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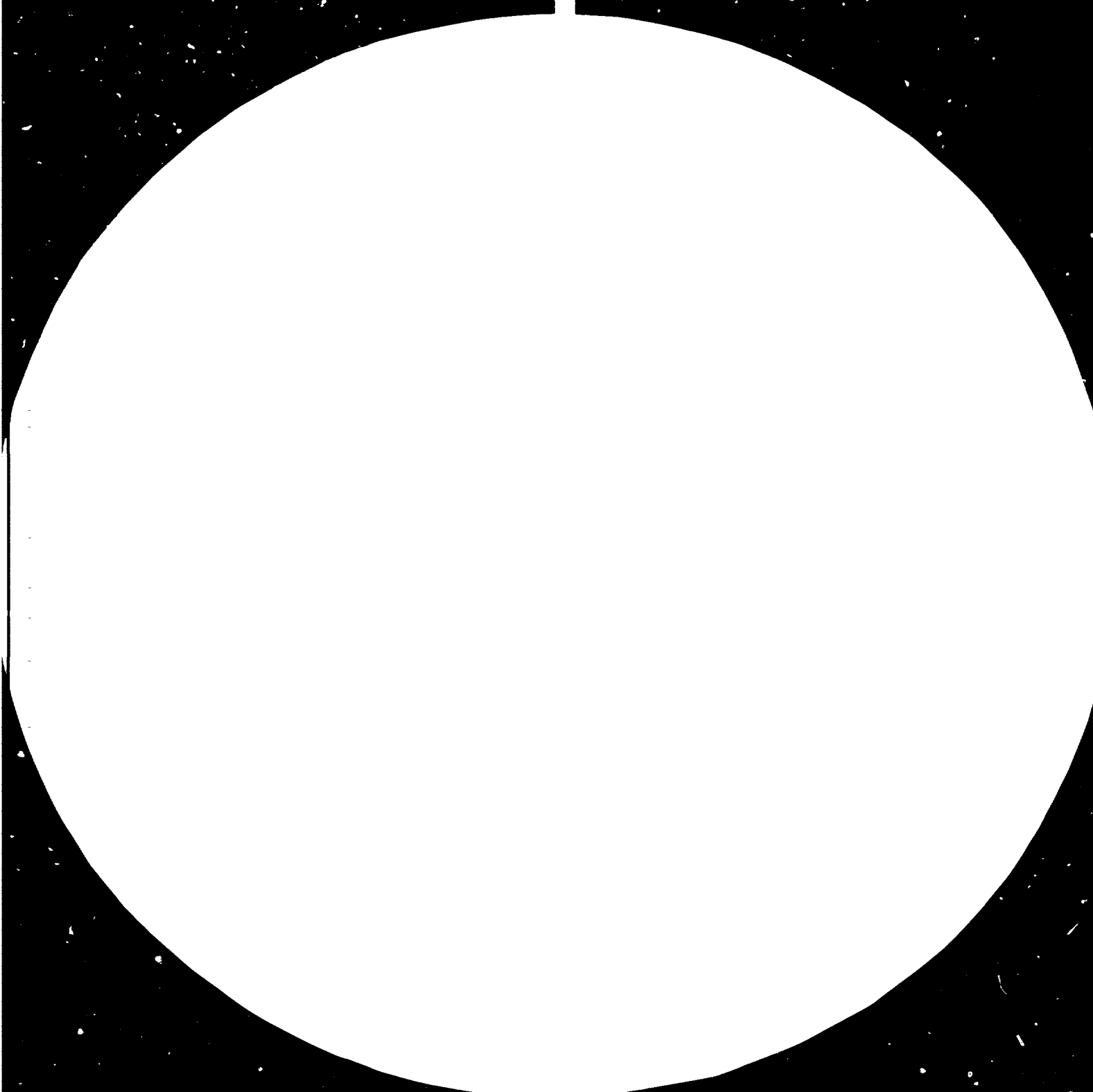
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COUNTRY REPORT: THAILAND

TECHNOLOGICAL SERVICES DELIVERY SYSTEM (TSDS) *

by

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CONTENTS

	<u>Page</u>
Introduction	1
Thailand industrial profile	2-3
Status of the small and medium industries	3-4
Status of the industrial research and servicing institutions	5-3
Experience of technological delivery services in Thailand	3-10
Prospects for the framework of TSDS project	10-11
References	11

INTRODUCTION

Thailand is primarily an agricultural country. Its economy depends largely on agricultural products which are exported as primary products.

It is clear that the uncertainties and risks of relying too much on primary products for foreign exchange earnings are indeed large owing to uncertainties in climate, crops yield and world prices.

For the progress of the economy and in order to provide more employment opportunities and higher income levels for the majority of the people, considerable industrial development is also needed.

Today Thailand's economy changes rapidly to an agro-industrial one. Though still small in comparison to agriculture, the industrial sector is playing an increasingly important part in the country's economy.

In the past, industrialization was generally regarded as being oriented mainly towards the domestic market. It is now realized that the local market for industrial products is rather small and limited, a great expansion of Thailand's industrial exports is necessary.

However, the industrial processing activities are far below the country's production capabilities. This is due to many technological and management problems, causing the slow rate of growth in Thailand's industrial production.

As a mean to achieve this, the government has given emphasis to the promotion and assistance to the development of the industries particularly in small industries.

THAILAND INDUSTRIAL PROFILE

The industry in Thailand is classified as large, medium and small industry according to the size of the employment. Small industries are those which employ from 10 to 49 persons, while medium industries are those employing from 50 - 100 persons and large industries employ more than 100 persons.

Small industries represent approximately 90 per cent of the total number of registered industries. This does not include the factories having less than 7 employees and using machinery with less than 2 H.P. They are not required by law to register to the Ministry of Industry's Factory Control Department.

It is well known that there is a large number of enterprises which are illegal, not registered, scattering throughout the country. Most probably, these are smaller enterprises, more capable of escaping from the eyes of the law. Thus the preponderance of the smaller enterprises is most likely to be more pronounced than is shown by official figures from the Factory Control Department.

The Industrial Sector

The major group of the industrial sector in Thailand are briefly as follows:

The agricultural products sector includes the manufacture of food products, animal feed, vegetable oils and fats, bakery products, grain mill products, milk product and rubber foods, the textile and wood industries etc.

The chemical products sectors includes pharmaceuticals, paints, fertilizer and petrochemicals as its major products.

The minerals, metals and ceramics sector includes the manufacture of ceramics and the metal processing industries.

Mechanical and electrical equipment sector produces engines, autopart and c hers machinery, electronic equipment and components.

Value added

The contributions to the total value added of the manufacturing sector are not less than 20 per cent for small industries and 10 per cent for medium industries.

Small industries employing 10 - 49 persons contribute approximately 30 per cent of the total employment in the manufacturing sector. If the medium industries are included, the share of both categories in the manufacturing employment would be probably 75 - 80 per cent.

STATUS OF THE SMALL AND MEDIUM INDUSTRIES

The small industrial sector has not been neglected by the Government. The Fourth National Economic and Social Development Plan (1976-1980) incorporates the following policy statement regarding the development of small industries. "...The government will encourage the development of small-scale industries which are important for generating employment. This will be done through the provision of credits, risk guarantees, the provision of investment opportunity, technological services and marketing services."

In fact, government interest in the role of small industries dated back more than a decade as seen by the establishment of agencies directly responsible for small industry promotion such as Small Industry Service Institute (SISI) and Small Industry Finance Office (SIFO).

It was found that in terms employment generation, export performance, small and medium industries can be rated at least not unfavorably.

Problems and constraints in small industries

The slow-rate of growth in Thailand's industrial production is caused not only by the low level of capital investment, but also by other factors such as unused industrial capacity, inadequate production techniques and low level of management expertise.

Problems have always been found at every level of industry. Problem concerning raw materials such as inability in supplying raw materials of the standard required by the factories, lack of suitable and continuous supply, instability often occurs.

In the case of small industries, besides inadequate quality control both at the raw material and processing stages, another serious problem is the lack of basic technological education. Processing knowledge is relatively low, resulting in products of poor and non-uniform quality.

Small industries also suffer from lack of skill personnel, technologists, engineers and technicians. More engineering facilities are badly needed not only for the process themselves but also for maintenance and repair of equipment and machinery.

Improper packing materials are often used, resulting shorter shelf life of products, and products are lost or damaged during transportation to the market.

The problem of waste water is rather critical for small industries and is a matter of great concern for the government.

The Fifth National Economic and Social Development Plans

The Fifth Plans (1981 - 1985) aim to accelerate rural development in various regions by promoting about 15,000 small industries in order to increase rural employment of approximately 400,000 people.

STATUS OF THE INDUSTRIAL RESEARCH AND
SERVICING INSTITUTIONS

Thailand's industrial sectors is still small but has been expanding at a faster rate than the economy as a whole. The expansion has occurred both as a result of the government's deliberate policy of industrial promotion and of the response of the private sector to widening market opportunities.

Many institutions both government and private, have been working to help solve these problems and assist small industries.

Department of Labour

The Department engages in organizing labour training programmes; occupational training, training the trainers for development of skilled labour, establishing skill standards and testing, and development of training equipment. Pre-employment training under the occupational training programme may run from 2 to 11 months depending on the type of the course. Courses for welders, mechanics; electricians, radio and T.V. repairman, draughtsmen and surveyors are the major ones. It has been found that about 66 per cent of those trained could find the work in the field for which they had been trained.

The Industrial Estate Authority of Thailand (IEAT)

The IEAT has full responsibility for planning, development, management and operation of industrial estates throughout the country, and as such it is concerned with small as well as large-scale industries. Its responsibilities include proper planning for industrial areas, provision of complete infrastructures such as roads, water, electricity and telephones with specific concentration on pollution control systems.

Department of Industrial Promotion (DIP)

The DIP is a government agency under the Ministry of Industry. Its main functions are as follows:

1. To assist entrepreneurs in the establishment of industrial enterprise, irrespective to size or type.
2. To provide industrialists with various types of assistance for the establishment, maintenance and progress of industries.
3. To render technical, training, extension and advisory services so as to increase productivity and efficiency in the production as well as distribution of goods.
4. To promote the establishment of industries in rural area and, consequently, accelerate economic development in the country.

There are 3 agencies under this department which are actively involved with small industries: the Industrial Service Institute (ISI), the Thailand Management Development and Productivity Centre (TMDPC), and the Small Industries Finance Office (SIFO).

The ISI, formerly Small Industry Service Institute (SISI), provides technical information, extension and advisory service as well as conducting seminars and training courses in light engineering activities. The other functions of ISI are to develop appropriate machineries and equipment as low-cost import substitutes and to undertake techno-economic surveys to appraise the industrial sector with regard to its technical, manpower and financial requirements.

The TMDPC is an agency geared to promote management development. It conducts management and productivity training with an objective to raise the standard of industrial and commercial management in Thailand, by increasing efficiency, sales and production in term of both quantity and quality.

The SIFO extends loans at low cost to small entrepreneurs to set up new factories or expanding existing ones.

The Department of Science Service

The Department of Science Service, Ministry of Science, Technology and Energy (formerly, Department of Science, Ministry of Industry) provides services to the government, industry and the public on scientific and technological matters. The Department also carried out research on an development in the utilization of natural resources and industrial or agricultural wastes.

The Thai Industrial Standard Institute (TISI)

The TISI is the government organization under the Ministry of Industry. The standards are set by TISI technical committee. The adoption of standards and certificate raises quality of industrial products to levels generally acceptable both domestic and export markets.

The Thailand Institute of Scientific and Technological Research (TISTR)

The TISTR, formerly the Applied Scientific Research Corporation of Thailand, is a non-profit making semi-autonomous, government research institute under the Ministry of Science, Technology and Energy. Its prime responsibility is to make full utilization of science and technology in the national socio-economic development. Its major activities deal with research on industrial, agricultural, environmental and building problems and related remedies. In addition. The Institute provides information service, standard testing and calibration services which are pre-requisites for technological development.

The Board of Investment (BOI)

In 1977, the BOI opened an investment services centre in Bangkok to facilitate applications for investment projects. The investor are assisted in obtaining various government permits, licences and other authorization.

The BOI decides what type of industry are suitable for Thailand and what incentives and assistance should be offered to investors in the sectors.

The Industrial Finance Corporation of Thailand (IFCT)

The IFCT, a private agency, provides the industries with medium and long-term loans, project development services, syndicated loans, equity investments, guarantees, and underwriting services.

The Association of Thai Industries (ATI)

The ATI brings together the top Thai Industrial decision-makers for democratic action aimed at building up the industrial, economic and trade sectors' role in the overall socio-economic plans of the Thai nation. The Association provides ATI members with information about new technology, marketing, production and industrial training programme and scholarship.

The Small Industry Association of Thailand

The Small Industry Association of Thailand was set up in 1976 to promote, in a private capacity, the development of small industries in the country. During the one-year of its existence, The Association has organized a seminar on small industry development in which high ranking officers involved in industrial promotion participated. Also, the Association organized an Exhibition on products manufactured by small manufacturing concerns.

EXPERIENCE OF TECHNOLOGICAL DELIVERY SERVICES
IN THAILAND

The ISI and the SIFO play the main roles to help the small industries by extending technical, management and financial services to the enterprises. The activities are as follows:

1. Providing extension, training and advisory services for the light engineering, textile, handicrafts and cottage-type industries.
2. Organizing and conduction seminars and training courses in the field of technical production, industrial management as well as marketing of the products.
3. Making available the services to entrepreneurs in the area of industrial engineering, industrial design, packaging, furniture and wood-working, heat treatment, electroplating, machine shop practice, tool and die design and making, foundry technology, ceramic engineering and technology, and low cost automation.
4. Facilitating the progress of industries by means of technical and industrial information service.
5. Undertaking techno-economic surveys to appraise the industries in terms of their requirements as well as to identify opportunities for industrial establishment especially those that are viable in the rural areas.
6. Developing machinery to be used as prototypes of the low-cost import substitute.
7. Developing new and improved machines, tools, or processing methods with a view to increasing production efficiency and improving product quality.
8. Investigating ways and means to utilize more of domestic raw materials and to bring new types of material into production.
9. Testing according to TISI
10. Repairing and calibrating of physical measuring equipment and scientific apparatus.
11. Conducting research and rendering scientific and technological services to various government agencies and private enterprises.

Few examples of technological service of TISTR are mentioned underneath.

TISTR has been working in co-operation with two noodles factories to find the way in making pre-cooked noodles with the texture suited to Thai taste. Composite flour wheat and tapioca starch are also used in making noodles to reduce the cost of material, since wheat flour is entirely imported.

Moreover, research services such as suitable conditions of processing method, pre-feasibility and market studies etc. are also extended to many small concerns. One small factory produces coconut milk for commercialization with the use of TISTR technical know how. The beverage powder prepared from soybean with chocolate powder as flavour is going to be prototype tested in the factory very soon.

PROSPECTS FOR THE FRAMEWORK OF TSDS PROJECT

Small and medium manufacturing enterprise will continue to play an important role in the Thai Economy as specified in the National Plan, even though the small entrepreneurs may be constrained by a number of familiar factors, such as poor personnel management, inadequate quality control of raw materials and finished product, lack of technical knowledge, lack of skill personnel, etc.

It is suggested that technological service should be in a complete package form, then, delivered through TISTR, and, since TISTR is a non-profit making, semi-autonomous state-enterprise with an almost unique capability within the country of being in a position to coordinate research programmes on a contract basis for private industry and other government agencies. Thence, it is implemented by the industry.

The experiences obtained by working will strengthen the capabilities of TISTR staff and promote better relationships between TISTR and industry. Besides, the effective application of improved technologies will result in increased productivity and profitability to the factory. Furthermore, high

Quality products obtained will expand the market abroad and increase incomes of the producers and the factory workers. Moreover, consumers will benefit from higher quality product with no additional course.

REFERENCES

Saeng, Sanguanrung, et al "Development of small and medium manufacturing Enterprises in Thailand" An Adipa research project Vol., Main report, December 1978.

Varangoon, P. Food Processing Industry in Thailand. Paper presented at Process Improvement Workshop, Republic of Singapore, 13 - 17 October 1980.



