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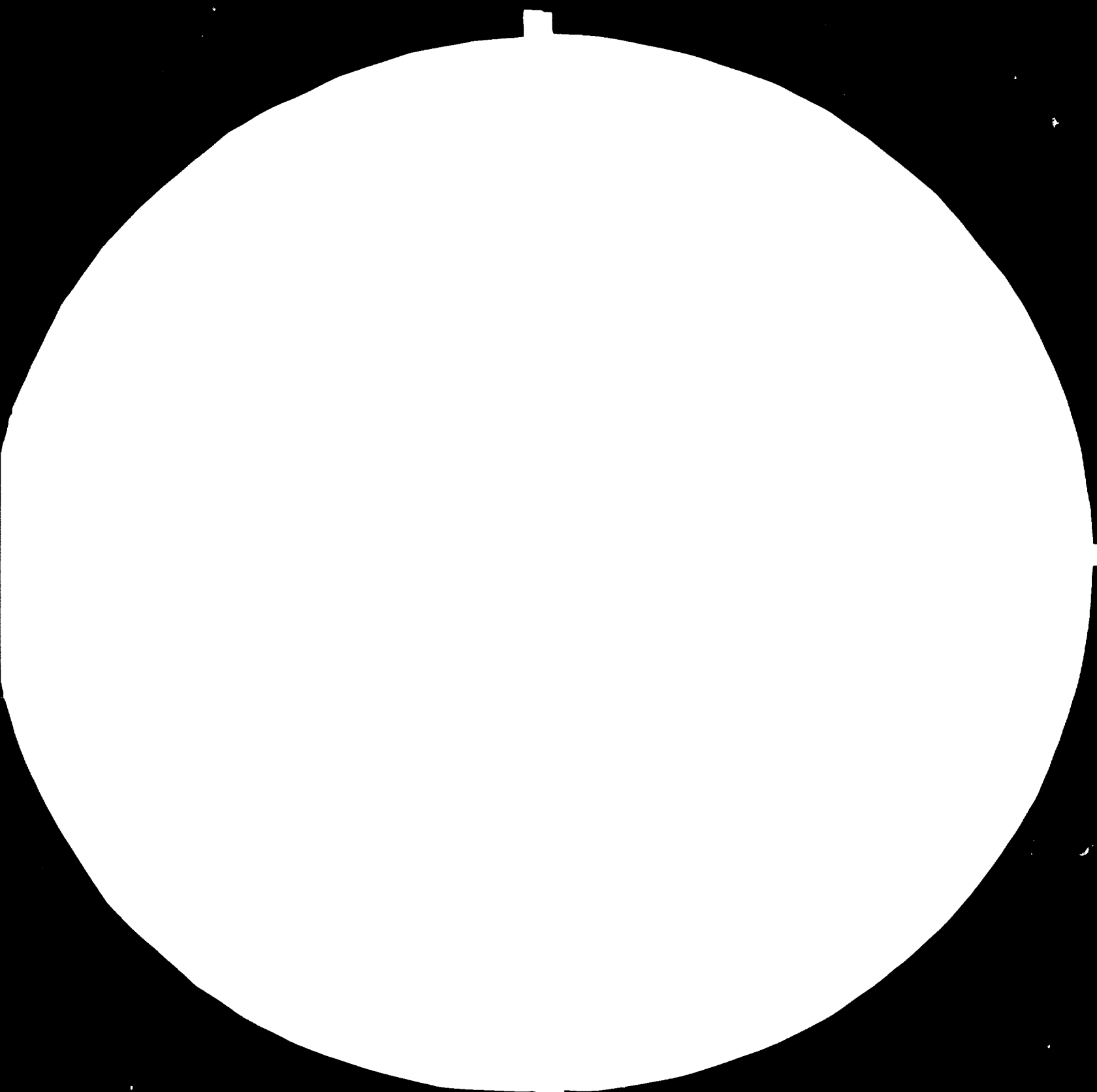

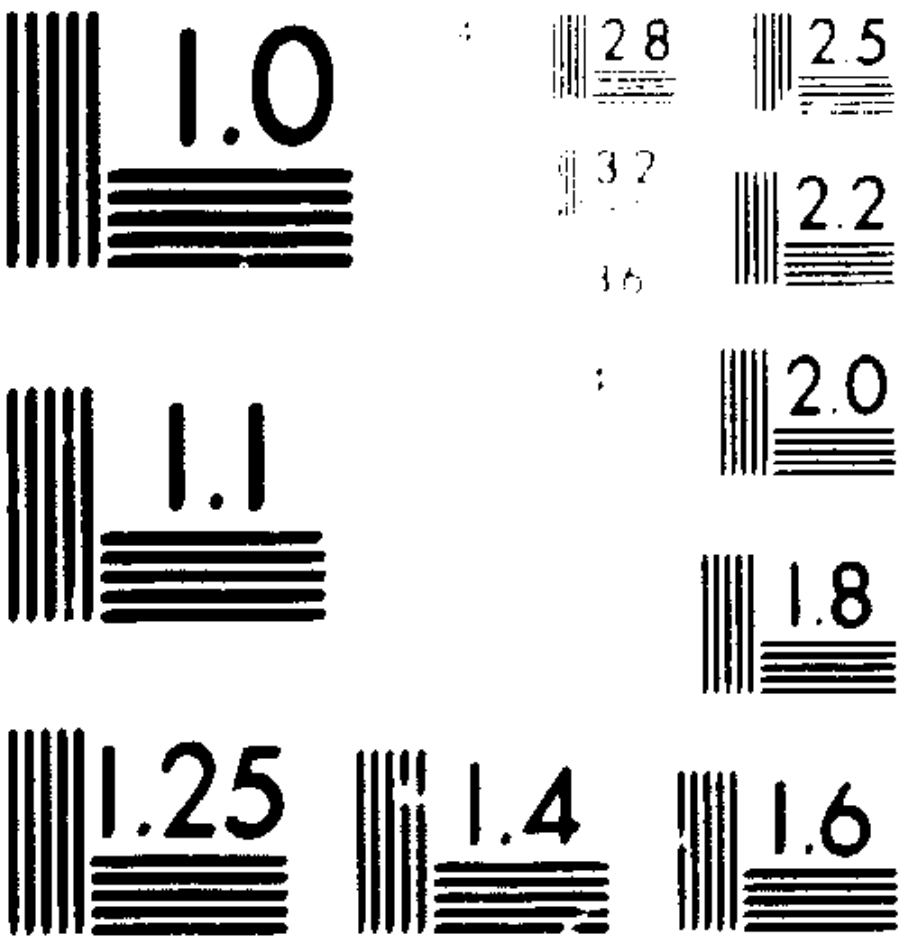

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October 1983

INDUSTRIAL RESTRUCTURING IN THAILAND

This short note is essentially concerned with some technological aspects of the restructuring process to be implemented and organized within the Thai industrial system. The paper aims at contributing one of the building blocks of a comprehensive restructuring program or at least at suggesting the requisite for such a block, to be build within the program. The main object is : technology

The elements which have to be taken into account are on the one hand the data available (1) as concerns actual performance levels, which are, to a non-negligeable degree, the result of strong import-substitution measures, and on the other hand of the prospective growth path as seems likely or desirable for the Thaï industrial system.

The following suggestions are trying to elaborate on these two aspects : actual performance and future industrialization patterns.

Notwithstarding relative high growth performances (of the order of 10 % p.a. during the seventies) the Thaï industrial system and its recent evolution seem to be characterized by the following elements :

- relative low degree of industrialization (the share of total labour force within the industrial sector is still very low on a comparative basis).
- the labour-intensive processing of agricultural products do represent the largest proportion of manufacturing, even while the engineering sector has been growing somewhat faster than the average.

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(1) It has correctly been stressed that more systematic data should be needed and that, for decisions purposes a system of evaluation of actual, comparative, efficiency and performance level should be made available within the Thaï administration.

- the main focus has been on import substitution . While no consistent figures seem to be available as concerns the implications of the import substitution process in terms of industrial performances (efficiency-productivity), plenty of informations do seem to indicate that these performance levels are still low.

- while exports of manufacturing products have been increasing (faster than industrial output and faster than imports), they remain at low levels.

- some interesting developments have taken place within the engineering sector.

As concerns the future expected developments, the main accent seems to be on the promotion of exports and on an export led industrial growth strategy.

The move from past experience and performances to an export-oriented scenario has to be organized taking account of the changes occuring within the international environment. Some of these changes have to be stressed :

- relatively low growth prospects at the international level, with the corresponding reduction of the intensity of the driving force of exports :
  . low growth prospects in the North which means stronger competition and protection,
  . within the South (debt problems and stronger competition due to simultaneous export-oriented moves.

- important technological changes :
  . micro-electronics affecting larger and larger fields of production goods, which are beginning to change the structure of comparative advantages.
  . the rapid development of new (and) composite materials
  . the development of energy technology
  . the prospects for major changes, through the development of bio-technologies, within the food processing area, and more generally with the whole agro-chemical system.
  . the major changes occuring in the field of seed selection.

Beside these two sets of element - actual performances and international environment - one has to take account of another set of elements which concern the dynamics of industrialization in a country like Thaïland.

Three aspects of it are stressed here :

- While the industrial base of Thaïland is still relatively weak, and is composed for the largest part on traditional labour intensive sectors. Thaïland does occupy, within the South, a somewhat "intermediate" position between the very low income countries (like India, Pakistan, Nepal, Sri Lanka, Burma...) and the higher income developing countries (say the NIC's). This means that Thaïland is undergoing (within the traditional sectors) three different kinds of competitive pressures : bedise the pressures from the North (new products, marketing products, high quality), pressures stemming from lower wage countries and and pressures stemming from countries which have already succeeded in developing a larger industrial base. There are some obvious implications as concerns the competitiveness requirements both for the near future(the necessity to find specific combinations of relative low wages and productivity levels) and more so for the longer term (the necessity to build in a systematic approach for increasing productivity).

- The other main point to be stressed is the more and more obvious fact that the (export led) industrialization process, as it has been taken place in the NIC's, is running against a major difficulty, resulting from the "barriers to entry" within the capital goods sector, and the corresponding dependence as concerns the production methods and equipments. The development of the capital goods sectors in line with the (export-led) development of the capital goods users sectors appears to be one major requirement for the pursuit of the industrialization process. Of course, beyond this general observation, distinctions have clearly to be introduced within the capital goods sector, the problems raised being of course different for the various categories of capital goods concerned.

- Due to the high growth rates and to the rapid structural changes within the Thai society, leading to a rapid increase of the share of the contribution of industry to G.N.P. (1) the Thaï industrial sector has not really grown up to a consistent industrial system. The same can be said of the firancial and administrative infrastructure. This means that the complex set of relations and interelations within the industrial sector and within the administration and between the firms and the administration appears to a large extent uncoordinated and even to a certain extent anarchic. New functions, new relations have been developed, more often beside the existing administrative system than within an evolving integrated system.

The analysis of the industrialization process in various relative success countries, show how important the role of the state has become. The ways and means the state bodies and more particularly their relations with the firms are organized appear to be conditionning, in a fundamental way, the overall performances of the industrial system. Investment in coordination and consistency is likely to have a high level of profitability.

On the basis of these various elements, the restructuring plan and process to be developed should include a systematic approach for the building up of domestic technological and industrial capabilities along specific lines and with specifics targets. Within the whole range of measures to be taken, within the restructuring plan, in order to enhance the performance levels of the firms and of the industrial system as a whole, priority should be given to the technological aspects of the problem.

It is crucial, from the standpoint of future industrialization prospects, that the necessary immaterial investments be made, at both the national and the micro-economic levels. Too much emphasis-as is often the case- on material investments, at the expense of immaterial investments in the scientific and technical system would have important negative effects as concerns

(1) Leaving aside some other factors, whose logic lie outside the functionning of the industrial sector (drugs, influe of population...)

the growth prospects. But beside the problem of ressources and investments, the organizational aspects, including the management of the links to be established between the scientific and technical system and the industrial activities have to receive due attention.

The building up of the technological and industrial capabilities has of course various complementary dimensions :

- research
- training
- investment and choice of techniques
- maintenance
- spare parts
- science and technology policy
- transfer of technology and know how
- foreing investments
- technological and industrial cooperation.

Only very short comments are included below as concerns each of these dimensions. The objective here is to insist (i) on the complementarity of those various dimensions and accordingly on the necessity to develop a consistent approach of the problem, taking into account those various dimensions, and (ii) on the necessity to select some specific industrial targets.

First some short comments.

- Research : scientific and technological research has clearly to be developed, part of which (the share has to be decided upon) must be finalized by expected industrial applications. Taking account of the possibility to take its bearing on the international scientific system and to benefit from the advantages of international scientific cooperation schemes, some priority fields for technological research have to be defined. It does seem important to choose those priority areas on the basis of domestic industrial strategy criteria, rather than on the basis of some imitation process imposed by the relations with the North.

The A.I.T. is a well-knwn research structure. Thaïland must take advantage of this. But, beside this obvious possibility, from the standpoint of Thaïland, the technological research base has to be enlarged and finalized as a function of specific industrial targets.

- Training : Beside the training requirements in order to develop the human resources needed by the development of research activities, the necessity to develop the professional training and thus the human resources needed by the industrial system are obvious.

  Part of the productivity increases will result from higher general and professional training. As concerns professional training, two points should be stressed:
  . on the one hand, technical training must take account of the rapid changes which are likely to occur, in the two decades ahead, in the production methods : the problem is not only one of increasing the overall level of technical capabilities, but one of adaptation to new types of technical capabilities.
  . on the other hand professional training should concern as much organizational as technical capabilities.

- Investment and choice of techniques.
  Taking account of the "intermediate" position of Thailand, the choices of techniques are important, both in order to minimize costs on the basis of an appropriate combination of wage and productivity levels,and in order to organize a technological learning process, which will allow for the progressive up grading or sophistication of production methods and consequently of productivity levels. Beside the possibility to take account of some other criteria (e.g. energy consumption), due attention should be paid to the comparative technological level of production techniques through time .

- Maintenance

This topic is of course closely related to the previous one. Maintenance activities are an essential component of the learning process. But they are also vital in order to reduce, as much as possible, the capital consumption levels, the more so when more sophisticated equipments are being used.

- Spare parts

The same must be said of the supply of spare parts within the industrial system. The necessity to organize systematically the supply of spare parts, in relation with the maintenance activities, is obvious for several reasons : reduction of import dependence , shortening of delays, learning process, intensification of the industrial network. Of course, the supply of spare parts must be finalized, and concentrated on particular items, corresponding to more important needs and to potential technical capabilities.

- Science and technology policy

It always does seem necessary to insist on the necessity to set up both a set of procedures in order to make choices and to take decisions, in the field of science and technology, and a consistent framework for the actions of the various agents (i.e. of the various research organizations and proudction units) involved.

The links between the various elements discussed here should be clear: one main objective of the science and technology policy is to build on those links in order to enhance the domestic capabilities in a systematic way, this means by integrating all agents and factors concerned.

- Transfer of technology

To the extent that Thaïland will remain for the period to come dependent on foreign technologies, transfers of the needed technologies will have to be organized, both in order to build-up production capacities and to contribute to the development of domestic technological capabilities.

Because of the prices to be paid, attention should be paid to the appropriation of the technologies transferred (with reference to the industrial strategy as chosen) and to the effectiveness of the transfers. The external technological relations have to be managed, not for their own sake but in function of the industrial targets as defined.

- Foreign investment

  Beside some other aspects discussed elsewhere, the rules governing foreign investments must be decided upon on the basis of criteria relating to the whole question of the building up of domestic technological and industrial capabilities. The development of production capacities and employment, and consequently of export potentials as such should not be considered to be sufficient to justify foreign investments. They should be expected to contribute directly - or at least indirectly through the appropriated gains - to the accumulation of technological and industrial capabilities.

- Technological and industrial cooperation.

  According to the industrial targets chosen for the medium to long term perspectives, the Thai industrial system should be looking out for the building up of technological and industrial cooperation schemes with partners (both research, training and production units) within the developed countries. Such schemes, with build-in procedures of transfers of technological and industrial capabilities, should be closely integrated within the industrialization paths chosen for specific sectors within given time horizons.

  As indicated earlier, those elements are really to be seen as complementary and should be organized as such.

for that purpose, two other things remain to be discussed :

- the first does concern the institutional framework within which those various elements can be made consistent with each other. It must be said, on the basis of experience, that are

  . these elements are seldom consistent just by chance:the logic of the agents and organizations concernedtresearch structures and enterprises, administration and enterprise, domestic and foreign agents...) are too different for such consistency to be worked out by some (quasi) market mechanisms.
  . the power relations within this complex set of relations are very unequal, such that the dynamics of exploitation may appear to be stronger than the dynamics of transfer and learning.
  . the consistent organization of this set of complementary elements appears to be a difficult task which needs not only expertise in forecasting and planning but also organizational and management capabilities.

  Taking account of these observations, the institutional framework needs to respond to a series of requirements : extended decisions powers, inter-administrative organization, study and planning body, operational capacities,external negotiation competence...

- The second problem does concern the specific targets to be chosen. These targets have to be decided upon on the basis of systematic study and concertation.

  These targets have to take account of the following :
  . possibility to consolidate existing activities.
  The main activities being textile and food-processing and, to a lesser extent , the automotive industry, questions are thus raised as concerns the possibility to maintain, and more sofrom the standpoint of the implementation of an export-led strategy, to strenghen their relative position, compared to their main actual and potential competititors.

Without going into the details, it must be said that each of these sectors is likely to undergo, within different time horizons, major changes as concerns production techniques and or products.

Textiles are undergoing rapid changes of production techniques with the introduction of micro-electronics. Thaïland must adapt to these changes. In the case of food processing, the adaptation means also getting involved progressively in the biotechnological revolution.

- possibility to develop systematically new activities :
  . along the recently followed lines : the main sectors here are petroleum rafineries, chemicals and engineering. The engineering sector has been developing partly as a result of the integration of domestic parts in the automobile assembly. Taking account of what has been said above, special attention should be paid to the capital goods sectors, and mainly in line with the needs of the transformation sectors to be developed (textile, food-processing , agriculture, engineering itself).

  Other sectors to be considered are these concerned with the processing of natural resources, both agricultural (wood, rubber, cork) and mineral (non metallic and metallic ones).

  . new sectors to be developed.
  The following indications should be taken into account :
  .. the development of autonomous technological and industrial capacities in the energy sector should be given some kind of priority.
  .. the development of a capital goods sectors will necessarily involve, in the medium term, domestic technological and industrial capabilities in the field of micro-electronics.
  .. taking account of the metallic production base (which should be developed) the possibility to get involved in the composite materials sectors should be explored.

All these possibilities and potentials should of course be analyzed and evaluated more systematically.