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SMALL-SCALE AND RURAL INDUSTRY DEVELOPMENT PROGRAMMES IN SOUTHEAST AND EAST ASIA - SELECTED CASE STUDIES*

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Table of contents

		Page
	EXECUTIVE SUMMARY	ii
1.	INTRODUCTION - PURPOSE OF THE STUDY	1
2.	PROGRAMMES FOR THE LOCAL SMALL SCALE INDUSTRY ENVIRONMENT	3
	2.1 The "Nursery Factory Scheme" at Pengkalan Chepa, Malaysia	3
	2.2 Promotion of small scale industries in the West Sumatra Province, Indonesia	6
	2.3 Promotion of small and medium-scale industry in the Songkhla Lake Basin, Thailand	10
	2.4 Promotion of small-scale and rural industries in Palawan province, the Philippines	14
	2.5 Evaluation and support measures	16
3.	ENTERPRISE-ORIENTED PROGRAMMES	19
	3.1 Entrepreneurship and management development	19
	3.2 Technology support	21
	3.3 Small scale industry financing	24
	3.4 Promoting R&D	26
	3.5 Evaluation and proposals for action	29
	SELECTED REFERENCES	32

Executive summary

This paper presents a synopsis of selected support schemes for small-scale industry (SSI) in Southeast and East Asia. It is divided in two parts: The first centers on programmes which aim at improving the local environment in which SSIs operate, the second deals with programmes to remove some of the constraints at the enterprise level.

The chapter on the SSI environment contains case studies of industrial estates with special services for SSI; programmes promoting linkages among SSIs and between SSIs and larger industries and/or other sectors of the economy; and area development programmes which include SSI development schemes.

The case studies on industrial estates cover the Malaysia Pengkalan Chepa "Nursery Factory Scheme" and the Ulu Gadut SSI estate near Padang, Indonesia. In the first case, the full range of infrastructural provisions and support services was made available, in the second a larger share of the fixed capital costs has to be borne by the entrepreneurs. The Pengkalan Chepa scheme had the advantage over the Padang scheme of being well-located, but in the absence of co-operation among the entrepreneurs located at the estate, scale economics in buying, production and marketing could not be realized which again negatively influenced the performance of individual enterprises. Also, the Padang estate was located at a considerable distance from the urban market provided by Padang town. The most successful part of the scheme was the provision of training services.

In Indonesia, linkages among SSIs and between SSIs and larger enterprises also take the form of "foster father" and "cluster" schemes. In the former case, a larger scale industry acts as a buyer of SSI output and provides SSI support (training, etc.), filling the role normally played by a Government agency. In the Padang study, a scheme is presented of formalized contacts between a cement factory at Padang and SSI spare parts suppliers at Sungai Puar that had grown over the years. The scheme resulted in performance improvements in the SSIs, and through the cement factory's growing orders for spare parts to various SSIs there was a considerable spread of development effects. For an example of SSI 'cluster' co-operation the Padang study draws attention to well developed linkages between SSIs in the Koto Gadang cluster of crafts producers. These strong linkages in part result from strong family ties among producers, in part from the long and successful life of the scheme. Government involvement was rather restricted; it included training, design improvements, technical and managerial support.

Various area development schemes in Thailand and the Philippines are described. The Songkhla Lake Basin programme in Southern Thailand aims at creating economic growth away from the Bangkok Central Region. As part of the overall programme aimed at exploiting the area's natural and human resources, the rather weak industry of the Basin is to be given a strong boost. Special attention is to be given to the SSI sector to upgrade its performance, diversify its production, strengthen its linkages and improve its export performance. A wide range of support is envisaged: Management support, training, credit schemes, technical services and industrial infrastructure. Another area programme now in preparation is the Palawan Integrated Area

Development Project (PIADP). A rural enterprise project is part of PIADP. Under this project, the industrial protential of the area is assessed and development projects drawn up. Training, technical assistance and industrial information is also provided. As in Thailand, meshing the activities of the many organizations has proved to be a problem. The programme co-operates with the entrepreneurs in the area, and encourages them to co-operate among themselves; the direct involvement of entrepreneurs is thought to be a key to success.

To improve environment-related SSI support schemes, more thorough assessments of the actual potential and needs of SSIs is essential so as to enable "tailor-made" support measures. Costs of support can be reduced by co-ordination between support organizations. Greater involvement of entrepreneurs and their organizations and co-operation among them would also enhance the success of SSI development schemes. At the international level, the possibilities of region-to-region co-operation deserve to be explored.

Various enterprise-oriented programmes deal with: entrepreneurship and management development, technology support, SSI financing and commercialization of R&D.

The Local Study Mission (LSM) in the Phiiippines is an example of the first type of assistance. It stimulates intensified contacts among entrepreneurs through visits to plants combined with discussions and lectures by specialists. This resulted in management and technology improvements. The establishment of the Sectoral Productivity Association (SPA) project was another outcome. LSM participants formed co-operation groupings to address constraints to the adoption of improvements due to the size of their enterprises. Meeting big market orders, installation of certain production facilities, training, management development, etc. were constrainted by the size. The more lasting associations were those organized for specific purposes e.g. joint purchasing of raw materials or joint ownership of a processing facility. In these cases, the associations had a common, continuing concern. There were direct gains for members to be identified while on the other hand the operation of the association demanded little time input.

In Malaysia the Technology Display and Resource Centre at Kuala Lumpur provides training, information and consultancy and advisory services to SSI. Its services are made accessible to entrepreneurs elsewhere in the country through study tours and mobile exhibitions. However, severe resources constraints make it difficult for the Centre to fully cover the demand, especially from outside the capital.

In the Republic of Korea, the Government has established the Technology Support Centre for Small and Medium Industries. Apart from a Transfer of Technology Department and a service for general technical support, it disposes of specialized foundry and precision machinery centres. Each of these departments assists several hundreds of SSI entrepreneurs yearly. The Technology Transfer Centre has intensive contacts with Japan, the US and major European manufacturing countries, and also with multilateral organizations. Intensive contacts are maintained with entrepreneurs.

Lack of credit is a common constraint of SSIs since for commercial banks, the SSI sector represents a problem. Its wide diffusion and its need for great numbers of small loans make it difficult and costly for banks to provide credit. High failure risk, inadequate collateral and poor record keeping are other drawbacks.

In many developing countries Governments or special development finance institutions have stepped in to replace private banking as a source of SSI credit. The Industrial Finance Corporation of Thailand (IFCT), a major non-governmental financial institution, allots part of its resources to the solution of the SSI credit problem. It created a special small-scale projects loan unit in 1984 and introduced in 1986 a programme to finance export production modernization. The latter is wholly devoted to enhancing the performance of carefully selected export-oriented enterprises through a package of assistance research linked to financial support covering all phases of a small firm's modernization cycle.

A country which has been very active in financially supporting SSIs is Indonesia. The KIK/KMKP (Small Investment Credit/Working Capital Credit) programme has since 1974 made hundreds of thousands of small enterprise loans. These loans, handled largely by the government-owned commercial banks which dominate the banking system, have had a wide regional and rural outreach. The programme has, however, in recent years suffered from reduced funding. Savings and loan associations have been introduced in Indonesia as a partial solution to the SSI credit supply problem. A very large co-operative savings and loans project is now run by the Bank Rakyat Indonesia; it involves 4 million savers and 1.3 million borrowers, though few of these so far are industrialists. The scheme is also financially successful and has generated a surplus.

The promotion of R&D becomes crucial as SSI grows and modernizes. In the Republic of Korea, private R&D has become very important, but for many small enterprises the cost is too high. The Government-owned Advanced Institute of Science and Technology (KAIST), among others, therefore assists SSI in this respect, on a commercial basis.

A recent evaluation shows that KAIST projects involving process innovation were commercially the most successful. An essential condition for success was the fact that demand existed for the innovations. There was on the other hand a relatively high failure rate when the application of a new technology had been pursued without a readily availabile market.

The actual commercialization of KAIST's R&D is handled by the Korean Technology Advancement Corporation (K-TAC), in the form of joint ventures with private enterprises. The institute sells off its shares in joint ventures after some years; the proceeds are transferred to a revolving fund tc finance further ventures.

In all cases of K-TAC's success, KAIST has continued to support the companies with second and third generation technologies to keep up with technology advancement.

The chapter concludes with a number of suggestions to improve the delivery of support to individual SSIs. As in the SSI environment case, both the increased direct involvement of and co-operation among entrepreneurs were found important, just as a better SSI needs assessment and a streamlining of the activities of support agencies. Important contributions could also be made by decentralizing support, bringing agency staff in closer touch with the actual needs of SSI. At the international level, the involvement of retired small-scale entrepreneurs from developed countries in SSI support schemes could be expanded.

1. Introduction

This document is part of a series of studies of UNIDO's Regional and Country Studies Branch on the small scale industry (SSI) sector in developing countries. In this work particular attention has been given to the need to see the SSI sector not as a static segment but as an active part of a country's dynamic industrial transformation process. The establishment of new small industries should be fostered and their technological development and integration into the overall industrial production system developed.

Generally SSIs' contribution to overall economic and industrial growth is quite significant, in terms of value added generation and employment generation. The SSI can also positively affect rural development and thus contribute to stemming urban immigration and problems of congestion in the large cities. Further advantages of SSIs are links they can establish between agriculture and industry by utilizing local raw materials and waste products even though these may be available in relatively small quantities. By stimulating entrepreneurship and mobilizing private savings and harnessing them for productive purposes the SSI sector can become an essential part of a dynamic growth process. Though its relative flexibility of production SSIs can respond rapidly to market changes and can support large-scale industries by supplying parts and components.

All these potential strengths and developmental effects of the SSI sector are, however, not always easy to mobilize and exploit. The SSIs' development is rally constrained by the very fact that these enterprises are simply not ed to keep themselves informed of and to have access to resources to ut.. the opportunities for growth.

The major constraints confronting SSI's are generally:

- insufficient knowledge of entrepreneurs of markets;
- low level of process and product technology, lack of modern management techniques and weak links with other enterprises; and
- an unfavourable general policy environment, including unfavourable legislation and difficult access to finance;

Governments in recognition of the potentials of the SSI sector attempt to provide various types of support schemes to alleviate these obstacles. Such SSI development schemes and rural SSI support programmes in Asia have been surveyed. This document presents a brief synopsis of support schemes focussing on specific key aspects of SSI development in Southeast and East Asia.

These aspects concern firstly programmes aiming at improving the local environment of SSIs and secondly programmes aiming at removing various constraints. Obviously, support to individual enterprises in terms of technical assistance, credit, etc. will have no impact if the enterprise's operation is hampered by external factors. The present document is focussing on the local industrial and infrastructural environment, such as linkages

between enterprises and the provision of suitable sites, power and other collective facilities. The example of the Thailand Songkhla Lake Basin indicates though, the most essential basis for development of the SSI sector is its linkages to a growing overall economy. Thus, development of the agricultural sector and the resulting growth of rural incomes and of raw materials availability are key stimuli for the SSIs.

Also socio-cultural factors are important in the development of SSIs. Traditional enterprises rely on skills in the family predominently. Assistance schemes to SSIs or co-operative groupings therefore must ensure that they rely on these traditional relationships or networks when introducing new measures.

The impact of assistance to SSIs can be increased by designing this support according to the actual requrements. Several case studies show, indeed, that technical assistance will be effective only if the real needs of individual enterprises or specific industries are given maximum attention. Agencies and their staff are often not familiar with the actual problems of SSIs, especially those in rural areas. There are also many indications that support agencies have become top-heavy and take too little account of each others activities. Better co-ordination of activities and a concentration of resources can enable the support to be rendered more efficiently to the benefits of SSIs.

2. Programmes for the local small scale industry environment

Various Asian countries have SSI support programmes which focus on improving the environment for small scale industries. Thereby the entire SSI sector is provided with collective facilities and linkages to area development programmes. Some illustrations of such support are presented below. These cover industrial estates; linkage programmes between SSIs and between SSIs and larger enterprises; and area development programmes.

2.1 THE "NURSERY FACTORY SCHEME" AT PENGKALAN CHEPA, MALAYSIA[1/]

The Malaysian Government has launched several support programmes to help modernizing and rationalizing SSIs, and to strengthen the role of the indigenous small-scale entrepreneurs. The "Nursery Factory Scheme" was to help overcome their specific constraints. These constraints are, above all:

(i) the shortage of well-designed and aptly located small factory premises. Those currently available are generally overpriced and the rental rates are normally prohibitive as far as the small scale enterprises are concerned;

(ii) the lack of managerial expertise and technical know-how;

(iii) the lack of marketing expertise, contacts and outlets; and

(iv) the lack of business guidance and integrated financial assistance.

Under the scheme, a number of suitably designed factory premises are built in a specific area where an integrated system of financial, advisory and technical support is provided to assist participating small-scale bumiputra enterprises or entrepreneurs. The Bank Pembangunan Malaysia Berhad (BPMB), a Government-owned development bank, provides the premises and co-ordinates the provision of other basic utilities. After construction the factory units (numbering between 15 to 30), are let at subsidized rates to local entrepreneurs.

In the Pengkalan Chepa scheme the units (of various sizes) are equipped with water and electricity supply. A major shortcoming was, however, that telephones had even after three years not yet been installed. Moreover, a proposal to provide machinery for common use by two or three units had not been implemented. BPMB provides training, management support, finance, technical know-how, ensures the effectiveness of the scheme, and other support services. A scheme manager and supervises closely the progress of each entrepreneur. The grouping of small enterprises clearly enhances the interaction between entrepreneurs.

1/ Based on "Small scale industrial development in Malaysia: The case of the 'Nursery Factory Scheme' in Pengkalan Chepa, Kelantan" (to be issued - see list of references).

When an entrepreneur is successful, and has built up his business the subsidy element granted by the Bank will be gradually decreased. Once BPMB is satisfied that he can survive without assistance from the bank and other related government agencies he will be requested to relocate his manufacturing activity outside of the scheme. The factory unit so vacated will then be allocated to a new entrepreneur.

The Pengkalan Chepa estate is the first attempt to implement this type of scheme. If it proves successful, in terms not just of pure commercial economic calculation but also of social costs and benefits, other scheme of this type are likely to be built.

The reasons why Pengkalan Chepa was selected as the site for the first nursery scheme are firstly the presence of a previously established industrial estate which might provide linkages; secondly the proximity to Kota Bahru, the Kelantan State capital was seen important; and thirdly there were good infrastructural facilities including an airport.

The selection of the enterprises had been made by BPMB and a representative of the Small Enterprise Division (SED) of the Ministry of Trade and Industry. A first category of entrepreneurs was selected on the basis of their previous experience with "backyard factories" and their capability to provide a "demonstration effect" for the second category of new enterprises. Preference was given to entrepreneurs who were able to finance at least 10 per cent of the project cost (excluding land and premises); This share has to be paid in cash and is meant to fully commit the entrepreneur to the project. Loans were given for five years, with a one-year grace period at rates slightly below market rates. The unit's equipment and some other form of property (usually land) served as collateral.

Projects were chosen on the following criteria:

- They must be technically feasible, financially sound and economically viable in the context of the 'nursery factory scheme';

- Total net assets or shareholders' funds must not exceed M$250,000;

- The total of full-time paid employees must not exceed 25.

BPMP's management of the project was entrusted to a Management Committee comprising all departmental heads of the Bank and a representative of the SED of the Ministry of Trade and Industry.

The major functions of the Management Committee were as follows:

(i) to formulate policies relating to the scheme;

(ii) to approve:
- the establishment of new schemes
- the appointment of the Scheme Manager
- the selection of scheme participants
- the reallocation of successful enterprises; and

(iii) to ensure that each scheme functions according to the prescribed concept and policies through continuous assessment of each scheme's performance.

The last item seems to be the most important function in the Pengkalan Chepa project. As a 'pilot project' its success will determine the future role of the 'nursery factory scheme' concept.

To ensure effective planning and monitoring, four BPMB departments have been involved in the implementation of the scheme:

- Research and Development;
- Technical and Engineering;
- Entrepreneurial Development;
- Property Unit.

While the first three support the operations of the enterprises on the basis of their own specialization, with the Research and Development Department functioning as the general administrator, the Property Unit is in charge of facilities. Everyday administration, assistance and supervision are in the hands of the Scheme Manager and his staff.

A survey of the scheme in 1986 showed that 11 out of the 17 enterprises on the estate were involved in food processing, and that these were on the whole the largest and most advanced enterprises. Average sales of the food processing, indeed, were M$ 12,681 as opposed to M$ 10,250 for the others, and five entrepreneurs had received formal business training whereas none of the other industries had trained entrepreneurs. Labour intensity was highest in the non-food enterprises: their average employment was 15.6 as opposed to 5.2 for the food processing industries. Unskilled labour predominated, and on-the-job training was all that was considered necessary for the type of work being done. The majority of enterprises disposed of less than M$ 50,000 equity; the average size of investment loans supplied by BPMB was approximately M$ 39,000. Few entrepreneurs had sufficient working capital, and BPMB supplied loans with an average size of M$ 23,000 for the purpose. Lack of working capital became a major problem of the SSIs as a result of inadequate financial management and low sales (moreover often made on credit).

Several production and technical inadequacies were identified at the estate. These were mainly problems related to the scale of the operation. The enterprises did not have the capacity to exploit economies of scale in areas such as the procurement of raw materials, and the production and distribution of their products. Although joint procurement and marketing arrangements can alleviate the problems associated with the small scale of operations, such arrangements were almost absent or poorly organized.

Most of the entrepreneurs seemed to be aware of the need for quality control, as an important determinant for keeping competitiveness and market shares. However, quality control were sometimes hampered by the low technical knowledge. Lack of quality control was particularly prevalent in the food processing enterprises with a high percentage of products being returned.

Most entrepreneurs were constrainted by inadequate technical knowledge, particularly for selecting of machinery and equipment. Nevertheless, in most cases, the Malaysian Agricultural Research and Development Institute (MARDI)

and the Standards and Industrial Research Institute of Malaysia (SIRIM) were consulted only after the equipment or machinery had been purchased.

Sixty per cent of the entrepreneurs indicated that technical problems associated with the purchase and usage of machinery constituted the major problems in production. The lack of technical knowledge made it difficult to detect defects of their equipment and machinery in time before major breakdowns and production stoppages occur. The presence of a reliable engineering facility at the estate might have remedied this problem.

During the survey period, 3 enterprises were not in operation while 5 had either been inoperational or phased out of the scheme. The major reasons for these enterprises to become inactive were disagreement among business partners, financial mismanagement, and inability to expand markets.

Inputs were generally acquired from Kota Bahru, against cash and without formal buying arrangements. Joint procurement arrangements could have lowered both transport and purchasing costs, but such arrangements were not established.

The major markets outlets are in Kota Bahru, other districts in Kelantan State and the public sector (through Government contracts). Especially the food sector had problems in expanding sales due to hard competition on saturated markets. Lack of product promotion and exposure were the next most important reason for low sales. Backward or forward linkages with larger industries in the area do not appear to be important.

2.2 PROMOTION OF SMALL SCALE INDUSTRIES IN THE WEST SUMATRA PROVINCE, INDONESIA[1/]

Small scale industry promotion schemes in Indonesia include:

- grouping of SSIs on industrial estates (Ulu Gadut);
- "foster father" schemes involving formal and informal industries (Sungai Puar);
- SSI clusters (Kota Gadang).

(a) The Ulu Gadut SSI estate

The Ulu Gadut SSI estate near Padang was designed for enterprises serving international and national markets and units working for the local market. As part of a modernization and promotion drive for SSIs, the estate was planned in 1981 and completed in 1984. Both types of industries were expected to become intensively linked to some medium-scale industries also located at the estate, the so-called strata-one industries. These would provide the various inputs needed by the export-oriented SSIs, or strata two

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1/ Based on "Promotion of small-scale industrial development in the West Sumatra Province, Indonesia" (to be issued - see list of references).

industries. The products would be marketed by the strata-one enterprises. The strata-three industries were those operating the local-market; in principle their supply/marketing relationship with the strata-one enterprises would be the same.

The emphasis was to be on export-oriented industries mainly using resources available in the region. The export of semi-finished or finished goods instead of raw materials were expected to enable the penetration of new markets increase the region's income, and create employment. Relying on local raw materials would reduce the supply problems of industry. By linking the SSIs to medium-scale industries with their more experienced management and external contacts and through the provision or upgrading of production facilities, the problems of SSIs to produce for non-local markets were to be overcome.

The production lines selected for the industrial estate were based on timber, rattan and leather processing. These materials are widely available in the region, and so is skilled manpower for their processing. These product-lines have considerable export potential. The strata-one industries, besides exporting their own semi-finished products (rattan splits and sawn timber), would also supply the strata-two units producing furniture and shoes.

The product choice was thus quite narrow. This would limit the range of required facilities and machinery and thus reduce the cost of the estate. It was expected that in the long run 10 strata-one industries would locate at the estate, creating forward linkage effects for some 50 strata-two and 200 strata-three units.

The management of the Ulu Gadut estate is handled by the Small-scale Industries Centre (Pusat Pengembangan Industri Kecil (PPIK)) a special authority established by the Department of Industry. During the preparatory phase, PPIK had the responsibility for preparing the feasibility study including the industrial plant design and searching candidates for the estate. During the construction period, PPIK advised and guided the participants in designing the plant lay-out, constructing the buildings and equipping them. At the operational level PPIK provides various facilities to support the development of the small-scale industries. The government facilities cover a wide range of "software" and "hardware" services, the latter including basic industrial equipment and technical support.

High expectations existed with regard to penetrating international markets through the strata-one industries when the estate opened in 1984. The available premises for strata-two industries were therefore soon all taken. The strata-three industries were not strongly attracted by the estate, as the distance to the urban market, Padang town, was too large. After three years, the strata-three timber and rattan industries had all stopped operations at the estate, while the number of leather-working (mainly shoe-making) units dropped to one-half of the 1984 number - which again was half of the long-term total expected. Stagnation in international markets led to reduced exports by the strata-one industries. Rattan exports did well, but this product should have been supplied to the strata-two industries who therefore were forced to rely on irregular supplies of inferior material. This again negatively influenced their competitiveness. The expected linkages between industries were not established.

Essential facilities at the estate were provided by the Government. The remainder had to be provided by the industries themselves, and here the SSIs were at a distinct disadvantage, with the difficulties of getting access to credit. It proved, however, to be more difficult for the larger enterprises than for SSI to mobilize sufficient working capital. Once the units were operating, working capital needs of the SSIs are low. The problems were compounded by delays in acquiring forest concessions which led to production bottlenecks. In turn, this reduced sales and the reduced profits caused loan repayment arrears. Although the rather dismal financial performance of many units is due to a variety of reasons, the approval of a recent application for a collective forest concession would certainly help to improve the performance of the industrial estate.

Training was one of the successful elements in the Ulu Gadut scheme. It was recommended by the strata-two and strata-three industries to expand this programme. Training outside West Sumatra was very costly and could thus be attended only by a few participants. Guided by these considerations, several training programmes were conducted at the estate in 1986. For the medium-scale industries the training services were less essential, as they produce unsophisticated intermediate goods which require few special skills.

(b) The Sungai Puar "foster father" scheme

The "foster father" scheme attempts to link small industries in their individual locations, with large-scale enterprises. This large enterprise acts as a buyer of the SSI output, and fills the supporting role (otherwise played by the Government in estates) by providing training, supervision and consultancy to SSIs. It was expected that the link would help small industry to grow essentially through "trickle down" effects.

In the Sungai Puar case, contacts were established between the Padang Cement Factory (P.T. Semen Padang) and the Sungai Puar village SSIs in the metal working branch. The reason was that the expanding cement factory could not be adequately supplied with sufficient spare parts by its own workshop and therefore had to rely on outside suppliers. Thus, in 1983 the Regional Office of the Department of Industry established formal contacts between the factory and suppliers.

The SSIs at Sungai Puar had since long been producing simple agricultural equipment for the regional market. Quality was not very important, and scrap iron could generally be used as raw material. The cement factory, however, imposed high quality standards for its required spare parts, and as a consequence high quality raw materials had to be used. Initially, production for the cement factory involved two Sungai Puar SSIs. By 1986 this number had risen to four. Total production for the cement factory increased from Rp.4 million to Rp.14 million. In spite of the rapid expansion, however, the Sungai Puar workshops could not produce all the spare parts needed so other producers favourably located where also contacted, such as SSIs in Bukittinggi and Padang.

The cement factory provided training to the Sungai Puar workers, improved management skills and production methods and helped the SSIs to procure proper raw materials. The quality of the products was thus raised, and the small industries learned to make deliveries within the agreed time

limits. Although the heavy dependency on the cement factory as the major buyer of output was a drawback, the expected "trickle down" effects were in part realized and a contribution was made to the "growth with equity" concept. The strong position of the cement factory in the regional market thus helped to encourage the small enterprises. The fact that the large and small enterprises were not competitors for inputs, made this scheme more successful than the Ulu Gadut industrial estate. However, the problem remains of diversifying the markets of the small industries.

In co-operation with the Food Crop Extension Service, the cement factory also trained the SSI workers in new production techniques for agricultural equipment, but competition is so strong in this subsector that the production volume at Sungai Puar has remained very limited.

The only financial link between the cement factory and the SSIs was cash on delivery payment. A short-term credit arrangement was available mainly for purchasing raw materials, but the workshops never used this credit and financial operation costs from their own resources.

The "foster father" link did not go so far as to provide credit for capacity expansion of the Sungai Puar workshops. Instead, as indicated above, orders were placed elsewhere when the need for spare parts exceeded the existing production capacity. Had the Sungai Puar metal workers invested (or been able to invest) in expanding the production capacities, they might have been able to secure a larger share of the quickly growing demand of the cement factory. The advantage of the present allocation system is on the other hand that orders were distributed among a larger number of SSIs, and that thus the "equity development" principle could be attained.

(c) The cottage industry "cluster" scheme at Kota Gadang

The third approach - the household and cottage industry cluster (sentra industri kecil) - has been used to strengthen the smallest industries in the country, usually on a co-operative basis. Linkages were stimulated among the cottage-scale enterprises themselves. The basis for Government assistance would be existing industries in and around a specific location. The relationship between these industries was strengthened through the provision of training, equipment, raw materials and marketing services on the basis of a cluster of industries engaged in identical production lines. Production was based on local crafts, i.e. embroidery and silverware-making. Focussing on identical industries simplified the support efforts.

The origin of the scheme at Kota Gadang goes back several decades. The strong ties that have developed between the units and with the private training and marketing institute (Kerajinan Amai Setia-KAS) as the centre of the scheme in its original form, have proved essential. Recruitment of workers is along family lines, and this has provided another element of stability.

The training and marketing institute (KAS) was used as the main tool for modernization and expansion. Modernization included the introduction of new designs since the units had previously only relied on traditional, local design. Assistance also covered training, technical and managerial support and marketing. Although the authentic, traditional type of craft is now

gradually disappearing, the market for the products has grown. Much of the output is sold in Bukittinggi, a nearby major town which also serves as a source of raw materials. The main constraint on further expansion would seem to be the shortage of skilled workers, as a high degree of artistic training is needed to create a good product. The problem is partly being alleviated by involving household and cottage producers in nearby villages.

The scheme now has the legal form of a foundation. Its financial resources have mostly consisted of contributions from the individual participating cottage industries to the common fund. For external funding, KAS relied as much as possible on grants and related types of finance. Bank credit was avoided in order not to be burdened by interest payments. The funds are in part used to provide interest-free loans and raw materials to the participants. The profits on sales are distributed among the participants on the basis of individual shares in production and sales, after loan repayments and common fund contributions have been accounted for. Earnings are sufficiently high to enable participants to generally finance their own operations; credit requests to the foundation are rare. Government intervention has all in all been very limited.

2.3 PROMOTION OF SMALL AND MEDIUM INDUSTRY IN THE SONGKHLA LAKE BASIN, THAILAND[1/]

In Thailand, 90 per cent of industrial output is generated in the Central Region, in and around Bangkok. Although the disadvantages of agglomeration will appear sooner or later in the form of rise in land prices, wages, transportation cost and pollution abatement cost, individual industrialists prefer the metropolitan area because in the non-metropolitan regions the investment environment is inferior with few well-equipped industrial estates, low-skilled manpower, transport problems, poor urban services, and a limited market size. Thus, industrial development in the non-metropolitan regions can hardly be achieved without government support.

On the other hand, South Thailand clearly represents an excellent opportunity for decentralized development. Its availability of manpower and raw materials, and the suitable geographical location for international trade constitute clear advantages. The other issue is that the region's traditional resources such as wood and fish suffer from overexploitation. In the Sixth National Economic and Social Development Plan (1986-1990) one of the main objectives of regionalization is to open the Southern region economy to world competition, to disperse industrial development to this region, and to increase efficiency in natural resource exploitation and in environmental management. Particular attention has been given to the development of Songkhla/Haadyai as an economic and administrative centre. Transportation and communication systems will be set up to establish the links with the Eastern Coastal area of Surat Thani and the Western Coastal area of Phuket.

1/ Based on "Promotion of small and medium scale industrial development in the Songkhala Lake Basin, South Thailand" (to be issued - see list of references).

Apart from the particular reference to the Southern region in the current national Five-Year Development Plan, no specific Southern region development plan exists. It would indeed be essential that a long-to-medium-term programme be elaborated for industrial development of the Songkhla Lake Basin area. Such programme could provide a framework for support measures and promotional activities.

The Songkhla Lake Basin is characterized by industries captive to their location either serving the local market of the region or processing local produce. Predominantly industries are producing for exports using local resources. In addition metalworking, construction and woodworking industries exist, which produce for the local markets. In the case of woodworking industry such as furniture industry, also exports production exists.

The local industries generally lack versatility and technological sophistication. Basic industries like chemicals and textiles are underrepresented, as are engineering industries and assembly operations. Accordingly, there are few subcontracting possibilities, which could have contributed to upgrading the small metal working and machine repair shops. The region is well-connected to the rest of Thailand and Malaysia, but if the region is to become a major exporter, port and airport facilities will have to be further developed. Also the internal infrastructure (including power supply) needs much improvement.

A large part of the manufacturing activities in the area takes place in the informal sector, which accounts for some 50 per cent of industrial employment. In the formal sector, medium and especially small-scale industry dominate. Special attention to the small and medium industry (SMI) sector is thus required if the area's development potential is to be mobilized.

In the long-term the current industrial base might, however, not be sufficient to guarantee sustained industrial growth in the area, especially as the expansion of supplies of locally available raw materials are limited. On the other hand the area's human resources represents a great asset to future industrial development, in particular for entering into advanced technology and Engineering industries. Engineering industries indeed represent a strategic line for further industrial development.

A national Workshop held in July 1987[1/] noted that the Lake Basin area's metalworking sector is presently in an embryonic stage. Products are of relatively low quality and low technological level. It was stressed that the sector deserves special attention.

Within the framework of the National Development Plan overall planning and promotional activities in the Songkhla Lake Basin area are pursued by the National Economic and Social Development Board (NESDB), the Ministry of Industry and the respective Provincial Governors' Office (Songkhla and Patthalung). The NESDB operates a Southern Region Development Centre while

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1/ See Recommendations of Workshop on Promotion of Small and Medium Scale Industrial Development in the Songkhla Lake Basin, South Thailand, held 6-7 July 1987 at Haad Yai, organized by the Industrial Management Co. Ltd. of IFCT and UNIDO.

the Ministry of Industry runs Provincial Industry Offices at Songkhla and Phatthalung. The Industrial, Economic and Planning Division of the Ministry of Industry maintains the Southern Industrial Development Centre (SIDC) and the Department of Industrial Promotion, the Ministry of Southern Industrial Promotion Centre (SIPC), both at Songkhla. The activities of the SIDC are primarily concentrated on monitoring industrial development. Government support is not functioning fully satisfactorily. Entrepreneurs are critical because of complex regulations of Government agencies, the overlapping activities of the various agencies and the shortage of qualified agency personnel at the national offices.

The promotional activities of SIPC include:

- dissemination of information on investment opportunities;
- resource management;
- technology difffusion;
- management training;
- skill improvement;
- credit and tax facilities.

Data on investment and market opportunities are provided by SIDC, SIPC, the Office of the Board of Investment (in Bangkok) and the IFCT Southern Regional Office at Haad Yai.

It has recently been decided that an industrial information service centre will be established in each Provincial Industry Office. The Centre is to ensure that information required for investment decision be diseminated, and that advisory services be provided on rules and regulations, industrial siting, machinery and instalment, source of raw material, funding and marketing.

Until now the limited support given to industry in the Songkhla Lake Basin area has been largely 'supply-led'. Experience in other regions of Thailand, however, suggests that a thorough demand analysis is required for the identification of proper facilities and support services needed[1/] by both existing enterprises and new projects. Thorough analysis of the problems and bottlenecks is, indeed, essential for designing a programme to be actively supported by the entrepreneurs. Great care should be taken to determine the type of support facilities to be provided, the schemes to be set up (e.g. kind of services to be rendered by support agencies), and the role to be played by organizations of the private sector itself.

The analysis of the needs of industrial enterprises for support should concentrate on management, finance, sales and supplies, technology and production processes as well as infrastructural requirements such as land, communications and public utilities. The analysis should also cover the required organizational set-up in terms of entrepreneurial associations etc. and the public measures needed to increase growth and international competitiveness of the small and medium scale industry. In addition "speciality zones" may be set up, tailored to the specific requirements of export industries, small scale industries, agro-processing industries,

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1/ This approach has, for instance, been very successful in the recent UNIDO project supporting the industries of Villa El Salvador in Peru.

industries based on imports; industrial servicing establishments (such as maintenance and repair, printing facilities) etc.

As part of the area's resource base is suffering from over-exploitation, resource management and improvement schemes have been formulated. Apart from a rubber replantation programme undertaken by the Ministry of Agriculture and Co-operatives, the Songkhla Rubber Research Centre is supporting R&D in the area of rubber plantation and processing. The increasing importance of aquaculture as an alternative source of raw material has been recognized as an essential measure to halt the depletion of marine resources. The National Institute of Coastal Aquaculture, Songkhla, of the Department of Fisheries takes initiatives in R&D and dissemination of hatchery technology. The Department of Fisheries is promoting the contract farming system by inducing large firms to make contractual arrangements with small farmers. The Prince of Songkhla University plays an important role in monitoring environmental developments (as follow up of the Songkhla Lake Basin Planning Study made by the National Environment Board and NESDB). The University is also sponsoring co-operation in the engineering field, such as in computer-aided applications.

The Southern Industrial Promotion Centre provides industrial services and support. It relies heavily on Bangkok-based divisions with regard to technical information, research and technical staff for training. Thus, in collaboration with the Bangkok-based Industrial Services Division of the Department of Industrial Promotion (DIP) basic courses in fibre-glass making, chromium plating, and boiler control etc. have been organized. In 1985, five technical courses were conducted for some 300 participants. Technical information service is offered upon request. The performance of the Centre, in spite of severe resource limitations can be described as good and the staff is well accepted by the entrepreneurs.

Management training (provided by the Bangkok-based Management Development and Productivity Division of DIP) is concentrated to urban areas and includes consulting work, training and demonstration. The training courses are usually organized in direct co-operation with the Southern Industrial Promotion Centre. In 1985, three courses on modern management technique, filing, and accounting were organized with 140 participants. An entrepreneurship development programme appears to have been quite effective. Many young businessmen have attended courses on management techniques, technology and marketing information. The courses also provide a platform for the exchange of information. All in all, however, resource constraints seriously limit the Centre's work.

The Institute of Management Education for Thailand Foundation (IMET) - a private institution - has co-operated with the public National Institute of Development Administration (NIDA), in strengthening the secretariat of the Provincial Chambers of Commerce. Modern management courses are being organized for entrepreneurs in regional areas. In addition, consultancy services are provided upon request. Each consulting team consists of an IMET co-ordinator, a university lecturer, and an experienced businessman. IMET also has plans to launch a young business and civic leader programme which would complement the entrepreneurship development programme conducted by Ministry of Industry.

Job-oriented training is provided by the Southern Regional Office of the National Institute of Skill Development at Songkhla. A wide array of courses is offered. In FY1985, the Institute trained about 1,400 persons. Among the

successful programmes are the training courses in mechanical and electrical skills, wood and metal working, lasting from 4 to 14 months. These training courses are practical and job-oriented but seem not to be well known among SMI entrepreneurs.

Credit is provided by the Industrial Finance Corporation of Thailand (IFCT), in the form of medium- and long-term loans. The minimum and maximum loans for small projects are 0.5 and 5 million baht. During 1984-86, IFCT financed 13 projects in Songkhla Province with the total loan amount of 33.3 million baht. The average loan size was between 2-3 million baht per project. Projects include smoked rubber, concentrated latex, brick, cement products, plastic products and refined palm oil. In addition, the industrial credit guarantee scheme provides guarantees for working capital and overdrafts for businesses with fixed assets of less than 10 million baht.

During the abovementioned national workshop keen interest was expressed in the possible establishment of region-to-region co-operation involving a region in a developed country with UNIDO playing a catalytic role. The possibilities of initiating a similar scheme in the Songkhla Lake Basin area are to be explored. Steps to be taken would include:

- Identification of a partner region in a developed country ;
- Appraisal of the potential for co-operation in the two regions;
- Discussions between officials and industrialists of the two regions, UNIDO acting as a go-between and catalyzer;
- Establishment of a co-operation programme comprising commercial and industrial investments and support for training programmes and research, especially in the field of small and medium scale industry development.

2.4 PROMOTION OF SMALL SCALE AND RURAL INDUSTRIES IN PALAWAN PROVINCE, THE PHILIPPINES[1/]

The Philippine Government administration sees the promotion and regional dispersal of small and medium industries as an important means for alleviating poverty in the country. Small scale enterprises are seen as pursuing a development pattern consistent with the community's natural and human resources endowment. The proliferation of many small scale enterprises is also expected to contribute to an equitable distribution of wealth and power and to rural development process.

One of the country's island provinces, Palawan, is the locus of an Integrated Area Development Project (PIADP). The province is rich in natural resources but is, so far, on the margin of national development. The PIADP includes agricultural development, infrastructure, social and health services. The Rural Enterprise Development and Rural Employment Generation Project (RED-Palawan) which started in 1983, builds on these PIADP efforts.

1/ Based on "Promotion of small-scale and rural industries in Palawan Province, the Philippines" (to be issued - see list of references).

It mobilizes the province's entrepreneurial resources, complements the efforts of the public and private sectors and identifies and fills in the gaps in the development process through institutionalized support. Through its activities in research and project development, the RED-project makes available relevant economic information both to investors and extension workers. The training and skills development efforts are oriented to existing and potential entrepreneurs, the government extension workers, owner/managers, production workers, and others who contribute to the province's industrialization. The project extends technical and management services to its clients and makes business information available to enterprises.

The overall management and design of the RED-project is the responsibility of the Institute for Small-Scale Industries of the University of the Philippines (UP-ISSI), while the implementation of the three major programme thrusts is shared by the following institutions: UP-ISSI for research and project development, training and project management; PIADP for co-ordination and monitoring; the Small Business Assistance Center (SBAC) and the National Cottage Industry Development Authority (NACIDA) under the Ministry of Trade and Industry (MTI) for industrial extension and consultancy services. PIADP provides the necessary funding for the implementation of the project, drawing on Government counterpart funds to the Asian Development Bank's and the European Economic Community's development assistance funds which amounts to about US $85 million.

The following elements in the RED-project have been realized so far:

(i) Research and project development:

- Study of commodity flows and marketing of selected commodities;
- Integrated socio-economic and investment potential surveys of Palawan;
- Five-year comprehensive agro-business and rural industry development plan for Palawan;
- Investment profiles of identified potentially viable industries;
- Study on entrepreneurial potential;
- Inventory of SSI credit facilities.

(ii) Industrial promotion:

- Training programme on entrepreneurship, management, skills development, extension service training (total of 273 trainees so far);
- Technical assistance and project promotion (total of more than 100 firms assisted);
- Information dissemination (business newsletter, technology bulletins, investor's guide, establishment of the Palawan Agro-Industrial Technical Information and Assistance Network).

(iii) Industrial development and support services.

The programme in seeking to facilitate and improve the delivery of services to the target sector through the formation of industry associations. The project is built on the activities of an existing trade and industry organization in the province, the NACIDA Cottage Producers Association of Palawan and Puerto Princesa City, Inc. The local businessmen have been involved in planning, selection and recruitment of participants and preparation of training programmes which has made possible accurate identification of training needs and better programme design and implementation.

The programme also encourages co-operation among entrepreneurs on raw material sourcing, marketing and credit. One result is the establishment of a display and marketing centre. Institutional support services have been improved through training programmes for extension workers and networking among the Government agencies involved.

No impact evaluation of the project has been carried out yet. In an environment where most of the preconditions for industrialization still have to be created, the effects of promotion efforts will only become apparent after considerable time. One difficulty is the proper meshing of the activities of the various organizations and individuals involved; another is the restricted amount of resources available to the agencies. This makes is essential that maximum efficiency is exercized, e.g. by concentrating resources on the most promising business activities. The proper and effective involvement of the private sector in the projects has proved possible and is considered essential for the success: Experience shows that business responds better when Government agencies keep a low profile.

2.5. EVALUATION AND SUPPORT MEASURES

The present selection of examples shows that industrial estates specially catering for SSI have to be planned with great care in order to be successful. Although the Indonesian and Malaysian examples have different problems, both cases show weak performance in several key aspects. The lessons to be learned from these experiences can help policy-makers in providing more efficient common facilities to SSIs.

As has been generally observed,[1/] industrial estates are particularly effective when they are operating in an economy with a fairly high level of industrial development and when the estate caters for medium to large scale industries. In such cases an estate can be an important means for relieving congestion in metropolitan areas and facilitating the utilization of inter-industry linkages, the network of industrial services and the large markets of the metropolis. Thus, a fairly well-developed economic "tissue" is normally needed for industrial estates to be fully effective.

On the other hand industrial estates are unlikely to have major overall impact when located in areas where infrastructure and industry are still at a relatively low stage of development, and where industrial services are weak and the size of the market is limited.

1/ E.g. UNIDO - The effectiveness of industrial estates in developing countries. New York 1978.

The small size and traditional orientation of enterprises presents another problem to industrial estates. In most cases such enterprises need to be close to the urban market both to acquire inputs and to attract customers. The remoteness from the urban area thus increases SSI operating costs. The presence in a town is especially important in the case of sales: informal networks (e.g. the neighbourhood community) also play a role in creating a market niche for an SSI producing traditional goods, and such networks may help an SSI entreprenur to compete successfully against products from elsewhere. In the Ulu Gadut case, the industrial estate was at 10 kilometres distance from the town of Padang, and although some of the SSIs managed to attract customers at the estate, many of them had to continue to be present in the town. No significant linkages were developed (or are likely to develop) at this estate or between the Pengkalan Chepa estate and Kota Bharu.

The provision of support and services on the spot is apparently not sufficient to counter-balance negative locational aspects of the industrial estate. The presence of cheap common facilities is an advantage, but evidence shows that these may not always be utilized efficiently. SSIs which more or less spontaneously have established themselves as a group appear to function better. In the case of the Padang Cement Factory, strong linkages exist between the large-scale industry and the SSIs, and considerable skill and know-how is transferred to the small units. An apparent weakness of the "foster father" system would seem to be the excessive dependence of the SSIs on the larger unit. Co-operation among SSIs (as in the Kota Gadang case) can be beneficial in procurement of raw materials and collectively owned machinery that can be used as well as for joint transport and marketing. As examples from Indonesia and other Southeast Asian countries show it is, however, difficult to sustain co-operation. While common interests <u>within</u> units are often based on a family network, the industrial network <u>outside</u> the units seems too weak to demonstrate advantages in co-operation. Co-operation is most likely to be established in the case of a specific activity - e.g. the bulk purchasing of a certain raw materials, or marketing of similar products.

SSI promotion schemes have often been formulated in the context of overall area development programmes. With agricultural production increases SSIs can serve growing rural markets and also process an increasing volume of local raw materials.

The projects described have not been operating long enough to permit any general conclusions with regard to performance; moreover, their success is to a large extent dependent on the development as a whole. Obviously, SSI development cannot be achieved without a comprehensive development concept. There are many examples of failures of industrial development plans in which priority industries were to be established based on local agricultural resources but where these resources were not sufficiently available as a result of badly conceived agricultural policies. Similarly, the absence of a sufficiently developed physical and social infrastructure outside major urban regions seriously constrains industrial development.

Integrated area development plans can succeed only if various conditions are fulfilled. First, development must be conceived as a network of interrelated activities and not only as a list of projects. Linkages are to be conceived both between industries, between the industrial and other sectors of the area economy, and with the infrastructural and educational sectors. Integrated development presupposes systematic linking and matching also of the

activities of the various agencies concerned. This in term requires adequate provision of qualified personnel and other resources to the agencies.

To strengthen SSI development, improvements in infrastructure and human resource development and the stimulation of agriculture (both as a supplier and a market) would hence be crucial. In addition other essential measures can be listed:

- Assessment of the natural resource base for small-scale development potential;
- Analysis of the actual characteristics and potential of the constraints faced by SSIs in a specific region to serve as a basis for tailor-made support services;
- Studies of commodity flows of/among the productive units (including non-manufacturing sectors) to gauge the linkage potential;
- Comparative analysis of formalized linkages systems in the various countries of a region (e.g. 'foster father' schemes, export production villages, ancillarization);
- Supplementing support schemes to groups of SSIs (including SSI estates) with entrepreneurship development, marketing and technical/technology support;
- Measures to strengthen the know-how transfer to and the contractual status of SSIs in formal and informal linkage schemes;
- Tax measures favourable to the development of subcontracting (e.g. special low VAT rates);
- Identification of spontaneously-grown SSI clusters for designing tailor-made support;
- Concentration on a industrial subsector in estate schemes to enable cost-efficient provision of services and equipment;
- In more developed economies/areas: Provision of sites with basic infrastructure at points of good access to urban/external markets;
- Involvement of SSI entrepreneurs' organizations in the design and execution of support schemes;
- Identification of and co-operation with networks among SSI entrepreneurs;
- Co-operation between small and medium industries in regions in developing countries and regions in developed countries (region-to-region co-operation schemes).

3. Enterprise-oriented programmes

3.1 ENTREPRENEURSHIP AND MANAGEMENT DEVELOPMENT[1/]

In the Philippines, a number of programmes have been implemented during the last few years to stimulate SSI entrepreneurship and to improve management. One such scheme has been the Medium and Small Scale Industries Co-ordinated Assistance Programme (MASICAP) and the Market Information and Direct Assistance Project (MIDAS) for this purpose.

MASICAP was designed to actively seek out entrepreneurs requiring support to deal with the complexities of assistance schemes, project organization and loan requirements, thus enhancing the business potential of the SMI sector. The first step was to assess the existing economic activities in a number of towns and provinces and the potential for expanding them, along with the availability of industrial services and support institutions. On the basis of this information, prototype projects were formulated and entrepreneurs were sought out who, with MASICAP assistance, could be expected to carry through these projects. Part of the work was carried out by college and university students who thus acquired first-hand experience with development problems. The experience gained with MASICAP led to the formulation of a scheme to improve SSI marketing. MIDAS supplied information on domestic and export marketing, on buyers and suppliers. Information was supplemented by training courses for entrepreneurs, and six roving marketing assistance teams actually served as buyers and sellers.

Earlier programmes that were successful, even though their scale and time duration was limited, were the Local Study Mission (LSM) and the Sectoral Productivity Association (SPA) programmes. These were both set up by the Productivity and Development Centre of the Development Academy of the Philippines.

The starting point of LSM programme was the hypothesis that direct information exchange between rural entrepreneurs and those in the capital would help to stimulate the formers' activities. Visits to Manila plants, combined with lectures, discussions and workshops, was expected to be a more effective way of transmitting know-how than training of the classroom type. The sharing of experience was considered to be an instructive exercise by itself.

The project consisted of a series of area and sector-specific sub-projects. Focus was on three industries - the garments, metal-working and furniture industries - which dominate the rural SSI sector. First, a preliminary study was made, whereafter an economic profile of the area was drawn up, and the need for assistance assessed. Then participants were selected from lists provided by the Small Business Assistance Centres of the Ministry of Trade and Industry. Participants had to belong to the small and medium business category, show an aptitude for business (with increased sales as a criterion) and have at least two years of experience in the present

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1/ Based on "Promoting small-scale industry in Southeast Asia: Selected support schemes in the Philippines, Thailand and Malaysia" (UNIDO/IS.618).

business. For know-how transfer, staff members of the Development Academy and persons with experience in the industry branch in question were selected. Whenever possible, visits to three factories were planned, a small, medium-scale and large one. In this way, participants could be familiarized with the different demands at various stages of growth. Altogether, 320 industrialists (roughly equally divided among the branches) and 55 staff members of the Small Business Assistance Centres took part in LSM programmes.

An evaluation of the LSM programme in 1980 indicated that production management had been improved in a number of ways; also, technological innovations had been introduced in a number of enterprises.

It was observed, however, that significant improvements were primarily introduced in those enterprises which already possessed relatively well-developed techno-managerial capabilities. These relatively large enterprises disposed of more qualified personnel and more resources in general to implement the ideas which had emerged in the LSM. The difference in absorptive capacity among enterprises should have been taken into consideration from the outset so as to maximize the benefits from the approach outlined above.

Other results of the LSM were the trade and sub-contracting linkages that were worked out by the entrepreneurs among themselves. These were established in two forms: trading and subcontracting arrangements between Manila-based enterprises and countryside enterprises; and specialized subcontracting among enterprises in a locality.

The Sectoral Productivity Association (SPA) programme was a result of LSM activities. LSM participants, now realizing the usefulness of collective activities, decided to address constraints related to the size of their enterprises in the adoption of improvements, e.g. meeting big orders, installation of certain production facilities, training, management development, etc. LSM participants were therefore encouraged to form what were called "core organizing groups" for the formation of Sectoral Productivity Associations. These were area-specific, sector-based associations of small and medium scale entrepreneur-managers (e.g. furniture makers in the same locality). It was assumed that they would have very specific common concerns that would require and encourage a group approach.

To help the new SPAs mount substantive activities aimed at upgrading the techno-managerial capabilities of the entrepreneur-managers, the Productivity and Development Centre (PDC) undertook seminars and workshops jointly with the SPAs. PDC also assisted SPAs in the formulation of their annual operations plans, helped identify financial and other resources and generally acted as an intermediary between SPAs and Government agencies. It:

- helped to organize needs assessment workshops;
- identified areas for external assistance;
- formulated action plans;
- assessed support activities of relevant Government agencies;
- established contacts between SPAs and these agencies;
- assisted agencies in the development of support packages.

By late 1981, 25 SPAs had been formed with a total of over 400 members. Long-term viability proved to be their main problem. Organizing the SSI entrepreneur-managers was easy when there was a common, pressing problem to be

addressed. However, once the problem was solved, the interest of the members in the association waned and it would take an outside organization like the PDC to revive that interest. The associations then became active again for the duration of the PDC involvement. The objective of a sustained, self-reliant association network could not be attained.

The more lasting associations were those organized for specific purposes e.g. joint purchasing of raw materials or joint ownership of a processing facility. In these cases, the associations had a specific continuing concern and there were direct gains for members while the actual operation of their association demanded little time.

A scheme somewhat similar to LSM has been implemented in Indonesia, where rural SSI entrepreneurs were brought into touch with more advanced industrial enterprises in the countryside. The development of such contacts is then largely left to the enterprises themselves. The non-directive approach seems essential: entrepreneurs are unlikely to benefit from (or even accept) directions imposed by outsiders on how to run their enterprises.

3.2 TECHNOLOGY SUPPORT

(a) Malaysia experience[1/]

Low levels of technology negatively influence both productivity and product quality. To improve technological performance of SSIs, and to increase overall productivity in key branches like food products, metal working and wood products where small enterprise predominates, the Malaysian Government created the Technology Display and Resource Centre (TDRC) at Kuala Lumpur. TDRC was to serve as:

(i) a focal point through which SSIs can have access to information (in the form of books, periodicals, etc.) on available suitable technology;

(ii) a place where various types of modern machinery can be displayed and demonstrated for the benefit of SSI;

(iii) a provider of consultancy and advisory services to the SSIs.

Specifically, the Centre was given the following tasks:

(i) upgrading technical knowledge and skills within SSIs;

(ii) upgrading management skills of SSI entrepreneurs;

(iii) advising SSIs on matters regarding the suitability, characteristics and supply of equipment and machinery;

(iv) advising the SSIs on the financing of machinery;

1/ Based on "Promoting small-scale industry in Southeast Asia: Selected support schemes in the Philippines, Thailand and Malaysia" (UNIDO/IS.618).

(v) encouraging the modernization of production techniques so as to increase efficiency and thus profitability;

(vi) upgrading the quality of finished products; and

(vii) creating a sense of awareness among the general public on the contribution of SSI to development.

As the Centre did not dispose of sufficient funds and specially qualified manpower to be able to fully achieve all these objectives, its initial activities were concentrated on the following:

(i) Machinery exhibitions

Once every three months, the Centre exhibited equipment for a specific type of industry. This created an awareness of available technology, its costs and potential, among SSI entrepreneurs. These exhibitions focussed on the industries in which SSI predominates: food processing and packaging, light engineering, wood-working, etc.

(ii) Study tours

Study tours were oganized (and paid) by the Centre to enable visits to the exhibitions by entrepreneurs from outside of Kuala Lumpur. These visits also enabled the entrepreneurs to become familiar with other information services of the Centre (lectures, reading matter, film, etc.). To complement the study tours, temporary exhibitions were also organized at Ipoh and Kuantan.

(iii) Consultancy and advisory services

These covered a wide range of themes, including:

- sources of finance and eligibility;
- choosing the right mix of machinery;
- identification of business opportunities;
- project feasibility studies;
- general management problems;
- marketing strategies; and
- planning and control procedures.

The majority of SSI entrepreneurs tended to seek advice on project financing and the selection of machinery and equipment, thus indicating the two major constraints that impeded the expansion of SSIs.

Lack of personnel, funds and facilities limited the support that the Centre was able to give. Moreover, not all equipment suppliers were inclined to participate in the exihibitions, and the information provided was not always designed to be effective in the Malaysian SSI environment. These limitations and its urban location strongly reduced the number of entrepreneurs that could be reached by the Centre.

The services of an agency like TDRC can be much enhanced through systematic co-operation with other Government agencies concerned. The Standards and Industrial Research Institute of Malaysia (SIRIM) is of particular interest in this context. Since its establishment in 1975, SIRIM

has served as a national nucleus for promoting standardization, certificating trade marks, industrial research and other related industrial activities. SIRIM, with its wider experience and access to well-qualified personnel and already represented in SSI policy making could complement the present activities of the TDRC. A vital link to upgrade the level of the SSIs and increase their contribution towards manufacturing growth could thus be created.

The recent establishment of the Metal Industry Technology Centre (MITEC) within SIRIM should act as a catalyst to improving the technical capability of the SSIs. MITEC has already contributed towards the improvement of the SSIs in metal and light engineering through practical training courses, in the areas of die-making, presswork, welding and electroplating. To complement this, SIRIM also provides technical advisory services through its Industrial Extension Services Unit, enhancing industry's capacity to produce quality products at minimum cost by using the most appropriate technology. These advisory services cover such areas as production technology, production control, production cost and technical information pertaining to factory location, materials handling, storage and maintenance.

(b) Experience of the Republic of Korea[1/]

Extensive support programmes exist in the Republic of Korea, where the Government has established the Technology Support Centre for Small and Medium Industries for this purpose. Apart from a transfer of technology department and a service for general technical support, it disposes of specialized foundry and precision machinery centres. Each of these departments assists several hundreds of SMI entrepreneurs yearly. The Technology Transfer Centre has intensive contacts with Japan, the US and major European manufacturing countries, and also with multilateral organizations such as UNIDO. The General Technical Service Section is also involved in R&D for SMI, in fields that have been designated national priorities. This type of support takes on various forms:

- "One-researcher-for-one-industrial-firm" support service. (The technical support system's version of a "home doctor".)

- Development of common bottleneck technology in small and medium industries;

- Efforts to stimulate an open-door policy in the research laboratories of government-supported research institutes so that easy access can be established for eminent individual inventors and/or small and medium industries.

A more extensive discussion of Korean R&D for SMI may be found in section 3.4 of this Chapter.

1/ Based on "The Republic of Korea: Commercialization of R&D results with particular reference to the small and medium industry sector" (PPD.21).

3.3 SMALL SCALE INDUSTRY FINANCING

(a) Thailand[1/]

Lack of credit is a common constraint of SSIs. From the viewpoint of commercial banks, it is problamatic to provide credits to the SSI sector. Due to the wide diffusion of SSIs, a great number of small loans would be needed and thus increase the cost of providing credit considerably. High failure risk, inadequate collateral and poor record keeping are other problems.

In many developing countries Governments have stepped in to replace private banking as a source of SSI credit. A major institution in Thailand which allots part of its resources to the solution of the SSI credit problem is the Industrial Finance Corporation of Thailand (IFCT), which specializes in medium- and long-term financing of fixed assets. Since its inception in 1959, IFCT has financed 382 small-scale projects which constitute about 50 per cent of IFCT's total number of projects. In terms of loan amount, small-scale projects make up 8 per cent of the total.

In 1984 a special loan unit for small-scale projects was created to implement IFCT's current strategy to strengthen its promotion of small industry and regional development. Through a branch network, financial services are offered, including long-term funds for fixed-asset acquisition and short-term working capital loans. The target group consists of manufacturing and service units that have net fixed assets below US $265,000, and a maximum long-term loan requirement of US $132,500. The interest rate on loans is the same as on IFCT's normal loans, which currently stands at 14.5 per cent per annum.

By 1986, the loan facility had been extended to 104 clients totalling US $10.5 million. Clients in manufacturing were mainly engaged in food processing, the production of construction materials, wood products and furniture making.

The export modernization programme of IFCT was introduced in 1986. This financing programme for small and medium sized enterprises which initially involved 30-40 firms, differs from the small industry lending activity described above in three major respects. Firstly, the programme has a more specific objective. It is intended to enhance the competitiveness of export-oriented manufacturing through the modernization of production facilities and improvements in product quality, work and management systems. Secondly, in order to achieve this objective, the programme links the provision of technical assistance with the provision of financing, not just in the project implementation phase, but throughout the project cycle. Thirdly, since only some US $22 million in foreign and local currencies is available for lending and technical assistance (the foreign component is provided by Japan), the programme concentrates on selected priority export sectors.

1/ Based on "Promoting small-scale industry in Southeast Asia: Selected support schemes in the Philippines, Thailand and Malaysia" (UNIDO/IS.618).

The largest group for modernization loans consists of small and medium-scale manufacturers/exporters in priority sectors (food processing, metal products, garments, wood products, toys, footwear, rubber goods and electronics). The selection is made on the basis of firm size (maximum: US $1.85 million in net fixed assets) and a 30 per cent share of exports in total sales. Repayments of loans are to be used as a revolving fund for further loans.

The programme is based on the premise that modernization of an enterprise should cover all aspects of its operations, and not just be a matter of making finance available. The programme therefore also includes:

- Basic market research to identify business/product opportunities;
- The preparation of project studies to comply with the requirements of IFCT, and government agencies if necessary;
- Production management assistance, including product design and quality control;
- Operational management assistance, covering e.g. financial management and marketing.

(b) Indonesia[1/]

A country which has been very active in financially supporting SME 's Indonesia. The KIK/KMKP (Small Investment Credit/Working Capital Credit) programme has since 1974 made hundreds of thousands of small enterprise loans averaging a few thousand dollars each. These loans, handled largely by the Government-owned commercial banks which dominate the banking system, have had a wide regional and rural outreach. They have been funded by the Government through the central bank and ASKRINDO, the state loan insurance company which underwrites the programme's growing bad debts. KIK/KMKP was envisaged as supporting new enterprises and particularly industrial ones. In fact, the bulk of lending has been to existing enterprises, and to the banks' favoured sector, trade. Since the 1983 reform of the financial system and the decrease of further government funds, the KIK/KMKP portfolio has hardly increased, in sharp contrast to preceding years. The banks now regard it as marginal to their lending, and unprofitable.

Savings and loan associations, though not a very common phenomenon and never designed to serve industries as such, have shown more promise. In the region, Indonesia provides a number of examples, two of which will be mentioned here. In contrast to many credit schemes, they are characterized by high interest rates, quick-repayment schedules and low arrears.

The Indonesia Bank Kredit Kecamatan (BKK) operating in Central Java is in fact a grouping of savings and loan associations at the kecamatan or sub-district level which are run by the local authorities and controlled by the Development Bank. Due to shortages of competent banking staff, the model has not been successfully transported to other parts of the country yet. The

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1/ Based on "Development of rural small industrial enterprise - lessons from experience", report on joint study by UNDP/ILO/UNIDO and the Government of the Netherlands, Vienna, 1988.

Bank Rakyat Indonesia (BRI), a Government agency, has initiated a rural savings and loan programme, inspired by the BKK programme, on a very large scale. It now involves 4 million savers and 1.3 million borrowers; the latter are all very small scale enterprises. Few of the borrowers so far belong to the industrial sector. The scheme is not only a numerical success: arrears are very low and the programme has a financial surplus.

In a number of countries, finance (for equipment) has also been made available by technical support agencies. These credit schemes have generally not been successful. The reason is probably that they have charged too low interest rates, and have regarded their clients as a favoured group without much regard to their creditworthiness. Since they have also usually been based on "outside" government or external funds, both the programmes and their clients have tended to regard the loans as something of a gift. In some cases these flaws have been compounded by an exclusive emphasis on fixed asset finance and by over-centralization of procedures. On the whole, decentralization and direct involvement, such as characterize savings and loan associations, seem a more fruitful approach. It should however be kept in mind that countries such as Indonesia have both traditions and long experience in this respect.

3.4 PROMOTING R&D[1/]

As industry develops, the role of R&D becomes more crucial and its financial and manpower requirements increase. It is especially important for developing countries that R&D is closely linked to the needs of industry; at the same time, the manufacturing sector - and especially SMI - may not be in a position to find the expertise and funds needed. Government assistance may thus become essential to increase the technological level of the smaller industries.

The Republic of Korea established the Korea Institute of Science and Technology (KIST) during the second Five-year Plan (1967-1971). A special aspect of its work was the transfer and adaptation of technologies for SMI. Part of the research was Government-sponsored and made generally available, part was carried out under contract with individual enterprises. KIST was merged with the Korea Advanced Technology Institute of Science to form Korea Advanced Institute of Science and Technology (KAIST) in 1981, concentrating the manpower and resources domestically available for this type of work in a single organization.

Meanwhile, a number of industries (especially larger ones) have established their own research institutes, assisted by a variety of measures stimulating private R&D. Of great importance in this context was the Technology Development Promotion Law, enacted in 1967, providing a framework for various incentives aimed at reducing the cost of foreign technology imports and of industries' in-house R&D work by allowing: reduced tariffs on the import of R&D equipment; deduction of annual non-capital R&D and engineering expenditures from taxable income; accelerated depreciation on

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1/ Based on "The Republic of Korea: Commercialization of R&D results with particular reference to the small and medium industry sector" (PPD.21).

industrial R&D facilities; and a tax credit for investment in facilities for R&D and engineering work or commercialization of local R&D results. Furthermore, the law permits a company to set aside as "technology development reserve funds" up to 20 per cent of profit before tax in any one year for use in its R&D in the following two years. Two important institutions were the outcome of the increasing trend towards private initiative in R&D. The Korea Scientific and Engineering Foundation, established in 1977, provides funds for strengthening basic and applied research. In 1981, the Korea Technology Development Corporation was founded to provide venture capital needed to promote the formation of technology-based enterprises. KTDC is largely controlled by the Federation of Korean Industries.

The expanding role of private R&D has left two important tasks to KAIST: it engages in long-term basic research ("seed technology") and it helps SMI to acquire and apply relevant new technologies. The total number of research projects contracted up to the end of 1985 was some 4,000, with a total value of US $140 million. A recent evaluation of KAIST projects shows that those involving process innovation were commercially the most successful. Existing demand for the products incorporating the innovations was generally an essential condition for success: there was a relatively high failure rate among projects where the application of a new technology had been a more important consideration than the availability of markets.

The actual commercialization of KAIST's R&D in the form of joint ventures with private enterprise is handled by the Korean Technology Advancement Corporation (K-TAC), now jointly owned by seven research institutes closely linked to the Ministry of Science and Technology (MOST).

K-TAC's tasks are:

(i) Commercialization of research results using know-how generated by various institutes. Other foreign and domestic technologies can also be utilized.

(ii) Marketing and sales of research results and their related industrial rights.

(iii) Sales of prototype equipment and by-products of research development work.

(iv) Sponsorship of additional R&D when required.

(v) Management assistance and market research.

Over the years, the company has maintained a group of specialists whose expertise is market and feasibility studies. Financially, the company operates with a revolving fund. In principle, an organization like K-TAC can also be part of a Government research institute. It is, however, felt that by operating on a commercial basis its efficiency in introducing new technologies is greatest.

It is important to note that the recovery period of initial investment is quite long with an average of around 5 years.. K-TAC's experiences so far show that the capital gain is approximately equal to the original investment, i.e. the value of the stock doubles in five years.

K-TAC regularly reviews progress in R&D. When the review uncovers a potential commercialization area, the next stage is to conduct a prefeasibility study in which a market survey is central. This is often time consuming but most essential in deciding whether the project merits a more thorough feasibility study. Approximately one quarter of the projects survives this phase. This is followed by more detailed analysis where such items as initial capital investment and internal rate of return are estimated. After this stage, only about 10 per cent of the original number survive to be further pursued.

It is at about this stage that K-TAC begins its search for a business partner. The partner preferrably should have a manufacturing or sales experience. The identification of this competent partner probably is the most important factor in making the project a success.

Once the business partner is determined, K-TAC together with the partner reviews the feasibility in detail. At this stage, they also draft and sign such documents as joint venture agreement, technology licensing agreement and articles of incorporation of the new company. All details are examined carefully including the method and valuation of the stock when K-TAC decides to sell its share to the partner in the future. Financing of the project must also be discussed in detail. Normally, it is desirable for the new company to borrow only about half of the total investment required, although up to 70 per cent of the funds needed by the business partner can be borrowed from MOST, repayable in five years. In case K-TAC plans to consider research results as a part of equity participation, it is at this time that both partners should agree on the monetary value of the know-how or patents generated through the research.

Should K-TAC decide to do so, K-TAC can also invite development banks to take part in the venture. K-TAC's experience with the development banks has been very good as exemplified by the frequent participation of the Korea Long-term Bank, (KLB) (formerly Korea Development Finance Corporation) in K-TAC projects.

The present age being characterized continuous technological innovation, the survival and growth of the venture depend heavily on the company's ability to absorb new technology. In all cases of K-TAC's success, KIST and later KAIST have continued to support the companies with second and third generation technologies to keep up with technology advancement.

Important factors for successful commercialization according to the K-TAC experiences are:

- thorough and detailed feasibility study;
- selection of a competent business partner with strong entrepreneurial spirit;
- adequate financial resources; and
- continuous technology upgrading.

3.5 EVALUATION AND PROPOSALS FOR ACTION

Direct assistance projects to SSI seem to have functioned best where the entrepreneurs themselves had a stake in the projects. Of the examples studied, the Philippine entrepreneur/manager development scheme was successful in spite of its limited scale and time duration because entrepreneurs were able to directly exchange expriences and at a later stage were directly responsible for the success of the co-operative activities undertaken to solve common problems. Evidence elsewhere in the region supports the notion that entrepreneurship cannot be "produced" by an outside agency. Rather, projects should limit themselves to providing those services that will bring out or further develop the entrepreneurial potential which is there while making it clear to participants what the individual and collective gains of intensive involvement in the schemes are. It seems that at lower development levels forms of association between SSI entrepreneurs are less likely to exist or develop spontaneously, and in such cases there is little sense in expecting too much of co-operative projects. Platforms for exchanging experiences with other entrepreneurs, however, can be very useful, and these may introduce the notion among entrepreneurs that common problems may be solved by common activities.

Generally speaking, special credit programmes for SSIs have not functioned well at lower development levels; at higher development levels they may become in part redundant as SSI access to formal banking improves. For specific sections of SSI with good market prospects, credit schemes may then still be useful, and they are more likely to succeed because enterprise management will have improved considerably.

For small-scale industries especially in rural areas, co-operative savings and credit schemes may be a better way to provide finance. There are two reasons for this. One is the general argument of giving the entrepreneur a stake in the successful functioning of a scheme. The other is the lower cost of credit provision. As indicated above, the cost of providing a multitude of small loans in dispersed locations, and of monitoring the payback, can be very high indeed. There is also the shortage of competent banking or credit programme staff to be reckoned with. This does not mean that there should be no diffusion of banking to rural areas. However, this has to be a long-term process, depending on the growth of rural prosperity, the availability of more staff at the banks (itself partly dependent on overall educational improvements) and last but not least a change in attitude among bankers: their reluctance to provide credit to SSIs and rural areas (even if obliged to do so under credit reservation schemes) is in part a consequence of an urban/large enterprise perspective which can only be partly justified on economic grounds.

The stimulation of savings and credit co-operatives will have to take into account socio-cultural backgrounds. Their widespread occurrence e.g. in Indonesia can in part be ascribed to the existence of traditional rotating credit associations. Where such traditions are absent, it may prove extremely difficult to introduce co-operation in financial matters.

The Malaysian experience points to another problem, that of technology support: information, training courses and equipment demonstration may not work under circumstances which are typical for SSIs in a specific region or industry. Designing proper information and training methods, and the right

choice of technology - if necessary adopted to the local environment - thus becomes essential for efficient support to SSIs. The accessibility of technology support institutions in the major urban centres may often be a problem for the small entrepeneur located elsewhere in the country; even if he is enabled to travel to the city for training or information, he may be reluctant to leave his business unattended. This has, e.g., been one of the drawbacks of the Malaysian scheme. In the present case, the limited resources available may have been decisive in locating the scheme in the national capital. Again (and this has been noticed in many other technical support units located in capitals or major towns), there may be a reluctance on the part of staff to operate in the more remote areas, where facilities and living conditions are likely to be far inferior to those in the cities. If SSI is to be a major factor in decentralized development, then its support services should also be decentralized to the extent that this is economically justified.

With regard to technology advancement and the SSI sector, the Korean experience is interesting. Although, in comparison to many other Asian developing countries, the Republic of Korea's industry is fairly advanced, the lessons of the country's commercialization/promotion schemes can be useful in designing support for the future growth of the more sophisticated SSIs in other countries. Keeping abreast of technical development is after all essential to remain competitive. The Korean case is distinguished by very intensive co-operation with private enterprise and a strongly client-centred approach. Even if a certain development level may be needed to make the joint venture form in which technology is transferred feasible, this basic attitude is valuable in other cases as well.

In many cases, the various types of assistance discussed above are supplied in package form by one agency. Although this principle offers the advantage of co-ordinated all-round support, practice has shown a number of shortcomings. First, the rather complex operations necessitate a fairly large organization which will tend to be located in a major city; the same disadvantages for SSI in rural or other marginal areas as outlined above apply. Organizational complexity may also result in rigid hierarchies and bureaucratization, while great flexibility (and if necessary the abandonment of inefficient individual programmes) is essential for successful support. Third, the institution as a whole will only function efficiently if all separate services function properly and are meshed with each other. Given the resource constraints that often exist and the tendency for specialists to work in isolation from each other, the likelihood is fairly great that institutional performance will be uneven.

These criticisms notwithstanding, direct support to SSI has contributed to its development in many ways. To strengthen the impact of direct assistance on SSI development, the following policies and measures are suggested:

- rationalization and co-ordination of support agencies and programmes after thorough analysis of their present performance;

- improved access to support through decentralization (to the extent possible without loss of efficiency) and simplified administrative procedures;

- more careful assessment of SSI needs and consequent adaptation of support programmes;

- involvement of existing organizations of SSI entrepreneurs in such assessments and programmes;

- encouragement of interaction between SSI entrepreneurs to stimulate the emergence of co-operative networks;

- increased involvement of retired small and medium industry managers from developed countries as business consultants in bilateral and multilateral support schemes;

- improving society's image of SSI and the self-perception of entrepreneurs (e.g. by publicizing "success stories");

- increasing the understanding of SSI problems among agency and bank personnel;

- assessment of formal sector banking credit reservation schemes for SSI;

- analysis of informal credit systems and possibilies of harnessing these for SSI development;

- monitoring trends in technology with possible SSI applications and improving information dissemination of technological issues with a view to long-term dynamic SSI development;

- improving access of SSI to applied technical research;

- where technical support resources are limited: exploration of possibilities of mobile assistance teams; and

- stimulating increased enrolment in vocational training schemes and technical colleges and adaptation of their curriculae to industrial needs.

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