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STUDY ON DEMAND FORECASTING FOR CAPITAL GOODS *

MEXICO

by

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DEMAND FORECASTING FOR CAPITAL GOODS

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I. General considerations regarding the methodologies applied to the different economic sectors.

The basic information which had to be gradually integrated in order to arrive at the demand for capital goods in México was taken from a group of basic sectors of economic activity. The first tentative choice of sectors included eight, each with a substantially different nature.

The differences among the sectors and the fact that their analyses might have been made by different experts could have introduced a certain amount of heterogeneity into initial research; however, the use of common methodological criteria in the steps leading to the specific determination of capital goods demand created a certain uniformity considered valid for the purposes of this study.

In general terms, the basic sectors examined could be classified according to their ownership and foreseeable medium-range development, then, their capital goods demand could be estimated and/or calculated, with varying degrees of certainty.

A first group of sectors would be made up of centralized activities, managed and owned by the State, and a second group would be not-centralized sectors which, in general, could be considered as pertaining to a mixed economy. In the latter, State participation is either nil or, in varying degrees, very partial.

1. Estimation of the growth of sectors in terms of demand for their products.

The first step considered for achieving an efficient estimation of the medium-range growth of the sectors was an analysis of the possible relation of such growth with the evolution of the economy as a whole.

This is not such a clear indicator the case of some of the sectors but for others, there is a close and constant relationship. The historical behaviour of all of the sectors reveals a general growth of demand for sectorial products although not always of internal supply, with differences at the product level within each sector.

In general terms, the over-all historical growth of the sectors is an evident fact, but the rhythm of such growth is much more variable, with ups and downs resulting from different circumstances related with certain years' activities which produced higher or lower rates than the averages.

Nevertheless, the most important factor in future development is that of clearly recognizing that the historical periods examined in these sectors had a common deficiency; there was no key sector stimulating the economic activity of that period. Now, there will be

such a dynamic element which directly or indirectly will be influencing the evolution of the sectors.

In other words, the fundamental factor for the future growth of economic sectors in general, and those which will have a larger share in capital goods in particular, is their relation with the growth of the economy as a whole or, in cases where there is a more direct connection, with the development of petroleum activities as the most dynamic and most significant source of direct demand for capital goods with its multiplier effect on other goods and services.

2. Differences among sectors

As was explained above, the sectors considered can be divided into two groups:

a) Centralized, State-controlled sectors

There are three such sectors under consideration, of which two are especially important:

Electricity

Hydrocarbon

Railways

These three have similar characteristics insofar as they are public sector activities, and they are considered here because

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in each, future development has been centrally programmed with specific budgets in greater or lesser detail.

This programming has made it possible to acquire advance knowledge of their activities expressed in terms of specific projects or, at least, to have an idea of the most significant aspects of their capital goods demand.

The time periods involved are not the same for all of the sectors since the programs are not coordinated under a general development plan ; while petroleum programming extends to 1986 (and, in less detail, to 1990), electricity planning is calculated up to the year 2000 although works plans are prepared with a 10 year range.

Nevertheless the NAFINSA-UNIDO Capital Goods Program made an effort to obtain an acceptable level of information in the most important sectors up to 1989, on the basis of general programs and projects in those sectors along with the most outstanding capital goods needs of the railways.

b) Non-centralized, mixed or private economy sectors

This group includes varied sectors which, because of their differences in ownership and consequent variations of certainty in their development plans, have to be treated with a different approach.

Some of these sectors, such as steel, are constituted independent by private and public sector enterprises; others, such as mining can be considered as being predominantly private sector controlled although it is recognized that there are public investments in various mining enterprises; and, finally, sectors such as Food and Paper and Pulp are exclusively private.

In short, all of these sectors have two characteristics in common: they are neither totally owned nor managed by the State, and consequently, their demand must be examined on the basis of hypotheses in which the relation of their growth with that of the economy as a whole is a fundamental part of calculations.

Several criteria were applied to these sectors: for the mining industry, a hypothesis denominated "indicative" was chosen which consisted of planning future production of certain minerals in keeping with the goal of self-sufficiency in Mexico during the years after 1985; for the Steel sector, calculations were made according to an hypothesis of programmed production based on the total amount of steel products that would be required for the Total Capital Goods Program and other industrial sectors; and Food and Paper and Pulp Industries estimates were made through their relation with the growth of the economy as a whole.

3.

3. Comparison of present installed capacity and programmed or in-process expansions, with the capacity to be reached in the short-run (1989)

After estimating the respective demands of these sectors according to the criteria summarized above, supply was also calculated on the basis of present installed capacity plus the expansions that are presently being carried out or which have been projected for construction in future years.

Considering the above as the real installed capacity of each sector, the degree of utilization of such capacity was examined and a study was made of the possibilities of achieving, in a new stage of development, an improved level of utilization.

This was compared with the estimates of sectorial demand up to 1989, approximately, revealing the gap between supply and demand for that year. On the basis of that gap calculations were made as to the capital goods demand created by the installation of plants for expanding the national supply of the products considered.

In the selection of future plants, the best options in process technologies were examined as were optimum capacities and, finally, modular plants were adopted as models for each sector.

II. Common methodological system for calculating capital goods demand.

As has been stated, the methodological scheme for programming capital goods supply for the expansion of productive sectors was based on the definition of model plants in each sector, considering up-to-date technological processes and economically feasible capacities.

Having defined the model plants, the next step was to make a breakdown of the necessary equipment by families of machines, equipment and components, establishing in detail their weight and value.

Afterwards, a price/weight ratio was established in order to obtain a coefficient which would aid in projecting any subsequent variation of increases in plant capacities, in the number of plants and, thus, in possible expansion of total supply.

A comparison of the total gap with the capacity of a model plant resulted in the calculation of the number of plants required and, consequently, the total number, weight and value of the machinery, equipment and components needed for the period in question.

Since the gap between supply and demand was estimated quantitatively over time, with annual projections of its magnitude, it was possible to establish the number of plants that would have to be installed annually.

Total investments, annual investments per sector and the portion of investments destined for machinery equipment and components were estimated in the same way.

This process of selecting a model plant, analyzing its equipment and determining the value, weight and investment required for the installations was applied to the Electricity, Hydrocarbons, Steel, Food, Paper and Pulp and Cement Industries.

In the case of mining, calculations were made horizontally on the basis of phases of activities in the sector, making a detailed breakdown of capital goods needed for extraction, crushing and milling, concentrating and smelting, and differentiating between open-cast and underground mining. These estimations were conditioned by the tonnages fixed for extraction of a given group of minerals, their corresponding laws and subsequent processing.

IV. Description of methodologies for calculating capital goods demand on the sectorial level.

A series of summaries of the methodological studies carried out in several economic sectors can be seen in the Annexes of this report. These documents contain the fundamental elements of the analyses made in each case, as a preliminary approximate evaluation of the nature and characteristics of present and future supply and demand of the sector's respective products and, consequently, of the possible evolution of the installed capacity of those industries.

On the basis of these studies, conclusions regarding the demand for capital goods were drawn.

In the following section, and only with a view to giving a synthesized idea of the total capital goods demand of the major sectors, a global panorama of demand and its respective values has been presented. This demand outline cannot be considered as precisely valid for 1979 since circumstances have varied in several of the sectors; it should, rather, be considered in terms of its usefulness as a methodological approach.

Summary of Total Capital Goods Demand. ^{1/}

Capital Goods demand can be measured by the investment programs for each sector. Such programs are only available in a small number of cases, especially those in which the public sector has a direct share; and even when they are available, they often do not cover a long enough period. Nevertheless, it has been considered necessary to make an effort to estimate, at least approximately, the value of the capital goods demand for each of the sectors seen as a major user of capital goods for the 1978-87 period. The steps followed in general, were the following:

- i) Forecast of demand of the user sector;
- ii) Investment requirements for the forecast demand;
- iii) Identification of model plants in each sector;
- iv) Breakdown of basic equipment and components within each model plant; and
- v) Calculation of aggregate demand for basic equipment and components for the total number of model plants required to satisfy the sector's demand.

^{1/} This summary is taken from the "Immediate Plan of Action for Capital Goods" prepared by the Intersectorial Commission on Capital Goods in January 1977.

Although the preparation process for carrying out these projections was made in close cooperation with the user enterprises and agencies, the results presented here are still considered to be of a preliminary nature; their main purpose is to give an idea of the size of demand, identifying the items most needed in each sector and empirically verifying the feasibility of going to a systematic forecast of capital goods in the major user sectors.

Table 1 indicates the value of capital goods demand for the 1978-87 period in the sectors that have been studied. (Civil works have been excluded.)

Total demand for the period comes to 940 thousand million pesos (42 thousand million dollars), equivalent to an annual average of 94.1 thousand million.

In terms of value, the most important demand sectors are electrical equipment and equipment for the petroleum and petrochemical sector which, together, represent approximately 42% of the total demand foreseen for the period in question.

It is interesting to note that when the demand for agricultural equipment and equipment for the food industry are considered together ^{1/} they reach a level comparable to the PEMEX requirements

^{1/} Within the food industry, only 7 sub-branches are considered for which it was possible to calculate a demand forecast.

for oil drilling and refining. That is to say that the combined demand for capital goods needed for the strategic objectives of food and energy. 2/ give a total figure of 6 00 million pesos which is 54% of the total demand estimated for the period.

From an institutional point of view, the public sector's share of demand represents approximately 49% of total estimated demand or, in terms of annual average, 46 thousand million pesos.

It is estimated that with the present stage of development of the capital goods industry in Mexico, some 48% of the total estimated demand for the 1978-85 period can be produced within the country. This implies that imports would reach 489 000 million pesos (21.7 thousand million dollars) during the period. In reality, the proportion of capital goods purchased within the country is below 48%, due to price problems, financing conditions, delivery times, specifications, etc. That is, part of the imports are similar to products that are manufactured in the country but, for the reasons stated above, users are induced to purchase such items abroad. As a result, the capital goods program seeks to ensure, in the first place, that the goods which are technically possible to manufacture in Mexico will in fact, be bought from the local producers and, in the second place, that there will be a substantial reduction in projected imports.

2/ Includes drilling refining and transport of oil and derivatives, electrical energy generation, agriculture and the food industry.

TABLE 1

15.

CAPITAL GOODS DEMAND BY USER SECTORS
For 1978-87
(Million Pesos)

User Sectors	Total	National Supply	Imported Supply	Participation of the Public Sector	Total (%) Participation of Public Sector
TOTAL	919 654	451 923	468 731	481 806	52
1. Petroleum and Chemicals	238 673	121 296	111 387	124 212	82
PEADEX	189 612	99 768	89 844	100 012	100
Drilling and extracting	96 050	49 946	46 104	57 030	100
Oil refining	27 341	14 659	12 722	27 311	100
Transport and distribution	34 467	18 364	16 113	24 467	100
Primary petrochemicals	31 764	16 909	14 846	21 754	100
Secondary chemicals and petrochemicals	46 061	24 528	21 533	4 606	10
3. Electrical energy generation	180 262	51 061	109 201	180 262	100
3. Agriculture	187 427	72 729	47 712	-	-
Tractors	66 665	48 082	13 573	-	-
Combines	22 168	-	22 568	-	-
Implements	46 384	36 756	11 608	-	-
4. Food	69 202	50 616	9 603	22 728	38
Sugar	24 923	21 185	3 738	17 446	70
Balanced feeds	8 788	5 267	521	3 768	68
Dairy	7 068	6 054	1 014	-	-
Vegetable oils	2 611	2 180	381	638	26
Beer	7 165	6 520	645	-	-
Meat products	9 554	8 529	965	965	10
Bread and pastes	2 768	831	1 938	-	-
5. Mining	22 200	22 610	67 120	22 000	48
Extraction and beneficiation	20 900	22 396	22 504	-	-
Smelting and refining	34 900	16 214	18 606	-	-
6. Steel	37 462	19 409	18 000	26 228	70
7. Cement	10 453	3 357	7 100	-	-
8. Paper and Pulp	27 288	16 438	10 800	-	-
9. Metalworking	41 783	2 836	38 948	-	-
10. Construction	21 800	30 477	21 403	-	-
11. Telecommunications	72 236	35 086	37 180	25 000	70

* Information is missing

Note: Due to changes in the situation after the preparation of this table, the data presented cannot be considered as representative of conditions in 1976; the table has been included only as an illustration of the methodological approach.

III. Selection of sectors to be consolidated for the promotion of capital goods manufacturing projects and for calculating the investments and loanages of basic processes.

1. New specific capital goods projects

A group of 38 specific projects were derived from a study of the machinery and equipment needs in the sectors mentioned, to which must be added the present production capacity in existing enterprises and its future expansion" modifying in a significant way the productive profile of the capital goods industry in Mexico."

The most important change to be introduced with the incorporation of the 38 projects is not only the increase in productive capacity for products already being manufactured, but also an increase in their diversity and, above all, the achievement of greater ranges in size and technological complexity with a consequent qualitative advance in knowledge and application of technological progress which would raise the present level of Mexican industry.

The selection of the projects was made with a view to fulfilling the following objectives. ^{1/}

1/ See "Capital Goods Program" (Preliminary paper for discussions) NAFINSA/UNIDO Program, July 23, 1979.

- *To move ahead in the expansion of existing installed capacity, increasing ranges, reaching greater technological complexity, and developing new lines of production.*
- *To achieve a greater rationalization of existing industry and its co-ordination with the new industries to be installed.*
- *To maintain technical-economic scales and parameters in the new industries which will allow international projection in the future.*
- *To encourage State participation in heavy equipment projects especially those including new lines of production "interrelating the large enterprises of the Public Sector with the major capital goods manufacturers".*

The principal capital goods projects prepared by the program and being promoted at this time are:

Heavy equipment

- *Electrical energy turbogenerators (150 to 300 MW)*
- *Turbocompressors*
- *Wide-diameter pipes (pipelines for hydrocarbons)*
- *Motorscrapers, cranes and excavators*
- *Front loaders*
- *Crushing and milling equipment*
- *Large volume pumps*
- *Cement equipment*

- *Steel equipment*
- *Shears, benders and rollers*
- *Boring machines*
- *Vertical lathes*
- *Radial drills*
- *Grinders*

In this group "significant participation of the public sector in promotion and capital of the new enterprises is considered necessary".

Standard equipment and components

- *Diesel engines (1000 to 6000 HP) for locomotives and ships*
- *Turbochargers for diesel engines*
- *Crankshafts for engines*
- *Control valves over 2"*
- *Hydraulic oil pressure pumps*

This group is linked with the expansion of existing enterprises and direct participation of the public sector is not considered essential in all cases.

Technology-intensive projects

- High pressure hydraulic pumps for motive and control systems
- Digital multimeters, oscilloscopes, frequency meters and wave generators.
- Accessory equipment for computers
- Instruments for control and process panels
- Gear manufacture
- Various equipment families from the professional electronics branch.

This group is considered as being closely linked to the technological evolution of the capital goods industry as a whole, and with other industrial branches; public action may be promotional.

Machinery for the agricultural sector

- Equipment for the dairy industry
- Packaging equipment
- Refrigeration equipment

The promotion of these projects represents an attempt to aid in the development of the agricultural sector with designs adequate for conditions in Mexico. Public sector actions are seen as essentially promotional.

2. Programming basic processes

After examining the different sectors, it was concluded that each sector would have a different need for the basic processes and thus a different degree of influence on the capacity to be installed. The sectors chosen were those having the most significant demand in the total tonnage of both steel industry production and the basic processes of Forge, Foundry, Platework and Machining, up to 1989.

A global representation of the relation between the basic processes and the selected sectors is presented in Table 1, where there is a comparison of the demand structure and global supply of foundry forge, platework and machining and the differing participation of the sectors or part of them.

If the demand figures are broken down by tonnages, the participation of the sectors has a different form of expression which permits demand to be seen as located within certain ranges; and this, in turn, made it possible to design the production of basic processes in an organized way and to establish the technical characteristics of the plants to be installed.

To summarize*

1. In programmed forge production, Petroleum and Petrochemicals, Steel, (mill rolls), and Railways (axles) cover a combined total of 75.65% of total tonnage mainly in low tonnages ranges.
2. In the programmed production of Foundry work, Mining, Petroleum, Primary, Petrochemicals, and Steel (Rolls for rolling mills and steel industry from pellets to continuous casting) together make up 75.80% of total tonnage, with participation in various tonnage ranges.
3. In Platwork demand, Petroleum-Primary, Petrochemicals, and Steel (from pellets to continuous casting) together come to 84.9% of total tonnage in the 1989 demand, mainly in medium to high tonnages.
4. In the demand for Heavy Machining, Petroleum-Primary Petrochemicals, Steel (rolls for the steel industry) and Railways (axles) cover 62.4% of total tonnage, with their demand mainly centered in low tonnage ranges.

TABLE 100: PRODUCTION FOMECOST FOR THE FORCE AND FOUNDRY. (Cont.)
 (Percentile structure per kind of equipment
 within each weight category)

Range Tons	Electrical energy generation Equip.	Mining Equipment	Petroleum and Petrochemicals	Sugar Industry	Rolling mill rolls	Machine Tools	Early equipment Machinery	Steel Industry pig to con- tinuous casting	Turbo Machinery	Steel Ind. (hot strip milling)	Cement	Railway axes.
0.3	5	0.04	0.33	15.54	-	1.20	0.17	0.40	4.61	9.41	0.34	43.31
5	10	11.65	8.20	18.90	10.30	0	0	0.95	33.20	16.80	-	-
10	20	4.33	0.51	-	12.30	71.75	-	3.50	3.20	4.40	-	-
20	40	80.56	1.12	-	-	-	-	-	-	18.32	-	-
40	50	96.26	3.74	-	-	-	-	-	-	-	-	-
Total		4.05	0.77	12.43	2.84	21.61	0.87	1.01	5.51	2.94	0.25	31.61
Foundry												
0.3	5	0.88	2.83	70.75	2.32	-	2.23	12.12	8.87	-	-	-
5	10	3.42	35.20	0	24.15	0	1.68	23.60	11.94	-	-	-
10	20	1.32	10.69	-	-	77.62	-	3.53	1.02	-	5.82	-
20	40	21.03	10.69	-	-	-	-	21.40	16.73	8.26	14.26	-
40	50	44.30	3.43	-	-	-	-	18.19	-	34.08	-	-
Total		5.97	11.80	22.62	3.53	29.65	0.91	11.73	6.99	2.55	4.26	-
Machining												
0.3	5	0.18	0.84	12.64	0.46	1.29	0.70	2.32	5.50	0.65	0.27	34.90
5	10	1.50	11.96	13.00	9.16	18.10	9.30	22.13	10.30	4.65	-	-
10	20	2.30	7.35	18.06	6.94	51.39	-	3.02	2.45	4.76	3.70	-
20	40	23.12	9.55	18.28	-	-	-	23.96	8.57	9.24	7.30	-
40	50	43.82	2.54	22.15	-	-	-	12.67	-	18.79	-	-
Total		4.04	4.53	14.56	2.90	34.74	1.94	7.42	5.67	3.30	1.69	18.92

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V. Conclusions

Considering the limitations posed by the characteristics of the capital-goods user sectors, Mexico, as a developing country ready to promote its own local manufacture of such goods, has had to face many problems.

First it is important to emphasize that the dynamism of petroleum activities and their expansion is to be accompanied by an almost simultaneous industrialization process in which capital goods may come to constitute a core element.

Thus the link between these two sectors, Petroleum and Primary Petrochemicals and the Capital Goods Industry, is not simply the relationship of a user sector with a supply sector.

The plans for oil and gas production will, within a very few years, acquire great regional importance, since Mexico could well come to be one of the major petroleum producers in Latin America. This carries with it, at the same time, the goal of reaching significant export levels as well.

Such plans will have two immediate consequences: first, the internal supply of energy will be considerably increased, which means there will be a highly favourable infrastructure conditions for the general development of the country and especially for accelerating its industrialization process.

Secondly, it is expected that oil and gas export programs will help to alleviate the trade balance and, once the initial stages of investment required for basic construction of the productive structure of the hydrocarbon sector are past, there will be a substantial surplus available for the sector's integral economic development.

Nevertheless, the dynamic development of petroleum activities would not, by itself, be enough to defray the costs of importing the machinery and equipment required for an intensive national industrialization program unless it were supported by a greater participation of nationally produced capital goods.

Such circumstances are ample justification for the need to continue the integrated programming of local capital goods production and the implementation of concrete actions for the erection of the productive plants.

In the case of Mexico, problems in the estimation of demand for capital goods were encountered on two levels: On the level of sectors and, on the plane of greater integration in the production of such goods, on the level of the programming of basic processes, the latter representing the final result of tonnage needs for large pieces that would be required in order to complete the production of machines and equipment used in the sectors.

It has already been seen that the tool equipment needed for the sectors has stimulated the promotion of specific capital goods projects for heavy equipment, standard equipment and components, and technology intensive projects for machinery for the agricultural sector.

A consolidation of sectorial demand expressed in terms of the tonnages of pieces to be produced by the basic processes shows the relative participation of the sectors. It can be observed that Steel and Railways have a predominant role, each one covering approximately one third of the tonnages established in the main processes, Foundry and Forge; Petroleum and Primary Petrochemicals is the third most important sector for those processes, as well as for Machining. Electricity, Mining, Turbomachinery, Cement and the Sugar Industry have a smaller participation in the basic processes.

It has been seen that in terms of Platework, the predominant Sector is Petroleum-Primary Petrochemicals, and, in second place, Steel.

Within the sectorial structure of demand, it should be noted that the steel sector's capacity was defined as a reflection of the demand for steel in all of the selected sectors, including its own demand, as well as that of the basic processes.

This interrelation underlined the need for calculations and/or estimates at major sector levels, in order to achieve an acceptable degree of precision.

As was explained earlier, the calculation of demand in the centralized, State-controlled sectors was based on the programs of the respective enterprises and thus, it can be assumed provisionally that such demand figures are, with slight variations, reliable.

In the remaining, sectors, calculations were based on the relation that they have maintained historically, and will probably continue to maintain with the economy as a whole. And this medium-range growth of the GNP, has been largely estimated on the basis of the growth that will be determined by the programs for hydrocarbon production.

Assuming that the historical growth of the economy will be surpassed in the next decade by at least one percent (reaching 8.5 to 9% approximately,) it is understood that the growth relation established with the sectors can be considered acceptable.

Within the time period chosen, up to 1989, it is assumed that the next 3 to 5 years will be taken up by the installation of plants, testing and starting up, so that commencing in approximately 1983 to 1985, local plants will gradually be increasing their production of capital goods toward the goal established for 1989.

A few observations may be added to better explain the choice of certain methodological criteria:

1) *In the case of Petroleum and Basic Petrochemicals, even while development has been programmed and some of the programs have already been carried out in terms of completed works, the possibility that such programming might undergo modification cannot be ignored. It is always possible that a larger number of projects at the plant or pipeline level might be considered in order to reach broader foreign markets for petroleum, gas and/or petrochemical products, or that a greater expansion of petroleum and gas production and transport might be desired to satisfy the growth of markets for primary hydrocarbons and their derivatives, etc.*

At the time in which the calculation of capital goods demand in this sector was made, the possibility of expansion beyond that which had already been programmed was not clearly foreseeable and so it was considered prudent not to include such future demand; likewise, the activities of drilling and production were not yet calculated but their future incorporation is not discarded and local manufacture of capital goods for such activities is already in an initial stage of development.

2) *The development of Mining, calculated on the basis of an indicative hypothesis toward satisfying the goal of self-sufficiency in a given group of minerals from 1985 on, might seem to be somewhat weak. Still, if it is*

considered that the annual average investment (already being carried out) for 1977 and 1980 is roughly equivalent to the estimated annual investments from 1990 to 2000, it can be seen that the program is actually a prudent one.

It is absolutely certain that the total development of the Capital Goods Industry will create a much greater demand for basic metals and other minerals, whose local production is considered possible in the medium run, if promotional policies for the mining industry are established toward such a goal.

3) The modular approach adopted in the methodology makes allowance for any kind of expansion to be carried out within the majority of the sectors in the event that there were a need for increasing installed capacity in the future. This could well be the case for the Electrical Energy Sector, Petroleum refining, Gas treatment, Petrochemicals plants, etc.

Summarizing, it can be generally concluded that, in undertaking the design of its Capital Goods Industry, Mexico has been acquiring valuable experience; experience that could be useful to other countries with similar or different economic structures.

Obviously, for each case, adjustments and/or adaptations would have to be made in keeping with the economic situation of the country in question.

Certain basic general conditions undoubtedly provide comparative advantages; for example, the availability of energy resources and economically exploitable minerals facilitate the development of the industrial structure and the achievement of a suitable technological level from which such development may advance.

Another characteristic to consider would be the size of the internal capital goods market, but it is evident that this can be examined in terms of resource availability, since the presence of ample inputs could provide the possibility of extending production toward supplying foreign markets as well. Or, conversely, a strong internal capital goods market can be useful as an instrument for stimulating the development of such a local industrial structure with a gradual growing incorporation of national goods, even when a country may not possess the basic mineral resources needed.

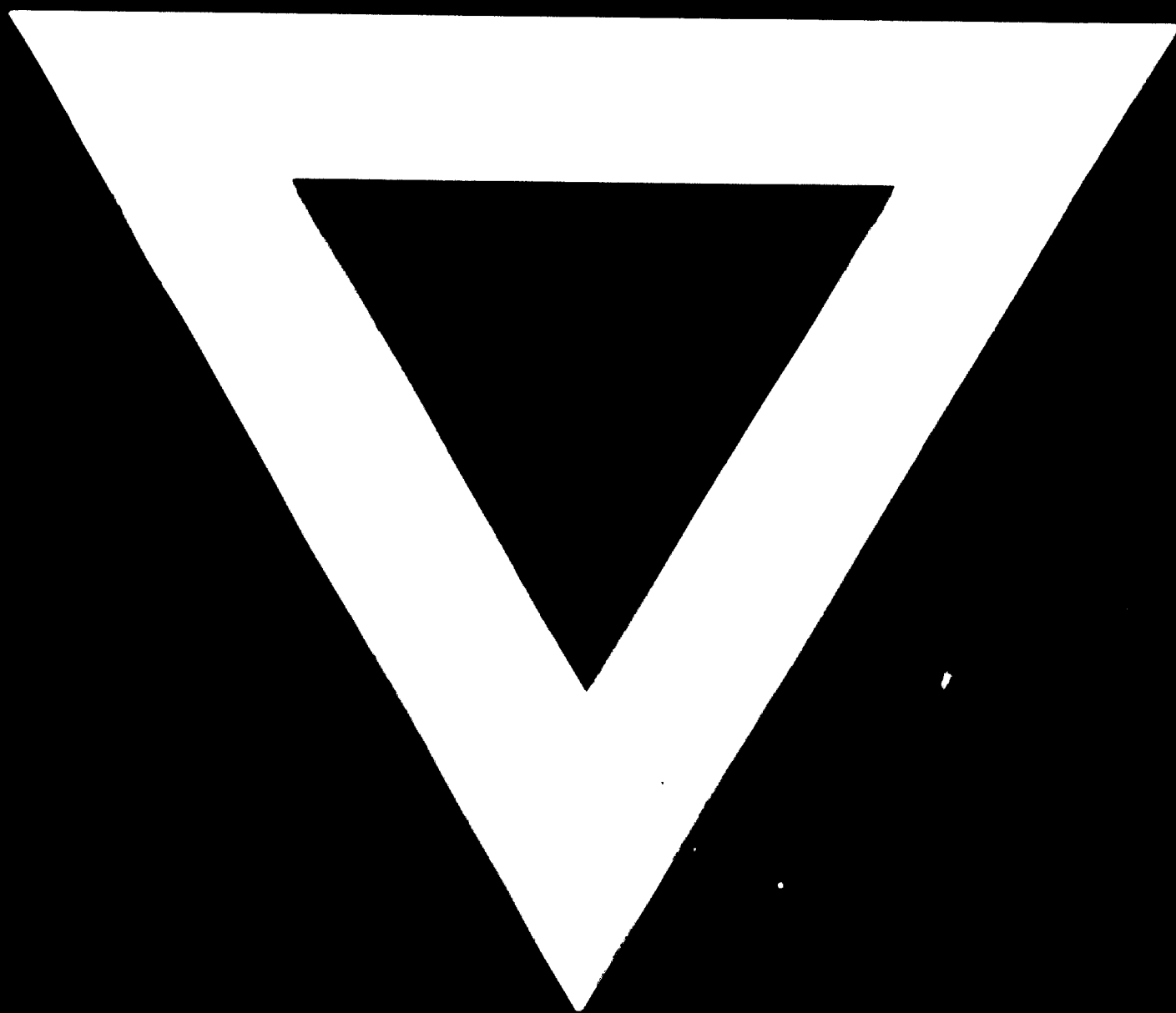
The partial or total participation of the State in the management of strategic sectors in the economy clearly constitutes an aid in carrying out an industrial development process such as is being considered here; this has been evident in the cases of Petroleum and Electricity presented in this report.

It is also true that, together with the industrial activity directly under the management of the State, normative policies would have to be outlined which would encourage the participation of private parties in such capital goods development goals so as to benefit from their financial and technological contributions.



We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards, even though the best possible copy was used for preparing the master fiche

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