL RESERVE	332.71	332.71	9898.71	24415.71	33400.00	33400.00	33400.00	33400.00	33400.00	33400.00
- RETAINED EARNINGS	(167125.91)	(29004.91)	86097.09	216755.09	377239.80	573649.80	797065.80	1047022.80	1315567.80	1678357.80
- PROV. FOR END OF SERV. INDEM.	40330.00	57500.00	69000.00	83000.00	99500.00	119000.00	143000.00	171500.00	206000.00	247000.00
‡ LOANS FOR SHAREHOLDERS	411535.75	393000.00	375000.00	350000.00	300000.00	250000.00	200000.00	150000.00	100000.00	50000.00
‡ CURRENT LIABILITIES	287100.00	198225.00	148748.00	138917.00	130129.00	121976.00	142150.00	162325.00	181590.00	235281.00
- SUPPLIERS	236500.00	167625.00	97150.00	76700.00	57500.00	37800.00	46400.00	55200.00	66500.00	79800.00
- INCOME TAX DUES	---	---	40998.00	62217.00	72629.00	84176.00	95750.00	107125.00	115090.00	155481.00
- OTHER CREDITORS	50600.00	30600.00	10600.00	---	---	---	---	---	---	---
T O T A L L I A B I L I T I E S	608969.01	686849.26	755540.26	879884.26	1007065.26	1164822.26	1382412.26	1631044.26	1903354.26	2310835.26

CHAPTER SIX

PROFITABILITY INDICATORS AND SENSITIVITY ANALYSIS

A- Profitabilty Indicators

Long term differential investments of capital are called capital investment problems. They are also commonly called capital budgeting problems because a capital budget is a list of the capital investment projects that an organization has decided to carry out.

In these problems, differential cost and revenues are treated in a way that the longer time horizon of capital budgeting problems magnifies the problems of estimating these cost and revenue items. When an organization purchases a fixed asset, it makes an investment. The organization commits funds today in the expectation of earning a return on those funds over some future stream of expected cash inflows.

When an organization is considering whether or not to purchase a new fixed asset, the essential question is whether the future cash inflows are likely to be large enough to warrant making the investment. (12)

(12) R. Anthony & J. Reece, Accounting Text & Cases. 7th edition (Homewood, Illinois, 1983), p.751.

Will Al Taghzia SAL project be profitable with the new machinery and equipment investment? The future expected cash inflow of this investment are the profits from better packing process and presentation produced by the new equipment. The proposed investment must be judged by its expected return relative to investment cost. How close will it come to the investor's requirement? Usually, the investment decision is whether to accept or reject the project. There are many profitability indicators used in project evaluation. In this study; the NPV and IRR will be adopted as profitability measures.

1- NPV Rule

Some methods of evaluating projects recognise that a dollar received immediately is preferable to a dollar received at some future date. This recognition led to the development of discounted cash flow (DCF) technique to take account of the time value of money. One such discounted cash flow technique is called the NPV method. To implement this approach, find the present value of the expected net cash flows of an investment, discounted at the cost of capital and subtract from it the initial cost outlay of the project. If the NPV is positive, the project should be accepted (feasible); if negative, it should be rejected. If the two projects are mutually exclusive, the one with the higher NPV is chosen.

The equation for the NPV is:

$$NPV = -C_0 + \frac{R_1 - C_1}{(1+r)^1} + \frac{R_2 - C_2}{(1+r)^2} + \dots + \frac{R_n - C_n + S}{(1+r)^n}$$

Here C_1, C_2, R_1, R_2 and so forth represent the net cash flows.

- C_0 = Initial cost of the project
- R_1 = Expected revenue in year 1
- C_1 = Cost expected to be incurred in year 1
- r = Cost of capital or rate of discount
- S = Salvage value of the project
- n = Expected life of the project (13)

The project revealed a net present value USD 120760 which means that the new investment is economically feasible. This result is shown in Table 25.

2- Internal Rate of Return Rule

The IRR is defined as the interest rate that equates the present value of the expected future cash flows, or receipts, to the initial cost outlay. The equation for calculating the internal rate of return is

$$0 = -C_0 + \frac{R_1 - C_1}{(1+p)^1} + \frac{R_2 - C_2}{(1+p)^2} + \dots + \frac{R_n - C_n + S_n}{(1+p)^n}$$

(13) J.Fred Weston , Eugene F. Brigham , Managerial Finance 7th edition (Japan, 1981), p.405.

TABLE 25
AL TAGHZIA SAL
COMPUTATION OF N.P.V

YEAR	INVESTMENT COST	OPERATING COST	TOTAL COST	REVENUE STREAM	NET REVENUE	DEPRECIATION	N.R. + DEP.	PMF 14%	P.V.
1986	164144	87144	251288	38570	(21271)	6884	(206034)	1.00	(206034.00)
1987	16652	65122	81774	(29798)	(111572)	2326	(109246)	0.8772	(95830.59)
1988	13979	171621	185600	59142	(126458)	3990	(122468)	0.7695	(94239.12)
1989	38355	481802	520157	570650	50493	49897	100390	0.6750	67763.23
1990	270000	560389	830389	698510	(131879)	42103	(89776)	0.5921	(53156.36)
1991		750884	750884	852370	101486	40437	141923	0.5194	73714.80
1992		927144	927144	1042480	115336	35534	150870	0.4556	68736.37
1993		1120681	1120681	1264060	143379	33694	177073	0.3996	70758.37
1994		1360646	1360646	1522940	162294	30612	192906	0.3506	67632.84
1995		1669704	1669704	1842730	173026	30612	203638	0.3075	62618.68
1996		2031757	2031757	2210295	178538	30231	208769	0.2697	56304.99
1997		2483667	2483667	2646890	163223	29723	192946	0.2366	45651.02
1998		2959394	2959394	3179625	220231	29562	249793	0.2076	51857.02
							24000	0.2076	4982.40
									120759.67

NET PRESENT VALUE IN USD

120759.67

$$\begin{aligned} \text{* COST OF CAPITAL} &= (36796.46 \times 20\%) + (127347.74 \times 12\%) && 7359.29 + 15281.73 \\ &= (36796.46 + 127347.74) && 164144.20 \\ & && = 0.1379 = 14\% \end{aligned}$$

Here the equation has one unknown and we can solve for the value of p . Some value of p will cause the sum of discounted receipts to equal the initial cost of the project, making the equation equal to zero, and that value of p is defined as the internal rate of return; that is, the solution value of p is the IRR.

Notice that the internal rate of return formula is simply the NPV formula solved for that particular value of r that causes the NPV to equal 0. The IRR may be found by trial and error. The interest rate that brings about this equality is defined as the internal rate of return.

The acceptance criterion generally employed with the IRR method is to compare the internal rate of return with a required rate of return (cost of capital). If the internal rate of return exceeds the required rate, the project is accepted (it is economically feasible); if not, it is rejected. (14)

By trial and error, the internal rate of return of the project was found to be approximately 18% compared to a cost of capital of 14%; therefore the project is feasible. This result is shown in Table 26.

(14) Weston, et al., p.406.

TABLE 26
AL TASHZIA SAL
COMPUTATION OF I.R.R.

YEAR	INVESTMENT COST	OPERATING COST	TOTAL COST	REVENUE STREAM	NET REVENUE	DEPRECIATION	M.R. + DEP.	PIR 18%	P.V.
1986	164144	87144	251288	38570	(21271)	6684	(206034)	1.00	(206034.00)
1987	16652	65122	81774	(29798)	(111572)	2326	(109246)	0.8474	(92575.06)
1988	13979	171621	185600	59142	(126458)	3990	(122468)	0.7194	(88103.47)
1989	38355	481802	520157	570650	50493	49897	100390	0.6097	61207.78
1990	270000	560389	830389	698510	(131879)	42103	(89776)	0.5181	(46512.94)
1991		750884	750884	852370	101486	40437	141923	0.4405	62517.08
1992		927144	927144	1042480	115336	35534	150870	0.3745	56500.81
1993		1120681	1120681	1264060	143379	33694	177073	0.3174	56202.97
1994		1360646	1360646	1522940	162294	30612	192906	0.2695	51988.16
1995		1669704	1669704	1842730	173026	30612	203638	0.2288	46592.37
1996		2031757	2031757	2210295	178538	30231	208769	0.1941	40522.06
1997		2483667	2483667	2646890	163223	29723	192946	0.1647	31778.20
1998		2959394	2959394	3179625	220231	29562	249793	0.1396	34871.10
					SALVAGE VALUE		24000	0.1396	3350.40

NET PRESENT VALUE FOR REQ 18%

12305.45

B- Financial Ratios

1- Liquidity:

The current ratio is computed by dividing current assets by current liabilities. It is used to measure the short-term solvency, since it indicates the extent to which the claims of short-term creditors are covered by assets that are expected to be converted to cash. The result is shown in Table 27; the ratio increases over the project life.

2- Financial Structure

The current liabilities to equity ratio shows the extent to which equity can cover current liabilities. The result is shown in Table 27; the ratio decreases over the project life.

3- Profitability

a- Return on capital investment is computed by dividing net income by capital. It shows the ability to cover the capital of the project. The result is shown in Table 27; the ratio increases over the project life.

b- Return on investment of fixed assets is computed by dividing net income by fixed assets. It measures the return on fixed assets investments. The high rate results from the high profit margin on sales and from high turnover of fixed assets. The result is shown in Table 27; the rate increases over the project life.

c- Profit margin on sales is computed by dividing net income after taxes by sales. It gives the profit per dollar of sales. The result is shown in Table 27; it is relatively good. This progression is not sufficient due to the big proportion of variable costs compared to fixed costs which affects this ratio directly.

4- Operating Ratio

Operating cost to sales ratio measures the gross margin on sales. The result is shown in Table 27; the ratio is approximately fixed over the project life.

C- Break-even Point

The break-even point is of little practical interest in a profitable company because attention is focused on the profit region, which should be considerably above the break-even volume. At lower than a break-even volume, a loss is expected; and at higher volume a profit is expected. (15)

The break-even point for the year 1989 is calculated hereunder, taking into consideration total sales and the real quantity sold.

(15) R. Anthony & J. Reece, p.522.

TABLE 29
AL. TAGHZIA SAL.
PROFORMA FINANCIAL RATIOS

DESCRIPTIONS	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
A - LIQUIDITY RATIO										
- Current Ratio	1.56	1.66	2.94	4.3	5.83	7.76	8.41	9.08	9.78	9.4
B - FINANCIAL STRUCTURE RATIO										
- Current Liability to Equity	---	2.07	0.64	0.35	0.22	0.15	0.13	0.12	0.11	0.1
C - PROFITABILITY RATIO										
- Return on Capital Inv.	2.41	2.06	1.72	1.95	2.40	2.94	3.34	3.74	4.02	5.4
- Return on Inv. of F.A.	0.45	0.31	0.26	0.29	0.36	0.44	0.50	0.56	0.61	0.8
- Profit Margin on Sales	0.16	0.20	0.13	0.12	0.13	0.13	0.12	0.11	0.10	0.1
D - OPERATING RATIO										
- Operating Cost/Sales	0.68	0.66	0.66	0.65	0.65	0.65	0.65	0.65	0.66	0.63

$$\text{SELLING PRICE} = \frac{\text{SALES}}{\text{QTY SOLD}} = \frac{547950}{158 \text{ T}} = 3.47 \text{ \$/KG}$$

$$\text{VARIABLE EXP.} = \frac{287440}{158 \text{ T}} = 1.82 \text{ \$/KG}$$

$$\text{MARGIN ON VARIABLE COST} = 3.47 - 1.82 = 1.65 \text{ \$/KG}$$

$$\text{BREAK-EVEN POINT} = \frac{\text{FIXED EXP.}}{\text{OPER. PROFIT}} = \frac{\$194362}{1.65} = 117795 \text{ KG/YEAR}$$

(Say 118 TON/YEAR)

We realize that the Factory is producing above the break-even point, i.e. 178 TON/YEAR; this means that the Company is making profit. Moreover, the Factory cares to compete in the local market by introducing its goods at lower prices.

D- SPECIFIC ASSUMPTIONS FOR FUTURE SALES

Two assumptions are made in case future sales will not increase by 7%:

- 1- In case situation in Lebanon has not improved, sales is assumed to increase by 3%, the project revealed a NPV USD 226,988 which means that the investment is still economically feasible. This result is shown in Appendix E.
- 2- In case situation in Lebanon has improved and demand of foreign markets has increased, sales is assumed to increase by 10%, the project revealed a NPV USD 901,697 which means that the investment is feasible. This result is shown in Appendix F.

Another assumption is made in case NPV is calculated at constant prices where the cost and revenue streams of the project do not change over the project life. It revealed a a NPV USD 260794.- which means that the investment is feasible. The result is shown in Appendix G.

CHAPTER SEVEN

CONCLUSION AND RECOMMENDATIONS

Al-Taghzia SAL is in the growth period of its life cycle. It is natural for it to have losses in its introductory production period since it is introducing a new cold meat brand product to the market, a unique product line in Lebanon. The factory had a successful trial production period which took about three years, offering the best quality at the best prices. The management of the company found it necessary to buy new machinery and equipment in order to ameliorate the product packing and presentation. It decided to increase its capital and profit from a bank loan in order to add the necessary investment.

The NPV and IRR of the project have shown that the production of cold meat is economically feasible, where NPV is greater than zero and IRR is greater than cost of capital. Therefore, the additional investment for the amount of USD 240,000 is feasible since the production of cold meat renders profit to the company. Moreover, this product is in high demand by the new generation since it is easy to prepare and to present.

The conclusion reached by analysis of all factors is that Al-Taghzia SAL at this point can expect to increase its produc-

tion in order to fulfill the demand of the Lebanese and foreign markets, and do so profitably.

If the company acts on this feasibility study, we highly recommend that the Management of the Company work hard on its organizational hierarchy. It should also work on its marketing mix: product offering, price structure, the promotional activities, and the distribution system:

- Product: planning and developing the right products and /or services to be marketed by the company.

- Price: management must determine the right base price for its products. It must decide on discount and freight payments.

- Promotion: advertising and sales promotions are the major activities to persuade the customer to buy the product.

- Distribution: Management should decide upon selection of the right trade channels and development of a distribution system for physically handling and transporting the products through these channels.

We recommend also that the Management of the Company look for innovation in the same line product by introducing canned and frozen meat. All this requires patience and talent.

A P P E N D I C E S

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APPENDIX A

AL TAGHZIA SAL
BALANCE SHEET
FOR THE YEARS 1986, 1987, 1988

A S S E T S	1986	1987	1988
‡ UNTANGIBLE ASSETS	2870.14	2792.44	2749.68
	-----	-----	-----
- PRELIMINARY EXPENSES	3214.61	3214.61	3214.61
LESS ACC. DEPRECIATION	(344.47)	(422.17)	(464.93)
‡ TANGIBLE ASSETS	122845.95	137908.53	151413.37
	-----	-----	-----
- MACHINERY & EQUIPMENT	104301.56	116820.70	121819.09
LESS ACC. DEPRECIATION	(2868.36)	(3994.50)	(5247.43)
- VEHICLES	4451.97	7787.50	11756.53
LESS ACC. DEPRECIATION	(1943.18)	(2040.98)	(2270.56)
- OTHER ASSETS	15379.60	16176.69	21187.94
LESS ACC. DEPRECIATION	(799.11)	(1164.35)	(1561.91)
- FIXED ASS. UNDER CONSTRUCTION			5569.65
- ASS. RELATED TO PARTICIPATION	4323.47	4323.47	160.06
‡ DIFFERED ASSETS	8990.60	10994.20	17152.84
	-----	-----	-----
- EXP. DISTR. FOR SEVERAL TURN	9719.61	12382.25	20607.65
LESS ACC. DEPRECIATION	(729.01)	(1388.05)	(3454.81)
‡ CURRENT ASSETS	170938.64	504813.23	500230.16
	-----	-----	-----
- INV. RAW MAT. & CONSUM. PROD.	67484.64	146492.70	195540.92
- INV. FINISHED GOOD	33094.41	5774.75	7334.78
- GOODS IN TRANSIT		190999.30	
- CUSTOMERS	40159.07	92663.79	193317.32
- OTHER DEBTORS	29941.10	62209.73	91510.87
- CASH IN HAND	259.42	5884.04	12526.27
- CASH IN BANKS		788.92	
	-----	-----	-----
T O T A L A S S E T S	305645.33	656508.40	671546.05
<hr style="border-top: 1px dashed black;"/>			
L I A B I L I T I E S	1986	1987	1988
‡ SHAREHOLDERS' EQUITY	(9604.88)	(102507.86)	(211303.66)
	-----	-----	-----
- CAPITAL	36796.46	36796.46	36796.46
- LEGAL RESERVE	332.71	332.71	332.71
- RETAINED EARNING	(48574.39)	(143494.38)	(255973.91)
- PROV. FOR END OF SERV. IND.	1840.34	3857.35	7541.08
‡ LOANS FOR SHAREHOLDERS	249262.00	276823.76	411535.75
‡ CURRENT LIABILITIES	65988.21	482192.50	471313.96
	-----	-----	-----
- SUPPLIERS	41240.59	417560.63	305451.15
- OTHER PAYABLE	7701.47	37481.18	71264.34
- BANKS	17046.15	27150.69	94598.47
	-----	-----	-----
T O T A L L I A B I L I T I E S	305645.33	656508.40	671546.05
<hr style="border-top: 1px dashed black;"/>			

APPENDIX B

AL TAGHZIA SAL
INCOME STATEMENT
FOR THE YEARS ENDED 1986, 1987, 1988

DESCRIPTION	1986	1987	1988
SALES	226621.73	167063.01	408287.53
LESS COST OF GOODS SOLD	(207600.20)	(228059.01)	(429693.35)
PURCHASES	308179.25	279747.41	480301.60
+ BEG. INV. R.M.		67484.64	146492.70
+ BEG. INV. F.G.		33094.41	5774.75
- END. INV. R.M.	(67484.64)	(146492.70)	(195540.92)
- END. INV. F.G.	(33094.41)	(5774.75)	(7334.78)
	-----	-----	-----
GROSS PROFIT ON SALES	19021.53	(60996.00)	(21405.82)
LESS EXPENSES	(87144.40)	(65122.32)	(171621.06)
	-----	-----	-----
GROSS PROFIT B. I. T.	(68122.87)	(126118.32)	(193026.88)
OTHER REVENUES	19548.48	31198.33	80547.35
	-----	-----	-----
NET PROFIT (DEFICIT)	(48574.39)	(94919.99)	(112479.53)

APPENDIX C

AL TAGHZIA SAL
CASH FLOW
FOR THE YEARS 1986, 1987, 1988

DESCRIPTION	1986	1987	1988
<hr/>			
* SOURCES OF FUNDS			
<hr/>			
REVENUE	19021.53	(60996.00)	(21405.82)
DEPRECIATION	6684.13	2325.92	3989.59
PROV.END OF SERV.INDEMNITY	1840.34	2017.01	3683.73
CAPITAL PAID	36796.46		
USES OF STOCK			140391.05
INCREASE OF SHAREHOLD.LOANS	249262.00	27561.76	134711.99
OTHER REVENUE	19548.48	31198.33	80547.35
LEGAL RESERVE	332.71		
INCREASE IN LIABILITIES	48942.06	406099.75	
	<hr/>	<hr/>	<hr/>
TOTAL SOURCES OF FUNDS	382427.71	408206.77	341917.89
<hr/>			
* USES OF FUNDS			
<hr/>			
OPERATING EXPENSES	87144.40	65122.32	171621.06
FIXED ASSETS INVESTMENT	131671.21	16651.76	15384.91
INVENTORY INVESTMENT	100579.05	242687.70	
DIFFERED ASSETS	9719.61	2662.64	8225.40
OTHER ASSETS	70359.59	91186.89	135807.98
DECREASE IN LIABILITIES			78326.32
	<hr/>	<hr/>	<hr/>
TOTAL USES OF FUNDS	399473.86	418311.31	409365.67
<hr/>			
CUMULATION CASH SURPLUS (DEFICIT)	(17046.15)	(27150.69)	(94598.47)
<hr/>			

APPENDIX D

AVERAGE RATE OF USD IN BEIRUT STOCK EXCHANGE

YEAR	\$/LL
1978	2.95
1979	3.24
1980	3.43
1981	4.31
1982	4.72
1983	4.52
1984	6.51
1985	16.42
1986	38.37
1987	224.74
1988	409.23
1989	500.00 (*)

Source: Banque du Liban
(*) estimated

APPENDIX F

AL TAHERZIA S&L

COMPUTATION OF N.P.V AT 10% SALES INCREASE

YEAR	INVESTMENT COST	OPERATING COST	TOTAL COST	REVENUE STREAM	NET REVENUE	DEPRECIATION	N.R. + DEP.	PIF 14%	P.V.
1986	144144	87144	231288	38570	(21271)	6684	(206034)	1.00	(206034.00)
1987	16652	65122	81774	(29798)	(111572)	2326	(109246)	0.8772	(95830.59)
1988	13979	171621	185600	59142	(126458)	3990	(122468)	0.7695	(94239.12)
1989	38355	471002	509357	550140	40783	49897	90680	0.6750	61209.00
1990	270000	553234	823234	703520	(119714)	42103	(77611)	0.5921	(45953.47)
1991		748143	748143	897750	149607	40437	190044	0.5194	98708.85
1992		953153	953153	1149560	196407	35534	231941	0.4556	105672.31
1993		1207250	1207250	1476920	269670	33694	303364	0.3996	121224.25
1994		1524283	1524283	1887300	363017	30612	393629	0.3506	138006.32
1995		1934082	1934082	2419130	485048	30612	515660	0.3075	158565.45
1996		2447457	2447457	3092340	644883	30231	675114	0.2697	182078.24
1997		3104058	3104058	3969300	865242	29723	894965	0.2366	211748.71
1998		3878144	3878144	5108500	1230356	29562	1259918	0.2076	261558.97
							24000	0.2076	4982.40

NET PRESENT VALUE IN USD

901697.32

↑ SALES INCREASE BY 10%

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