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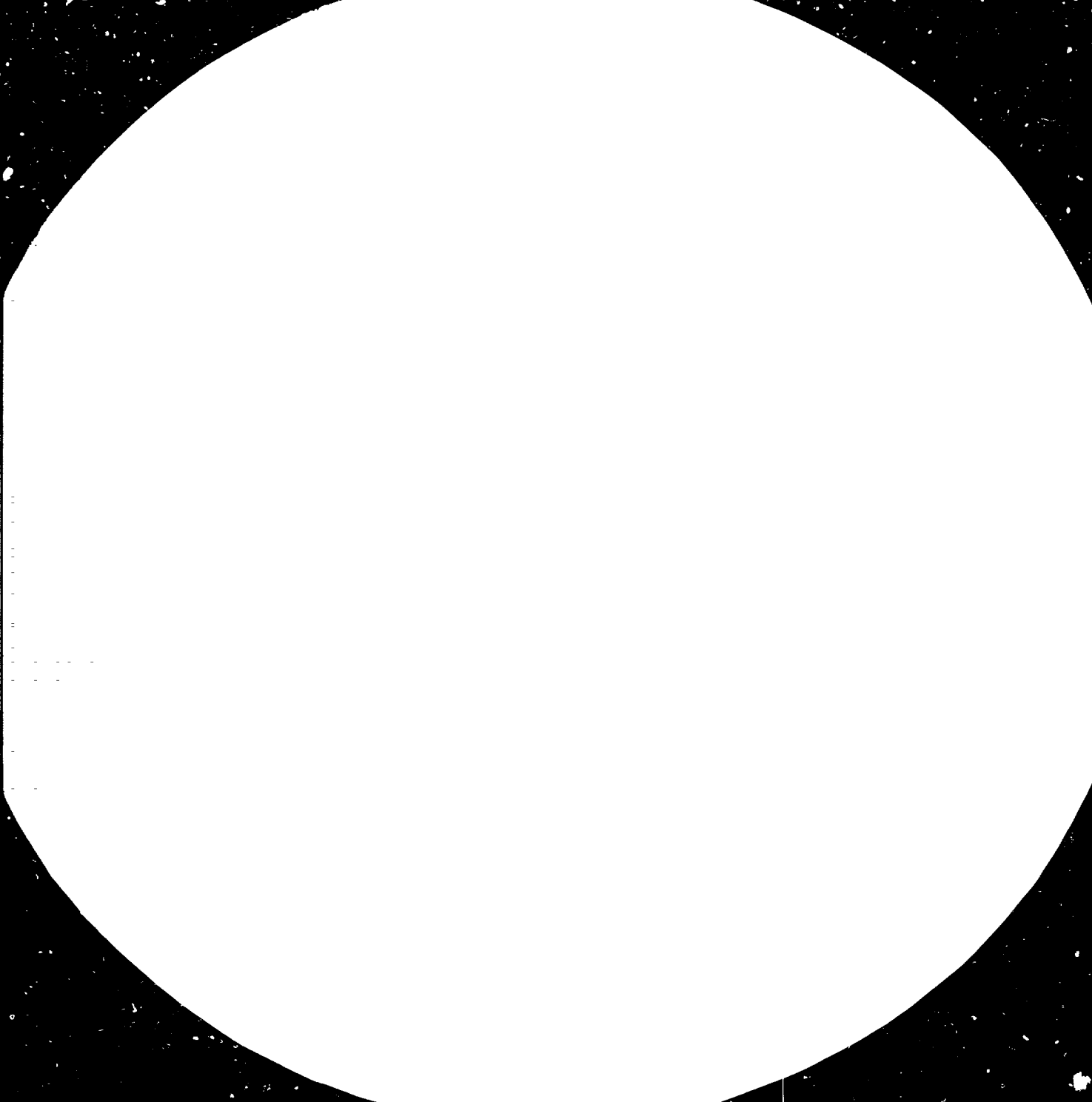
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NECESSARY CONDITIONS TO ESTABLISH  
A CEMENT PLANT OR TO EXTEND  
THE EXISTING PRODUCTION CAPACITY\*

by

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3480

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The theme which has been selected for this paper :

"Necessary conditions to establish a new Cement Plant or to extend the existing production capacity", seems appropriate at this very moment of the history of the Cement Industry.

If the problem is not presently very acute for the industrialized countries of Europe, North America or Japan, which have a production capacity which exceeds their cement requirements, it is not the case with the other countries of the world, for which availability of cement is an essential condition to the development of their infrastructure and of their industry and and to secure the welfare of their populations.

A considerable period of time - four to five years - usually elapses between the idea of building a new cement plant and the actual shipment of cement.

During this period, many operations take place and large sums of money are spent.

The object of this paper is to examine which is the situation, from the investor's point of view, at the very moment when he gets his idea to establish a new Cement Production Unit.

1. As a background, I will first rapidly review the general state of affairs of the world cement industry and the present prevailing trends.
2. I will discuss the initial conditions which have absolutely to be met before proceeding to the next stage of the feasibility study.
3. Each of these conditions will be examined separately, taking into account the particular point of view of the developing countries.

The various points developed in this paper have been raised in the "Aide Memoire" mailed by UNIDO to the participants of the Forum.

The "Aide Memoire" emphasizes the difficulties which are met by the future cement producers in the present economical situation.

What I will try to do, is to draw the attention of these future producers to the necessity, as soon as possible, in the process of the study of a cement project, to be aware of the major difficulties which may be encountered.

This identification should assist them in avoiding loosing time and spare many needless and costly subsequent studies.

1. GENERAL REVIEW OF THE WORLD CEMENT INDUSTRY

Fig. 1) The world cement production in 1950 amounted to 133 million tons. Ten years later, in 1960 it totalled 578 million tons and in 1980, 880 million tons.

This represents an average annual growth rate of 6,5 % during the sixties and of 4,3 % during the seventies.

Fig. 2) The world cement consumption per capita was of 104 kilos in 1960, of 158 kilos in 1970 and reached 192 kilos in 1980.

This annual growth rate of the world cement consumption was 4,25 % during the sixties and dropped to about 2 % during the seventies.

Fig. 3) On a world basis, the rate of growth of the cement production, which corresponds to the cement consumption, has significantly slowed down since 1970 and at an even faster rate between 1970 and 1980.

Fig. 4) These world trends resulting from two distinct noticeable facts are :

- stabilization of the cement production in Europe and in North America.
- rapid increase of the cement production and consumption in the rest of the world.

Fig. 5) During the past 10 years, the cement production in Europe, North America and Japan, has known an increase of only 25 %, but in the rest of the world, cement production was increasing more than double, which corresponds to a growth rate of 8 % per annum.

The situation of the cement industry in the industrialized countries is, of course, partly due to the crisis which followed the rise of oil prices, but mainly, in my opinion, to the fact that cement and concrete consumption cannot indefinitely grow at an exponential rate.

Concrete structures are of a permanent nature and last a long time in normal circumstances. Cement cannot be compared to consumable goods. A concrete bridge is built to last 50 years and there are many examples of the long lasting quality of the concrete structures. What is left to be built in the industrialized countries is not of the magnitude of what has already been built.

I would guess that the cement consumption in these countries for the next ten years will more or less follow the trends of their increase in population and not exceed a rate of growth of 1 to 2 per cent annually.

This rate of growth is sufficient to absorb the present exceeding production capacity.

The establishment of cement plants will mainly serve to replace old plants or to re-locate existing units which have depleted their raw material deposits.

The theme of the present paper is consequently not particularly adapted to the conditions of the cement industry in the industrialized countries. On the other hand, if the cement consumption continues to increase during the eighties at a fast rate, as I am convinced, in Africa, South America and Asia, the question of necessary conditions for the establishment of new cement production capacity will continuously arise in all the rest of the world.



It is roughly possible to estimate the future cement consumption in these countries as follows :

- a conservative 5 % annual rate of growth will push the cement consumption from 385 million tons in 1980 up to 630 million tons in 1990, or 250 million tons of a new annual capacity to be built.
- a 8 % annual rate of growth, very likely and similar to the one enjoyed during the past 10 years, will correspond to the necessity of installing 450 million tons of new annual capacity during the period.

Consequently, it is safe to say that in the countries other than those of Europe, North America and Japan, the same question will arise each year, concerning the establishment of 30 to 50 new cement plants in order to follow the expected trend of cement consumption.

The decision to build or not to build everyone of the new cement plants will have to be taken following a choice among several possibilities, according to the conditions and standards, which are likely to vary from case to case.

I intend to review and to limit myself to the most basic and universal of these conditions.

## II. BASIC CONDITIONS.

Before launching lengthy detailed studies in the specialized fields of chemistry, process, technology, automation, plant operations, etc.... it should be first ascertained that some preliminary basic conditions exist or are very likely to exist.

At first sight, these conditions look obvious :

- Good quality raw materials should be available in sufficient quantity.
- The new cement plant should be able to dispose of its output on the market at a reasonable price.
- Money or credit has to be on hand to secure the financing of a cement plant which is due to cost from 150 to 300 dollars per annual ton installed.

Fig. 6) These three basic conditions - the three M's - have to exist jointly. If one of them is missing, it is useless to insist. Such a statement will certainly seem very self-evident to all of you.

However, during seventeen years existence of our company, we have received quite a number of requests from private or public organizations to make detailed geological or process studies, to prepare technical equipment specifications, to answer demands for tenders or to establish investment cost estimates :

- either on the sole basis of the existence of a limestone deposit which is supposed to represent a fabulous wealth

- or only because there is a considerable demand for cement in a certain area
- or, but this is not very frequent, because a promoter thought it a good investment to build a cement plant.

In each of these cases, it was sincerely believed that only one of these conditions was sufficient to create a cement plant.

It should be added that, nothing being completely black or completely white, it often does not clearly appear if these three basic conditions are existing or not.

The preliminary study stage of the establishment of a cement plant clarifies these points. This stage may be called a "pre-feasibility" study. In no case, the studies should only serve to justify a decision. This is a dangerous and costly practice.

The next step which should lead to the decision to install a new cement production unit is to examine the first conclusions thoroughly and to make a complete evaluation of the commercial or national profitability of the project, similar to the one described in the UNIDO booklet "Manual For Evaluation Of Industrial Projects" (Sales No. E. 80. 11. B.2) prepared jointly by the United Nations Development Organization and the Industrial Development Center for Arab States.

The theme of this paper only deals with the preliminary stage.

### III. REVIEW OF EACH OF THE BASIC CONDITIONS.

We will now discuss the main points which have to be solved during the pre-feasibility study in order to obtain satisfactory answers before processing with the proper feasibility study.

#### A. RAW MATERIALS

It is not sufficient to locate a big rocky mountain or vast chalky hills to be sure to possess the raw materials which are adapted to the manufacture of Portland Cement. Much more is needed :

- 1) The raw materials must conform to specific chemical and physical characteristics.
- 2) The raw materials have to be in a location easy to get at and to be workable without undue difficulties.
- 3) The raw materials should be in a sufficient quantity as to last as long as the expected plant life.
- 4) It could be added that sufficient water is to be available.
- 5) Legal rights for quarrying the deposits.

The raw mix for cement making should contain 75 to 80 % calcium carbonate ( $\text{CaCO}_3$ ), about 15 % silica ( $\text{SiO}_2$ ), 3 to 4 % alumina ( $\text{Al}_2\text{O}_3$ ) and roughly 2 % iron oxide ( $\text{Fe}_2\text{O}_3$ ). It is usual to mix limestone and clay in order to obtain a raw mix having the above characteristics and which does not contain more than small amounts of unwanted materials such as magnesia ( $\text{MgO}$ ), phosphates ( $\text{P}_2\text{O}_5$ ), alcalis ( $\text{Na}_2\text{O}$  and  $\text{K}_2\text{O}$ ), sulphates and chlorides.

The presence of such impurities and of many other elements may completely prevent the use of large favourably located deposits.

A preliminary geological and chemical study of the potential deposits should be made very seriously in order to see if the pre-selected deposits are suitable for the manufacturing of Portland Cement and if the results are very negative, those deposits should not be considered.

However, the cement industry has to be more and more satisfied with deposits which are not ideal.

Deposits which 30 years ago were thought as unsuitable, especially to be used in the dry process because of their heterogeneity, are now considered acceptable because the cement industry has made considerable progress in the treatment and beneficiation of the available and apparently poor quality raw materials.

During the more complete feasibility study which has to follow this first appraisal of the deposits, a thorough drilling campaign has to be made as well as further chemical investigations, in order to find the most appropriate process and the less costly technology which have to be applied in the treatment of the raw materials.

Regarding their physical properties, too hard or too humid raw materials may result in difficulties which could be too costly to solve in order to make cement economically.

Raw materials should also be available in sufficient quantities in order to match the presumed size of the plant, its expected life (30 to 40 years) and if possible the doubling of the production capacity.

During this first approach of the raw materials study, the location of the deposit should not be overlooked. The deposits should have not too difficult an access and be worked without excessive costs. The case may happen in mountainous areas, in tropical countries and if the deposits are covered by water.

On the other hand, this first prospection should show that the overburden is not too high and does not make the mining of the raw materials too costly. We know cases where the good materials are hidden below 15 to 20 meters of unusable materials, and this can create many problems for the handling and storage of these materials.

Finally, the promoter should make sure that he has a legal right to use the selected deposit. Questions related to the ownership of the land, to the mining rights, to the protection of environment, to the use of agricultural land, to archeological sites, are problems to be solved before going further ahead with the project.

As a conclusion, however, it is possible to state that limestone and clay being raw materials that are available, in large quantities, in most parts of the world, the preliminary condition of the availability of sufficient and good quality deposits may be met without too many problems.

Chemistry and technology may help the cement producer, but it is necessary to know, from the very beginning, the answer to the questions I have just reviewed.

The other technological, mechanical and financial points arising from the quarrying and the use of the selected deposit, will have to be solved during the feasibility study.

B) THE MARKET

The second basic condition is, of course, to be able to dispose of the cement which will be manufactured, which means to be sure that a market does exist. The size and the **rentability of the** future cement plant will depend upon the size of the market that it is supposed to supply.

The future demand for cement should be sufficient and continuous during the lifetime of the plant.

If this can be ascertained, this will enable the promoter to look to the future with optimism.

Three types of geographical markets may be considered :

a) the local market, which is the market around the cement plant. Transportation costs, which are a large part of the cement price for the user, are reduced and for this very reason the plant will be protected against possible competition.

The size of this market will be large enough if the plant is located close to a city or to an industrial area, but in the developing countries, this market will seldom be sufficient to absorb the production of a cement plant.

b) the future investor will consequently have to investigate the regional and national cement markets

Countries which have a development plan, will help the investor to forecast this future cement market, especially the chapters devoted to the country's infrastructure and to the housing of the population.

I should add that libraries devoted to economic questions are full of books dealing with the best way to carry out market studies and I do not intend to go into this matter very deeply.

The United Nations Industrial Development Organization has edited excellent books concerning the evaluation of industrial projects, in which this subject is very well treated. \*\*\*

We suggest that many forecasting methods are used when making a market study and the results of these methods must be compared with the others.

It should be remembered that about 5 years elapse between the time the idea of installing a new cement plant has occurred and the start up operation in the new cement plant.

If it is relatively easy to predict the short range demand for cement - let us say at six months or one year - because of the nature of the cement consumption or to forecast the long range demand for 10 or 20 years, because of the predictable evolution of the economy, it is much more difficult to know what will happen in 5 years from now.

I would like to add that the man in charge of the forecast will likely not be around in 20 years anyway, but that it is most likely that he will still be available in 5 years to explain why he missed or not the mark.

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\*\*\* See in particular :

- MANUEL DE PREPARATION DES ETUDES DE FAISABILITE INDUSTRIELLE : F.178.II.B.5
- GUIDELINES FOR PROJECT EVALUATION : E.72.II.B.11
- THE INITIATION AND IMPLEMENTATION OF INDUSTRIAL PROJECTS IN DEVELOPING COUNTRIES
- MANUAL FOR EVALUATION OF INDUSTRIAL PROJECTS : E.80.II.B.2



7) In my opinion, most of the following questions should be answered satisfactorily at a very early stage of the study of the cement plant establishment study :

- Annual sale volume to fix the size of the plant
- Types of cement to be manufactured to define the process to be used.
- Seasonal sales variations to calculate the storage capacities.
- Distribution between bag and bulk sales.
- Distribution of sales by truck, rail or water.
- Selling price which is possible to get in order to forecast the financial requirements and the profitability of the venture.

It often happens - and more often than you can imagine - that the size of the cement plant is fixed arbitrarily. We have been told, many times, "we want to build a 300.000, 500.000, 1.000.000 ton per year cement plant". The investors have the feeling that there is an acute need for cement in the local area, in the region or in the country but because of a shortage situation, the demand is much larger than the actual need as shown by a market study.

The classical way to study a market , which I have just described, is certainly valid when the cement project is considered from the point of view of the profitability of the invested capital and applies in the countries with a liberal economic system. In this case, to find a profitable market is a prerequisite before starting detailed studies leading to the establishment of a new cement plant.

In many countries, however, the solvent demand does not correspond to the actual needs. The size of the potential market is much larger than the one resulting from a market study performed along the lines of profitability and productivity.

Let us take the example of the Republic of Zaire, which is a country with about 28 million inhabitants and a present cement consumption of 400.000 tons annually, which corresponds to the low figure of 14 kilos per capita.

Cement production is also of about 400.000 tons per year.

The real minimum needs of this country - when compared with the actual consumption of similar countries - are of at least 150 kilos per inhabitant. In 1990, on this basis and with 38 million inhabitants, the potential cement market would reach 5 million tons.

We can see that we have two other types of market :

- the commercial market based of commercial profitability.
- the market based of the notion of national or human profitability, corresponding to the profound needs of the population.

This distinction is made during many project evaluations concerned with civil works, agriculture developments etc..... but rarely in the case of cement projects and I will come back to this matter when speaking about the 3rd condition "financing".

Anyway, I would suggest that, in any case, these two types of markets have to be studied when contemplating the establishment of a new cement plant in a developing country.

c) It is now the time to say some words about the third geographical market, open to the cement industry : the Export Market.

The temptation is very strong to look to the possibilities of the export market in order to justify the establishment of a cement plant which will likely be much too large for the National Cement Market.

Many advantages are foreseen : absorption of the surplus production, positive balance of the financial situation and gain of hard currency.

In 1980, the international clinker and cement trade amounted to about 65 million tons. Exports from Europe and Canada to other European countries and the United States were of 15 million tons.

The rest of the world market absorbed 50 million tons :

- 20 millions by the Middle East and Near Eastern countries
- 19 millions by Southern and Eastern Asia countries
- 4 millions by Latin America
- 9 millions by the African countries

This is the total export market which is presently open to the world cement exporters and which is the object of fierce competition.

European cement manufacturers are selling about 25 million tons on this market, the Japanese, 10 million tons, the Koreans 6 millions and some South American countries, 4 million tons, the rest being distributed among many countries.

These figures may look impressive, but the corresponding sales have mainly been made at cost and according to the laws of supply and demand.

Our company has recently performed a feasibility study for a large cement project.

Good raw materials were plentiful as well as money. Unfortunately, the local and national markets were very small and most of the production had to be exported. We regretfully had to inform our rich client that the feasibility study was negative because the export sale prices could not cover the capital and production costs.

In all cases, we suggest to make a thorough study of the export market before deciding that surplus production will be or can be sold abroad. It should be taken into account the prevailing world market prices, the transportation cost to the next port or to the border, the handling costs, the custom duties etc...

Questions are also to be seriously asked regarding the future of the export markets which have been discussed during the market survey. Within the next 10 years, many present import markets will be transformed into exporters, for instance in the Arabic Peninsula.

At this stage of the general market survey, the problem of the selling price has to be tackled. As many pieces as possible of information regarding prices should be collected :

- selling prices within the limits of the prospective market, including data concerning transportation costs.
- selling prices which would be acceptable to the users.

This chapter about "Market" may be concluded with the idea that the search for a market is in some way similar to the search for raw materials.

Both exist but they have to be found out and appraised thoroughly. Any preliminary work which will better the knowledge of the raw materials and of the market will help selecting the best solutions for the project and, at a very early stage, eliminating faulty choices with disastrous financial consequences.

The further feasibility study will then be taken up with every chance of succeeding.

C. FINANCING

The third basic condition to realize a new cement plant or to extend an old one is, of course, to be financially in a position to do so or to be able to secure the necessary credits or financing from public, private, national or international organizations.

In some rare cases, the promoters possess the necessary funds or have an easy access to credit sources. That is the situation prevailing, for instance, in the States of the Arabic Peninsula and certainly in the Socialist Libyan Arab Jamahiriya.

This is not usual and the search for financing is a complex operation which has to be made in several steps :

1. The first step is to make sure that our 2 first conditions regarding the raw materials and the market are fulfilled.
2. The second one is to make the inventory of all the existing financing sources and to have preliminary contacts with the possible money lenders.

The selection of these money lenders will be made on the basis of the potential market of the cement plant, its presumed profitability (commercial or national) and according to the economic and financial environment of the plant.

A) The National Sources of Financing.

The sources should be well known to the future investors. If the investor is a public enterprise, budgetary information, development plans and the like will show the share of the public funds which is reserved for the creation of new industries. The problem is to find the right way to get hold of the money which is available.

Private investors should make sure, before proceeding further, that they have sufficient equity capital on hand, which should represent about 25 % of the total investment cost, and to be able to obtain credit or financing to cover the rest of the investment cost.

The sources of national financing may be limited to the works and supplies available in the country itself; for instance Civil Works, erection works, building materials etc. and external financing has to be looked for with regard to equipment and services coming from abroad.

B) The International Sources of Financing.

There are a number of them and of different types. Terms and conditions to get international financing vary from case to case and from an organization or a Bank to another.

Our company is now working on a cement project in an African country. Our client started enquiring about international financing possibilities more than three years ago and up to date, he has not yet succeeded to secure the totality of the necessary financing. This shows how the financing problem may be serious in some cases.

This case is typical because plenty of good materials are available and the need for cement is acute, but the lack of financing is slowing down a very worthwhile project. In the meantime, the first studies are getting outdated and have to be resumed. Expenses are running and and have to be covered by various international aids which could be used better elsewhere.

It is naturally easy to say now what should have been done at the beginning of the project. Many useless expenses and studies would have been spared if the concerned client, after knowing the results of the preliminary geological and market survey, had made a thorough study of the available financing possibilities and had inquired about the conditions attached to possible international financing.

As it is well known, some countries are at a loss finding credits from foreign suppliers because of their international indebtedness and of the refusal of the specialized agency of the supplier's country to give credit guarantee. Some development banks have to be convinced of the profitability of a project, before lending money or are insisting upon the proof that the investor has the required technical ability to run a cement plant.

Other sources of financing are lending money at interest rates which are not in harmony with the selling price which can be obtained for the cement and overtax the financial capabilities of the future cement manufacturer.



All these points should be raised at as early a date as possible in order to have the time to find suitable solutions or to make sure if financing is available or not.

I would like to open a short parenthesis about this matter and say a word in favour of the cement industry in the developing countries.

With certainly very good and valid reasons, the international organizations and agencies, the Development banks and the like seem to be somewhat reluctant to lend money for the completion of cement projects. They seem to prefer financing roads or harbour projects, agriculture or food industrial projects, housing developments etc...

UNIDO, on the contrary, is much interested by the cement industry and the present FORUM is a very good expression of UNIDO's interest to our industry. Unfortunately, UNIDO, as far as I know, is not a money-lending organization.

As I told you before, the need for cement, on a world basis, will continue to grow. This need will grow at a much faster rate in the developing countries than in the industrialized countries. The countries with the less money or with the poorest credit ratings are those which have to build new cement plants or expand their old ones. The cement industry manufactures a basis material which directly meets the elementary need for housing, transportation, irrigation etc.....

The financing problem has to be overcome and I hope that the financing organization will see their way to find a suitable solution towards a better and more liberal financing of cement projects.

If we go one step further, would it not be possible to help the new cement industry in the developing countries by taking charge or by financing at very low rates the predictable deficits during the first years of the operation. This would prevent the rapid deterioration of badly needed cement plants which cannot be properly maintained by lack of funds.

To conclude this chapter dealing with project financing which could - and should be - much longer, I would like to say that the cement manufacturer to-be, must feel reasonably confident that the financing of the project is feasible already, at the beginning of the process of studying the establishment of a new cement plant.

This feeling should be solidly supported by his knowledge of the financial situation of his country and of the limits of the international financing practices.

Preliminary contacts have to be established as soon as possible, based on the results of the raw materials and marketing survey, to interest the finance people and to try to obtain provisional financing commitments from them.

If the result of this approach is rather negative, it would be advisable not to start or to continue the technological studies but rather to persevere looking for every possible way to finance the project.

## CONCLUSIONS

At the end of this paper, I would like to recall that it was not my purpose to review the whole of the questions and problems which can be raised when the establishment of a new cement plant or the extension of an existing plant is decided. These points form the object of a number of books, articles, symposium etc.....and have been scrutinized by many cement specialists.

What I wanted to do, was to draw your special attention to the very first phase of the process and which is neglected too often.

The cement manufacturers to-be are always in a hurry to know the results of the complete feasibility studies. This is quite understandable but, if they are well done, feasibility studies are expensive and it is desirable that their conclusions are positive.

The financing of the feasibility studies is also a problem in itself of which I have not spoken but which is nevertheless very important.

Before taking this step and in order to see the feasibility studies lead to workable projects, I would like to recommend to devote some time and to spend some money in order to examine the three basic conditions I have just reviewed.

To do so, it is necessary to obtain the best advice available in the organization or to call for outside specialists if necessary.

In short, this preliminary approach should clarify the problem before that large sums of money are invested in a cement project and make sure that the chances to succeed are high.

These chances will be very high if from the very start of the project studies, the future cement manufacturer has already a good basic knowledge of

- the raw materials
- the market
- the financing opportunities.

WORLD CEMENT PRODUCTION

PRODUCTION MONDIALE  
DE CIMENT

	<u>PRODUCTION</u>	<u>TAUX DE CROISSANCE</u> <u>ANNUEL</u>
1950	133 MILLIONS T	
	—————>	9 %
1960	314 MILLIONS T	
	—————>	6.2 %
1970	578 MILLIONS T	
	—————>	4.3 %
1980	880 MILLIONS T	
		<u>ANNUAL GROWTH</u> <u>RATE</u>

(SOURCE : CEMBUREAU)

WORLD CEMENT CONSUMPTION

CONSOMMATION MONDIALE

DE CIMENT

PER CAPITA - PAR PERSONNE

	<u>KILOS</u>	<u>ANNUAL GROWTH RATE</u>
1960	104	
		→ 4.25 %
1970	158	
		→ 2 %
1980	192	
		<u>TAUX ANNUEL DE CROISSANCE</u>

(SOURCE : CEMBUREAU)

WORLD CEMENT PRODUCTION

PRODUCTION MONDIALE  
DE CIMENT

TAUX DE CROISSANCE ANNUELS

ANNUAL GROWTH RATES

	1960 TO 1970	1970 TO 1980
EUROPE USSR USA JAPAN	6,1%	2,6%
REST OF THE WORLD  RESTE DU MONDE	7,5%	8%

WORLD CEMENT PRODUCTION

PRODUCTION MONDIALE

DE CIMENT

(MILLION TONS)

	1980	1979	1970
EUROPE			
USSR	581	588	451
USA	- 1,5 %	+ 30 %	-
JAPAN			
REST OF THE WORLD	299	279	139
RESTE DU MONDE	+ 10 %	+ 200 %	-

(SOURCE : CEMBUREAU)



WORLD CEMENT CONSUMPTION

CONSUMMATION MONDIALE  
DE CIMENT

(MILLION TONS)

	1980	1979	1970
EUROPE			
USSR	546	552	443
USA	- 1 %	+ 24,6 %	-
JAPAN			
REST OF THE WORLD	325	305	145
RESTE DU MONDE	+ 10,6 %	+ 210 %	-

(SOURCE : CEMBUREAU)

TO BUILD

A CEMENT PLANT

POUR CONSTRUIRE

UNE CIMENTERIE

THE THREE **M**'s

LES TROIS **M**'s

**M**ATERIALS  
(RAW)

**M**ATIÈRES  
PREMIÈRES

**M**ARKET

**M**ARCHÉ

**M**ONEY

**M**ONNAIE (ARGENT)

ETUDE DE

MARCHE

PRÉVISIONS DE VENTE

- QUANTITÉS ANNUELLES DE VENTES
- QUALITÉS DEMANDÉES
- VARIATIONS SAISONNIÈRES
- SACS ET VRAC
- EXPÉDITIONS
  - . ROUTE
  - . RAIL
  - . EAU
- PRIX DE VENTE DÉPART USINE
- POSSIBILITÉS D'EXPORTATION

MARKET

STUDY

SALES FORECASTS

- YEARLY SALES VOLUME
- CEMENT TYPES REQUIRED
- SEASONAL VARIATIONS
- BAGS AND BULK
- SHIPMENTS
  - . TRUCKS
  - . RAIL CARS
  - . SHIPS / BARGES
- SELLING PRICE FOB PLANT
- EXPORT OPPORTUNITIES