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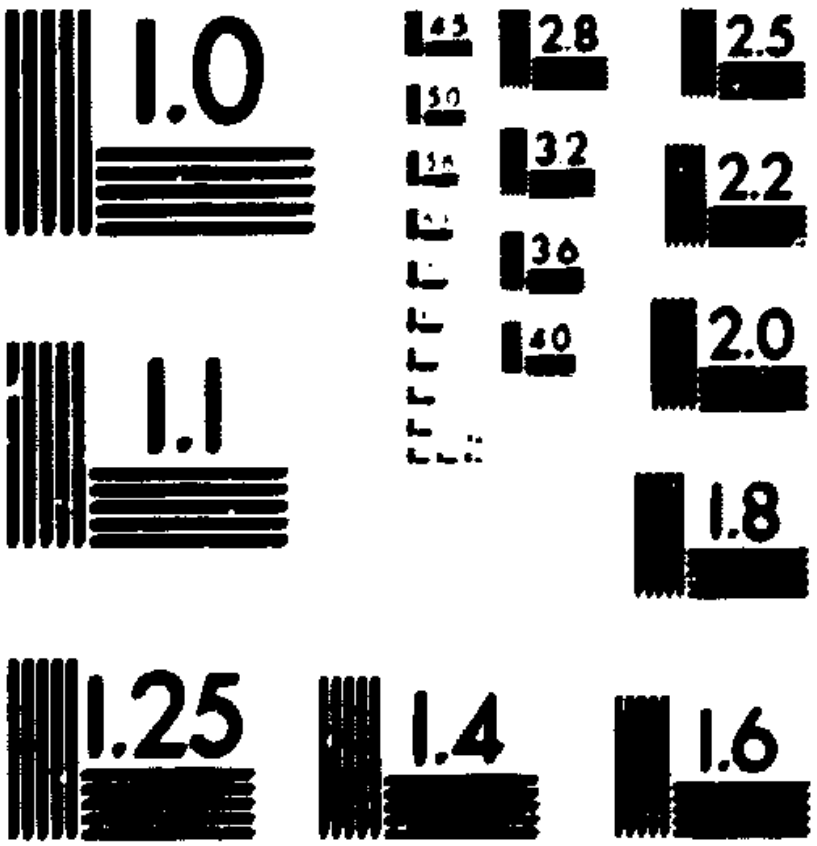

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Technical Cooperation on SUBCONTRACTING in ASEAN

Melito S. Salazar, Jr.
Consultant
U N I D O

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INTRODUCTION

In developed countries of Japan and Korea, a major factor contributing to their economic successes has been the symbiotic relationship between the large-scale and the medium/small scale industries. In Japan, this has afforded the large enterprises to practice "just in time" inventory which does not only cut down on storage and handling costs but also encourage a speedy production flow.

In the developing countries of the ASEAN, the drive to industrialize has taken two distinct routes. One is the development of large, basic industries and the other is the establishment of rural-based small and medium industries. There has been an absence of the strong linkages between large and small/medium industries seen in the developed economies. Thus, the duality of economies in the developing countries has evolved to the detriment of a holistic and integrated development of these countries. It is necessary to examine the situation in the ASEAN in terms of the linkages between large and small/medium firms, especially in the area of subcontracting. Subcontracting has been a major vehicle for the synergistic relationships of large and small in the developed world and it could be the linchpin industrial growth of the economies of ASEAN.

This paper focuses on the status of subcontracting in the ASEAN, identifies the problems which inhibit its full growth and contribution to the economy and suggests some approaches on the national and regional levels.

TABLE 1

INITIAL YEAR OF OFFERING AND RECEIVING SUBCONTRACTING

YEAR	Food	Textile	Wood Products	Chemicals	Non-Metallic Mineral Products	Metal Products	Machinery	Electrical/ Electronic Products	Transportation Equipment	Others	Total
Offering											
Before 1966	-	-	-	-	-	-	1	1	-	-	2
1966 - 1972	-	2	-	-	-	1	-	2	-	-	5
1973 - 1978	-	1	2	2	-	1	3	-	1	1	11
1974 - 1984	-	-	1	2	-	-	2	1	3	1	10
Receiving											
Before 1966	-	-	-	-	1	1	-	-	1	1	4
1966 - 1972	1	1	1	-	-	1	-	-	-	1	5
1973 - 1978	1	6	10	5	1	4	5	1	2	-	35
1974 - 1984	1	4	3	4	1	-	2	1	3	4	23
Number of year receiving subcontracts after establishment											
0	2	4	5	3	2	5	4	-	3	4	32
1 - 2	-	5	3	1	-	-	2	-	2	-	13
3 - 4	-	-	4	3	-	-	-	-	-	-	7
5 - 6	-	1	1	2	1	1	-	1	-	1	8
7 or more	1	1	1	-	-	-	1	1	1	1	7

1 Small and Medium Scale Industries in Thailand and Subcontracting Arrangements

subcontracting, not only directly in public contracts but also substantially influencing private sector conditions.[3]

Therefore, the FMM Special Committee on Small and Medium-Sized Industries proposed that some incentives in the form of an inter-industry linkage allowance could be an inducement for the larger companies to seek local sourcing of parts and component items from the SSIs.

To promote subcontracting, the Malaysian Government Sub-Contract Scheme was set up in 1986, where the needs of the bigger companies can be supplied by the small-scale industries through this programme. However, there are no provisions yet in the Government's procurement policy especially to promote local subcontracting.

In Indonesia, about three decades ago in the 1950's Induks or principal units around clusters (primarily in the weaving industry) were established to provide cooperative type assistance; during the 1960's a system of subsidies was developed for lowering the cost of input to small industries; and in 1975 BIPIK was launched to provide coordinated programme of assistance to more than 1500 naturally established clusters of small industries, providing general and extension services, training, common service facilities and subsidized or bulk purchases of

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[3] Chee Peng Lim, Small Industry in Malaysia, pp. 81 - 82.

inputs and machineries. However, it was much later when the idea of bapak angkat (foster parent relationship, whereby larger industries provide assistance which may take the form of business management, supply of input, financing and technology transfer), and subcontracting arrangements developed.

To appreciate the reason for the slow progress of subcontracting in Indonesia, it is best to review its industrial development strategy. The general direction of Indonesia's long-term industrial policy is spelled out in the General Guidelines of State Policy (GBHN), which are being formulated every five years by the People's Consultative Assembly (MPR), the country's highest sovereign body. With regard to industrial development, the basic outlines were set out in the GBHN of 1978, which stated that one of the major objectives of Indonesia's long-term development was to achieve a "balanced economic structure in which a strong progressive manufacturing sector would be supported by a robust agricultural sector".[4]

To become the backbone of the Indonesia economy, the development of the manufacturing sector would have to be carried out in successive phases, covering the two decades of the first four Five Year Development Plans (Repelita), namely the period 1969/70 - 1988/89. Under the Repelita I (1969/70 - 1973/74) priority would be given to the establishments of manufacturing industries to support the agricultural sector, while during Repelita II (1974/75 - 1978/79) priority would be given to

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[4] Thee Kian Wie, Industrialization in India and Indonesia, p. 20.

natural resources-processing industries producing industrial raw materials. During the Repelita III period (1979/80 - 1983/84) industries would be established which would process the industrial raw materials into manufactured products, while during Repelita IV (1984/85 -1988/89) engineering goods industries would be established. While guidelines for industrial development as spelled out in the GBHN and the successive Repelita provide some insight of the general direction of industrial development, it does not provide good guidelines about the actual government priorities not about the actual policy measures which were taken in pursuit of the actual objectives.

Firm guidelines about the path which industrial development in Indonesia had to take were only spelled out clearly with the completion of the phase of "easy import substitution" during the mid 1970s and the installment of Mr. A.R. Soehoed as a new forceful and articulate Minister of Industry in April 1978. In an article written in 1981, Soehoed outlined the basic ideas which had determined industrial policy since he became Minister of Industry. He argued that "import-substituting industrialization during Repelita I and II had merely led to a widening, rather than in the deepening of the industrial structure. Industries expanded and grew more or less independently, and perhaps in some cases even in competition with each other, but at any rate not in general mutually reinforcing. Inter-industrial linkages, both backward and forward, generally are not very strong". Soehoed further argued that the "scope for

further widening the structure of industry through import substitution along the past pattern is now more limited than in the last few years. In addition to the question of enlarging the size of the market for existing industries, a stage has now been reached where the further development of industry will also necessitate the deepening of the industrial sector.

In an earlier article written in 1977, Soehoed had also outlined the main features of a long-term strategy for the development of the national economy in which great emphasis was placed on the role of specific commodities and sectors possessing vital and reliable growth potential. This strategy was not only designed to advance the specific commodities and sectors singled out for priority treatment, but also with a view to make integrated optimal development planning feasible for the areas in which these commodities were located. The above ideas outlined by Soehoed were crystallized into actual industrial policy when he became the Minister of Industry in 1978, and became known as the so called "structuralist approach to industrialization". With its focus on natural resource-based heavy industries, this approach clearly reflects the influence of what Lal has called "ecology" on the thinking of economic and in particular industrial policy-makers. It also does, as many efficiency-minded economists have argued, neglect or gloss over considerations of economic efficiency and the need to achieve international competitiveness by ignoring a comparison of production costs with

border prices.

In the Philippines, subcontracting the transfer of technology is effective and often inevitable in joint ventures and licensing agreements. Usually a joint venture implies a licensing agreement and vice-versa. In any case, in the Philippines, the Filipinos control the management.

Joint ventures and licensing agreements usually involve the transfer of both product and process technology. Quality control, of course, always goes with both. In some cases, research and development on process adaptation is conducted either by the mother company (by sending local technicians from the plant) or in the plant (by sending experts or consultants from the mother company). In either cases, transfer of technology is always effective.

With regard to the transfer of technology between foreign partner and PHILACOR[5], the linkage is characterized by the existence of a joint development of product designs between the partners and by the assistance of the foreign partner on the

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5 Melito S. Salazar, Jr. and Hideo Fujimori, The Role of Technology Transfer in the Local Content Program of the Philippines

and techniques.

In developing countries like the Philippines, however, all subcontracting forms, whether between large-scale industries (whether foreign joint ventures or domestic) and small firms or between two small firms, have not yet developed to a great extent mainly because of the lack of confidence in the ability of the small enterprises to carry out work reliably.

Hence, it is not uncommon in the Philippines for assembly firms like PHILACOR to have as many as 100 supplier firms. They exhibit a strong preference for having at least five subcontractors supplying the same item. The main reason is that most local assemblers do not have sufficient confidence on any one supplier's ability to meet delivery schedules consistently and to maintain quality standards.

The foreign partners are the ones who contribute technology in making production in the joint venture faster and easier. But most likely, the kind of technology that they bring into the country is second-hand or obsolete. Even if they can help in the manufacturing process, still in effect, the Philippine economy cannot keep pace with the kind of economic

system abroad. In other firms employing highly technical machineries, the management of these equipments are still under the control of foreign investors. No skill is evidently transferred to local partners for fear that the latter may break from the joint venture and set-up his own competitive business upon learning the skill. Only a part of the technological process is being taught while the others are being imported. If there are any opportunities to transfer technology, coding of raw materials, purchase agreements know-how, and patents are imposed by foreign investors in protecting their technologies.

In Singapore, the remarkable economic growth and industrial development in the last two decades was due mainly to the large scale foreign enterprises which came in due to the country's open economic policy. While some efforts has been made by these firms to source components locally, it has been observed that there is a need to foster closer links between small and large enterprises especially through subcontracting. The lack of technical, financial and managerial know-how on the part of the small enterprises result in their inability to operate modern establishments required by large firms. Thus, the Singaporean government in recent years has played a more active role in helping the small and medium businesses.

a few industries like construction, the handicrafts and garments. In the countries which embarked on an import substitution policy, some initial moves were made in manufacturing but these are extremely limited.

In Malaysia, the type of cooperation that exists between small industries and large enterprises is not apparent. Mainly on reasons of cost and expediency, large manufacturers prefer to source their parts from overseas suppliers, usually their foreign partners' country of origin. Although the host country would like to see the larger enterprises obtain their parts and services locally, there is no law that requires them to do so, except through some offer of financial incentives or tax concession. The local small industries are handicapped by the familiar problems of meeting buyers' technical specification, price and delivery time. Unless there is a well planned programme by the government, in partnership with the large enterprises and the small industries, it will take another generation or so before the cooperation between large enterprises or small industries reach the level of that in Japan today. The government is making some efforts to serve as a "bridge" between large manufacturers and small suppliers. e.g. the subcontract exchange, free or subsidized exhibition space, low interest loans, credit guarantee, export incentives, export credit refinancing schemes, etc.

Subcontracting in the manufacturing industry focuses on the technical and physical aspects of the development, manufacture and delivery of products requiring close cooperation between both parties to ensure that an acceptable product is available on time. The more integrated arrangements require close cooperation in other non-technical areas and provide the opportunity for the large firm to assist in developing other needs of the small firm.

In the Philippines, subcontracting activity between SMIs and LSIs seems unsteady and still unlimited. Findings on some prevailing practices, perceptions of SMI subcontractors of these practices, the percentage share of the value of subcontracting of total sales and the nature of work are supportive of this view.

Continuity of orders is more frequently mentioned by SMI as the reason for receiving subcontracting from FJV (foreign joint ventures) and LD (large domestic) counterparts; this clearly shows the capacity orientation of the firms as orders are accepted to utilize unused production capacity during slack period. Continuity of orders, however, forms a shallow basis for a permanent and secure relationship.

Technical capability appears to be the main consideration of SMI for acceptance of subcontracting from JJV

(Japanese Joint Venture) counterpart; this is indicative of specialization and orientation of SMI subcontractors and suggests a stronger basis and long-term stability of subcontracting relationship between SMIs and JJVs.

Looking at the frequency of SMI that have been receiving from LSI (large scale industries) counterpart on or before 1978 and up to 1984, the relationship is apparently stable (Table 2). However, a deeper analysis of the nature of the arrangement reveals otherwise. Subcontracting jobs are generally accepted by SMI sampled firms on an intermittent job-order basis rather than on a periodic or continuous basis; both SMI sub-contractors and LSI contractors claimed that non-exclusive arrangement is more prevalent that exclusive. These are indicative of an unstable subcontracting relationship.

It has been noted that although most SMI surveyed firms generally viewed orders received from LSI counterparts as regular in 1978 and 1984, two views on the quantity of orders arise; some are constant others are not. Those who receive after 1978, however, commonly viewed the quantity of orders as not constant. According to LSI contractors interviewed, the stability of orders in 1984 was even worse i.e. irregular and not constant. These findings imply that while continuity of orders rationalizes the existence of subcontracting, inconsistency in the volume orders does not strongly justify stability of transactions as another rationale.

TABLE 2

SAMPLE DISTRIBUTION OF SMI
RECEIVING FROM LSI WITH REFERENCE TO
YEAR OF RECEIVING SUBCONTRACTING

Particulars	After 1978	On of Before 1978
Total	36	35
BY INDUSTRY		
Textile	-	1
Garment	8	11
Wood	2	3
Furniture	7	2
Metal	11	3
Machinery & Equipment	5	12
Electrical	1	1
Transport	2	2
BY REGION		
NCR	9	12
I	2	-
III	5	5
IV	5	9
VII	12	4
X	3	5
BY EMPLOYMENT SIZE		
Less than 10	1	1
10 - 49	29	23
50 - 99	5	9
100 - 199	1	2

SOURCE: Changes in the Industrial Structure and the Role of Small and Medium Industries in Asian Countries: The Case of the Philippines, University of the Philippines Institute for Small Scale Industries and the Institute of Developing Economies, February 1986, p. 23.

Most MSI subcontractors and LSI contractors indicate negotiation as the manner by which price arrangement between them is arrived at; this gives SMI subcontractors opportunity to exercise their bargaining strength in closing subcontracting transactions. However, findings reveal SMI subcontractors have more than once submitted themselves to the LSI counterparts' request for price reduction. These suggest a need to reinforce SMI subcontractors' ability to negotiate subcontracting transactions and thereby further strengthen their bargaining position.

The frequency of SMI that placed the value of subcontracting jobs received from LSI counterpart at 50% or less of total sales is relatively higher than those who valued the same at higher percentage. The LD and JJV contractors interviewed confirm this finding. This indicates subcontracting as typically a "subordinate type" (minor activity) and that SMI subcontractors can exist by themselves or are less dependent on their large counterparts for the existence and sustenance of their operations.

Most of SMIs giving out jobs have from 10 to 49 subcontractors. A large number of these subcontractors are SMIs themselves. Only a few offer jobs to LSI, specifically to large domestic firms and other foreign joint ventures. This is generally true in whatever industry, region or employment size SMI falls.

As subcontractors specifically from large industries, SMIs generally have less than 10 contractors regardless of the type of industry, region and employment size of SMIs.

LSIs, on the other hand, commonly maintain less than 10 subcontractors regardless of the type of industry. A few number of electrical LSI have 10 to 20 subcontractors and 40 and above subcontractors.

The kind of work subcontractors received in 1984 varied according to the type of LSI counterparts. Subcontracted work received from LSI counterpart was more of labor. This was particularly true of the garment industry. Parts/components and labor, on the other hand, seemed to be equally significant as the type of work received from FJV and JJV.

Subcontracting activity between SMI and LSI was generally done on a limited scale in 1984. This is supported by the finding that a relatively high frequency of SMI respondents receiving from all types of counterparts placed the value of subcontracting transactions from 1-50% of total sales.

Specific industries where subcontracting with LD counterparts was still minimal include textile, metal, machinery and equipment, and furniture; regarding JJV as SMI's counterpart, these were garments, machinery and equipment, electrical and

transport; and for FJV counterpart, machinery, electrical and furniture industries.

Subcontracting arrangement is predominantly on a job order basis in all types of industries, regions and categories of employment size.

More than one half of total SMI subcontractors indicated non-exclusivity of subcontracting. A similar pattern of responses was found in all industries, regions and employment size categories, with the exception of those in the textile and furniture; those in Region IV; and with employment size of 100-199 workers.

o FIRMS INVOLVED and THEIR CHARACTERISTICS

In two countries, the Philippines and Thailand, the type and characteristics of firms involved can be seen as principally between large contractors and small enterprises.

In Thailand a total count of the number of firms having one or more subcontracting arrangements in the sample reveal that there are altogether 95 firms or 47.5% of the total sample engaging in subcontracting arrangements, either as subcontractors, or both. Contractors or offerers of subcontracting are mostly

large scale firms and a significant proportion of these firms have foreign investment participation. Subcontractors or receivers of subcontracting, on the other hand, are mostly found in the small/medium size groups.

Of the 200 firms surveyed, 95 have some subcontracting relationship with other firms. We can categorize these firms as either contractors or subcontractors. The subcontracting relationship among firms are, however, more complex than this. Some firms which offer subcontracting are also receivers of subcontracting or subcontractors at the same time. Furthermore, some subcontractors also subcontract items they receive from the contractors to other firms. In other words, there exist "secondary subcontracting" where certain subcontracting items are subcontracted out again at a secondary stage.

TABLE 3 shows the categories of contractors and subcontractors according to the existence of various subcontracting relationships.[7]

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[7] Small and Medium Scale Industries in Thailand and Subcontracting Arrangements, p. 47.

TABLE 3
OFFERERS AND RECEIVERS OF SUBCONTRACTING

	CONTRACTORS		
	Offer Only	Mainly Offer/ and also Receives	Total
Employment Size			
< 10	-	-	-
10-19	-	-	-
20-49	-	-	-
50-99	-	-	-
100-199	-	-	-
>200	23	5	28
Industry			
Food	-	-	-
Textile	3	-	3
Wood Products	3	-	3
Chemicals	4	-	4
Non-Metallic Mineral Products	-	-	-
Metal Products	-	2	2
Machinery	4	2	6
Elec'l./Electronics	4	-	4
Transportation	4	-	4
Others	1	1	2
TOTAL	23	5	28

	SUBCONTRACTORS		
	Receive Only	Mainly Receive/ and Also Offers	Total
Employment Size			
< 10	7	1	8
10-19	6	9	15
20-49	11	8	19
50-99	11	6	17
100-199	-	-	-
>200	2	-	2
Industry			
Food	1	2	3
Textile	9	2	11
Wood Products	4	10	14
Chemicals	7	2	9
Non-Metallic Mineral Products	3	-	3
Metal Products	3	3	6
Machinery	4	3	7
Elec'l./Electronics	1	1	2
Transportation	5	1	6
Others	2	4	6
TOTAL	39	28	67

Note: A discrepancy has been noted in the total figures presented.

As can be seen from the table, all contractors are large scale firms with more than 200 employees. In fact, some of them are very large firms with more than 1,000 employees. A majority (17 out of 28) of the contractors are joint ventures with foreign investments. Joint ventures which are contractors appear in all industrial groups except food and "others" and are found more in machinery, textiles, electrical/electronic products and transport equipment. On the other hand, all except two subcontractors are small/medium scale firms, and they are all Thai farms without any foreign investment.

As can be seen from the table, subcontractors in the sample appear in all industrial group but are more concentrated in textiles, wood products and chemicals. Contractors, on the other hand, are not found in food and non-metallic mineral products, and are relatively more in number in machinery, chemicals electrical and electronic products and transport equipment.

Although each firm is engaged in a variety of activities, each has various transactions with other firms. The firms under survey are asked to indicate their most important type of transactions with other business firms. As expected, a great majority of firms specify that most important transactions with other firms are the selling of products. But 21 firms or 10.5% of the total consider that buying products from other firms are the most important interfirm transactions for them, as they

also sell their products mainly to customers which are not business firms. There are 29 firms which consider receiving subcontracting from other firms as their most important interfirm transactions, and there are 6 firms,all of which in the large scale category, consider offering subcontracting to other firms as their most important interfirm transactions.

In the Philippines, there are three forms of subcontracting, namely: receiving, offering or both. All these forms of relationships exist in both SMI and LSI in dealing with all types of counterparts, i.e. cottage industries, small and medium industries, large domestic firms, Japanese Joint Ventures and other foreign joint ventures. The most economically significant, however, is the subcontracting relationship between small- and medium-scale industries and large scale industries, the former, generally being recipients and the latter, the givers.

In terms of industry, a greater number of SMIs receiving subcontracting works from LSI are those in industries which are producing more complex products like the metal industry, machinery and equipm nt. Another industry with a relatively fair share is the garment industry.

A case of a large firm and its three small subcontractors shows the following character' cs:

The contractor,- PHILACOR was established and started production in 1963. Its product - White Lines (refrigerators and freezers) had local a local content ratio of 84.54 % in quality and 48.34 % in Peso value. It sourced locally available parts and components from 73 subcontractors of which 3 are domestic firms with foreign technical tie-up, 61 are domestic firms and 5 are joint ventures.

The motives for giving subcontracting works are cost reduction, lack of production technology and facility, and the need to avoid labor problems and inconvenience.

The criteria used to choose subcontractors are product quality, price, promptness of delivery, location, and flexibility in terms of design changes.

The common parts subcontracted are condenser assembly, electrical harness, plastic parts, chrome plated parts, metal fabrication and anodized parts while the special parts are carton boxes for export units.

The parts suppliers do not keep delivery schedules because of the either the lack of consciousness of delivery schedule, insufficient production, rejection of some units, and delay in supply of raw materials. PHILACOR has already cancelled several transactions due to delay in delivery.

To improve on the delivery schedule, sales representativer are trained to read production schedule so they will be aware of the actual date of ways in the production line.

Production defects have been traced to poor management, poor testing facilities of small subcontractors, suppliers deviating from specifications, and the lack of quality control.

Quality control is done randomly by PHILACOR. The first piece in the first batch or delivery is checked, then subsequent delivered lots are randomly sampled using 105 standard.

Measures to improve quality include sending engineers or technicians to subcontracting firms, extending quality control training guidance and assisting in the setting-up their own quality control.

Products supplied by subcontractors have been evaluated as good for those subcontractors with foreign tie-ups, fair for domestic firms wholly owned, and good for joint ventures.

Plans to increase subcontracting work for cost optimization and quality improvement include technical assistance, spin-off for opening new venture, technical guidance, and financial assistance.

PHILACOR plans to manufacture their own parts and components like quartz defrost heater to increasing local content and to minimize rejections/breakages during transport. It views as reasonable the local content policy of the government.

Three firms doing subcontracting for PHILACOR are highlighted: Integrated Metal Finishers (IMF), Chromeplating Inc., Silver Metal Plating (SMP), and Astro Plastic, Incorporated.

a. Business Profile

The three firms are managed by Filipino entrepreneurs who willing participated the research study conducted by UP-ISSI and the Institute of Developing Economies on the role of technology transfer in the local content program of the Philippines.

Two firms are organized as single proprietorships and the other one as a corporation. The oldest of the three is IMF (25 years old), followed by Astro (13 years old) and SMP (only 5 years old).

By type of industry, IMF and SMP are both in the metal working industry while Astro is in the plastics industry. In terms of size, all are considered small enterprises.

The three subcontractors are all located in Metro Manila which is one of the requirements of PHILACOR. IMF is in Quezon City, SMP in Makati and Asto in Valenzuela.

With regard to capitalization, IMF started with ₱14,000 in 195? and has grown into a ₱10 million firm. SMP began in 1982 with ₱20,000 and has become a firm of ₱2 Million capitalization. Astro had ₱150,000 to start with in 1974 and is now a ₱18 Million enterprise.

be ₱5.6 million.

As far as major client firms are concerned, the three count PHILACOR among them, supplying 14.6% to almost 100% of their production volume to the appliance firm. SMP supplies nearly 100% of its production to PHILACOR, while to IMF and Astro, PHILACOR contribute 14.5 % and 50%, respectively.

4. Production Aspect

The three subcontractors have reasonably well-equipped plants when PHILACOR contracted them as suppliers. Their present machines are relatively new, some of which were purchased only in 1984. Most of their machines are manufactured in Japan. Except for SMP, the two other subcontractors have no plans of buying additional machines. SMP, however, plans to get a surface grinder, a jig borer and a steel sheet cutter and leveller in 1987 to improve the quality of its products and increase production volume. IMF could not yet decide on the matter because of the uncertain economic and political situation in the Philippines. Should the situation improve, IMF might purchase rectifiers in order to increase production volume.

They all claim to occasionally experience mechanical troubles due to poor maintenance, improper handling of equipment and unstable power supply. All three try to repair their machines by themselves. Regular check on the machines by mechanics, electricians, engineers and operators are done in IMF, SMP and Astro as part of their maintenance program. However, except for IMF, the firms, have no operation manual for their workers on the use and maintenance of machines.

The average rate of rejects during the past five years ranges from 1 - 50% with IMF experiencing a maximum of 35%, Astro - 5%, and SMP - 1%. When further asked for reasons for rejects by PHILACOR, IMF, SMF and Astro are one in answering that they are not able to meet the specifications because of poor finishing and inferior raw materials. SMP admits having insufficient testing facilities and shortage of qualified quality control personnel. The same is true with IMF and Astro with the latter further pointing to the absence of good moulds.

5. Financial Aspects

Period of payment from PHILACOR ranges from nine days to one month. The firms do not enter into very formal contracts with the appliance firm other than purchase orders accepted without assurance of repeat order.

6. Personnel Aspects

In terms of employment the three have similar experiences. IMF started with only five workers which grew to 200 strong in 1980 but had a 100% decrease in employment in 1985 with only 100 workers left. SMP started with 100 wokers in 1982 and as of 1985 had only 65 workers. Astro started with only two workers, then increased its employment size to 30 in 1980 but had a drastic decrease to two in 1986.

The average length of service of workers of Astro is five to ten years; SMP, three to five years; and IMF, fifteen to twenty years. Majority of the employees of Astro are high school graduates; SMP elementary and high school graduates; and IMF, college graduates. Astro had no engineers in its plant except very lately when the freshly-graduated younger son joined the firm. SMP has reasonable number of both engineers and skilled workers but is slightly short of maintenance workers in its plant. IMF has a reasonable number of engineers, skilled workers and maintenance workers.

Motivating employees as far as Astro is concerned consists of frequent dialogues, wage increases, fringe benefits like medical allowance and sick leave with pay, and spot bonuses based on performance. Likewise, SMP management frequently dialogues with workers, gives fringe benefits and provides athletic and other sports activities to its wokers to motivate them. IMF also conducts frequent dialogues with workers, gives the fringe benefites like transportation allowance and wage increases and tries to improve the working environment so the workers will be motivated to work well.

With regard to training workers, SMP and Astro provide on-the-job training while IMF provides seminars for the workers as the need arose.

Problems with workers range from job hoppping, demand for wage increases and frequent absenteeism for both Astro and IMF. SMP does not seem to have any problems with its workers to speak of.

The turnover of workers in SMP and IMF is so minimal that productivity of the plants is only slightly affected. Astro relies on the owner for overall technical expertise. Hence, worker's turnover also hardly affects the plant productivity.

Measures taken by SMP against turnover consist of improving fringe benefits. IMF increases overtime work to offset production backlog and immediately replaces those workers who

leave the firm. Astro does not take any measures along this line.

7. Problems with PHILACOR

All three firms do not seem to have any serious problems with PHILACOR. On the contrary, the reverse seems to be true for at least one supplying firm - Astro, which candidly admits to having been occasionally at fault in terms of delay in production and delivery of products to PHILACOR. Such shortcomings are attributed by Astro to big volumes of orders from other client firms served, delay in raw materials supply and an unstable market. Astro tries to solve some of the problems by asking its workers to work overtime.

d. Business Plans

SMP plans to diversify its business activity. Astro's owner intends to change business line and go home to his province to venture into either trading, agriculture or fishing; while IMF may diversify business activity and go into export for its hot shower system.

e. Assistance from Government

Astro is the only one who has been assisted by the government through the NACIDA in the form of tax incentives during its first five years of operation. SMP and IMF have not received any assistance from the government.

o PRODUCTS SUBCONTRACTED

In three ASEAN countries where data is available, the products subcontracted are mostly parts and components, raw materials and in a few cases, finished products.

Thailand indicated that items subcontracted out included parts and components, raw materials, or part of the whole production process of a commodity; and there are also

finished products in a few cases. Industries where parts and components are major subcontracting items are wood products (including wood furniture), machinery and transport equipment. Raw materials or semi-manufactured as subcontracting items are found most frequently in chemical products, including pharmaceuticals. Those subcontracting items which could be more properly considered as part of the whole production process of a commodity include dying, spinning, and printing in the textile industry; and welding, forging, or machining, etc. in metal products and machinery industries. It is noted that those who indicated that their subcontracting items are finished products in Table 4 are all subcontractors. They are in the textiles, wood products, metal, machinery and electronic/electrical industries. A more detailed investigation, however, would reveal that most of these products are "finished products" of the subcontracting firms, but are actually material inputs for their contractors, and they could be more properly classified as either part of the production process or semi-finished materials.

Data presented in Table 5 reveal the fact that for most subcontractors, besides producing for their contractors, they also sell their products to general customers. In many cases, the products produced for the contractors and those sold to other customers are not substantially different. Furthermore, most of the subcontractors do not produce exclusively to a single contractor i.e. they usually receive subcontracts from more than one contractor. This is also true in the case of contractors

where several subcontractors are being employed at the same time. But they may assign different products or processes to different subcontractors according to their specialization.

In Indonesia, a special linkage programme has been developed to create greater linkages with state enterprises so that the small industries through vendor development, sub-contracting or procurement programmes can produce for these enterprises certain commodities (such as metal products,plant equipments, spare parts, working apparels, shoes and hand gloves, furnitures, office equipments, building materials, etc.); to assist in production and marketing promotion of certain products (such as handicrafts, rattan and wood products) as well as in the manufacture of equipments (such as agricultural implements; for processing of essential oils, coconut shell, rubber, nutmegs, coffee, diesel components, spare parts, plant equipment); and to enable small industries to obtain higher earnings from exports through production and marketing assistance. The values of procurements by state enterprises through the linkage programme have continued to increase considerably during 1984-1987 as can be seen from Table 6.

In the Philippines, SMIs engaged in subcontracting are basically catering to the domestic market than to foreign market. The SMIs that did not offer subcontracting works in 1978 were in metals, electrical and transport industries. In 1984, however, all industries either acted as contractor or subcontractor. Subcontracting SMIs compete with firms in all size categories-

TABLE 5

SUBCONTRACTING VALUE TO TOTAL PRODUCTION VALUE

PERCENT OF SUBCONTRACTING VALUE	Food	Textile	Wood Products	Chemicals	Non-Metallic Mineral Products	Metal Products	Machinery	Electrical/ Electronic Products	Transportation Equipment	Others	Total
Contractors											
1 - 9%	-	-	-	-	-	-	-	-	-	1	1
10 - 19%	-	2	1	-	-	-	-	-	-	1	-
20 - 29%	-	1	1	1	-	-	-	2	-	1	6
30 - 39%	-	-	-	1	-	-	1	1	-	-	3
40 - 49%	-	-	-	1	1	-	2	3	1	2	10
50 - 59%	-	-	-	-	-	-	2	-	1	-	3
60 - 69%	-	-	-	1	-	-	-	-	-	-	1
70% and more	-	-	-	-	-	-	-	-	-	-	-
Subcontractors											
1 - 9%	1	-	-	-	-	-	-	-	-	-	1
10 - 19%	1	-	1	-	-	1	-	-	1	1	5
20 - 29%	-	2	2	1	-	2	-	-	3	-	10
30 - 39%	-	1	2	-	1	1	-	1	-	-	6
40 - 49%	1	7	4	5	-	-	-	-	-	1	18
50 - 59%	-	-	3	-	-	-	-	-	-	-	-
60 - 69%	-	-	1	2	-	-	1	-	-	-	3
70 - 79%	-	-	-	1	1	-	3	-	-	1	6
80 - 89%	-	-	1	-	-	-	-	-	-	2	3
90% and more	-	1	-	-	1	2	3	1	2	1	11

Source: Small and Medium Scale Industries in Thailand and Subcontracting Arrangements

TABLE 6

VALUE OF PROCUREMENTS BY STATE ENTERPRISES FROM SMALL INDUSTRIES, 1984 - 1987
(in million rupiah)

Groups of State Enterprises	1984	1985	1986	1987
Fertilizer	2,547	7,072	10,586	13,429
Cement	2,046	1,674	5,886	6,036
Steel	136	1,778	3,563	9,016
Textile	654	1,876	1,595	9,102
Paper	3,574	2,613	3,041	3,032
Miscellaneous Industry	744	943	2,137	3,961
Gas	40	93	521	1,350
Automotive	-	1,106	1,344	1,131
Machineries	1,775	4,705	5,293	10,918
Shipping	-	1,458	1,456	4,110
Engineering	-	324	300	1,735
Services	-	487	330	1,355
TOTAL	11,516	24,129	36,052	65,175

Source: Medium and Small Scale Industries: The Experience of Indonesia

i.e. small, medium and large firms. However, a higher number of SMIs (59%) compete with medium-sized firms. Only 36% compete with large firms while 49% with small firms. Competition is basically with local rather than imported goods. Competition with medium firms are mostly found in the garments, wood, metal, machinery and equipment and transport industries. On the other hand, more SMIs in the furniture industry compete with large firms while a large number of SMIs in textile and electrical industries compete with small firms.

o **ELEMENTS OF SUBCONTRACTING**

The subcontracting agreements indicate that the large firms usually have an advantage over the small firms as reflected by the restrictions put in place. It has been noted that many firms from developing countries have negotiated and finalized technical assistance agreements without the benefit of a careful evaluation of the economic implications of the terms and conditions of these agreements.[8] The following list provides examples of a variety of restrictions found in technical assistance agreements. As the examples make clear, there is plenty of scope for incorporating conditions which limits the frredom of operations for the technology licensee and could prove disadvantageous to the licenses in one way or another, unless caution is exercised while negotiating technical assistance agreements.

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8 "Points of Caution in Drafting Technical Assistance Agreements", Asia-Pacific INC Review, ESCAP/UNCTC Publication No. 4, January 1987, pp.16 - 17.

A. WHEN THE LICENSOR DESIGNATES THE CONTROL OF RAW MATERIALS AND PARTS SUPPLY.

1. Licensess agrees to purchase raw material, machineries and equipment from the licensor.

2. Licenses can use the trademark of the licensor. However, the licensee must buy raw material from the supplier designated by the licensor.

3. In case the necessary equipment and machineries are not manufactured in time, licensee must purchase these from the licensor.

4. Licensee should purchase raw material from a supplier whose quality is endorsed by the licensor.

B. WHEN THE LICENSOR RESTRICTS THE SALES TERRITORY.

1. Licensee cannot export the product during the contractual period.

2. Licensee can produce the product exclusively during the contract period.

3. The product can be sold only in _____ and _____.

4. When the licensee desires to export the product, the licensee must obtain the agreement of the licensor.

5. When the licensee wants to export the product, the licensee must pay _____ times the amount of the regular license fee.

C. WHEN THE LICENSOR RESTRICTS THE SALES AGENT, QUANTITY AND PRICE OF SALES.

1. Licensee must export the product through the sales agent designated by the licensor.

2. Licensee must export ____% of the product to the licensor.

3. Licensee can only sell the product through a retail store designated by the licensor.

4. Export price of the product must exceed __ while the domestic sales price must exceed the average price of the competitors.

5. When the export amount exceeds _____, the licensee must get approval of the licensor.

D. WHEN THE LICENSOR RESTRICTS THE PRODUCTION OF COMPETITIVE GOODS OR USE OF COMPETITIVE TECHNOLOGY.

1. Licensee must not produce any item that is competitive with the product and must not enter into technical assistance agreement with a third party.

2. Licnesee can produce a competitive product when licensor approves or agrees through written documents.

3. Licensee must not produce the product for _____ years after the agreement expires.

4. Licensee must not produce the product when the agreement expires earlier than the full contract period.

In the Philippines, personal contacts appear to be the main entry point to or the fundamental requirement in subcontracting activity as claimed by majority of SMI receiving subcontracting from all types of LSI counterparts; very few attributed the existence of subcontracting to government information campaign and/or assistance and other factors. The ability to meet quality standards, delivery schedules and volume orders and personal relations as well, are cited more frequently by SMI respondents as reasons for being chosen by LSI counterparts; these reflect technical capability and management efficiency as two of the necessary conditions to carry out an effective network of subcontracting between the SMIs and LSIs. LSI interviewd firms, on the other hand, chose their SMI counterparts in various manners: LS frequently cited offers from SMI subcontractors and personal relations of entrepreneurs while JJV and FJV gave equal importance to offers from subcontractors and advice from a third party. These findings further reiterate that the development of SMIs by way of subcontracting, can be achieved mainly thru their own initiative and efforts rather than thru external influence or environmental factors.

It is interesting to know how firms engaged in subcontracting find their counterparts. For contractors, the methods of finding counterparts mentioned are that they were approached by the subcontractors they were acquainted with before, or were introduced to, and in a few cases, they found their subcontractors by searching around. For the

training on quality control are offered to subcontractors' workers, and quality-control personnel have been dispatched to the subcontractors' factories.

As for the design of the subcontracted items, both contractors and subcontracotrs could make or initiate the design. It is interesting to see that most subcontractors reveal they they, instead of the contractors, are the ones who determine the design. Products of subcontractors' design are mostly found in textiles and wood rpoducts. Metal products, electronic/electrical products, and transport equipment are, on the other hand, rely more on contractors' design. For subcontractors, the major benefit of utilizing the contractors design are that they are adaptable to other non-contracted items, and that their technology or skill would be improved by learning the contractors' design.

Meeting delivery deadline is an important element in subcontracting agreements. Most contractors occasionally encounter delay in delivery of their subcontracted items. The reasons given for the delay in delivery given by subcontractors are mostly concentrated on the unstable supply of raw materials. This is particularly frequently found for subcontractors producing textiles, wood products and chemical products.

In the Philippines, efficient management or the overall

operations of SMI firms affect the continuity, strength and stability of subcontracting with their large counterparts. The following are some of the factors that contributed in one way or another to good subcontracting relationship between SMI and LSI:

- The presence of an effective system of quality control enables SMI subcontractors to meet LSI contractors' specifications and quality standard requirements. Almost all SMI firms surveyed have thie own quality control system. As part of the system, these firms employed precision instruments, visual inpsection or both methods of checking products, a greater number of tem delegating one or two workers to do the job. Aong the three methods of checking, visual inspection is more commonly practiced.

- In view of achieving a more lasting subcontracting relationship between SMIs and LSIs, the former must be responsive to the needs or requirements of the latter. This can be realized by SMI subcontactors thru continous efforts on technological improvement.

- Efficiency in management of finance is a critical factor in subcontracting as this affects sales and production volume.

- Accurate accounting system is important as this forms the basis for pricing and/or cost decisions. More than one half (59%) employs double entry accounting system. However, whether accounting records are used or not such decision requires further investigation

- The depth and breadth of subcontracting jobs that will be supplied by SMIs to LSIs depend to a large extent on the supply, the kinds or characteristics of skilled labor of the former.

- The availability of labor supply is also a critical in subcontracting specially when the kind of subcontracted works are labor-intensive.

- Employer-employee relationship has a bearing on subcontracting activity for the same reason as stated above that subcontracted works are generally labor intensive. Any problem with regard to workers will definitely interrupt normal production operation of firms.

In Malaysia, generally there are two basic types of arrangements. One practised mainly by the Multinationals and

large-scale contractors and the other by the local medium-scale contractors.

Multinationals normally set up their own registry of relevant subcontractors based upon the introductions by their counterparts and existing subcontractors and also direct approach be new potential subcontractors. A component type will normally be subcontracted out to 2 or 3 subcontractor to reduce risk of total supply disruption. Contractors normally provide limited technical assistance in production technology/technique to their long-term subcontractors.

In the case of medium-scale contractors, arrangements with subcontractors are normally done on an ad-hoc basis without long-term commitments.

Multinational contractors normally pay within 1 - 2 months after delivery while most local medium-scale contractors pay their subcontractors within 3 - 4 months after delivery. Partial advance payments is seldom practised and would normally involve special job orders where cost of material and toolings are too exhorbitant for the subcontractors to bear. In most of such cases, contractors would provide the material and toolings required.

Contractors normally provide very limited financial and technical assistance to their long-term subcontractors. The

Government provides for low interest rates on loans (7.75%) and also free technical consultancy service for the local small and medium scale industries.

o Benefits

Despite the low level of subcontracting in the ASEAN countries, some benefits can be seen.

In Malaysia, the promotion of heavy industries has been justified mainly on the following reasons: greater utilization of natural resources; enhancing technological capability; development of inter-industry linkages; and reducing dependency.

Heavy industries by their nature have a pronounced impact on the national economy. Their development helps the exploitation of natural resources, generates demand for various tertiary services like trade and commerce, banking and for infrastructural facilities like transport, communications, power and housing.

More importantly, in the Malaysian case where agriculture is still a significant sector, the development of heavy industries allows the expansion of linkages with other sectors of the economy: for example, by providing essential inputs like fertilizers, pesticides and mechanized farm equipments for the agriculture sector. The demand for managerial

and technical personnel to man and operate the heavy industries increases the scope for higher learning institutions to increase their output of manpower resources, expecially in areas of management and technology.

Some of the heavy industries would stimulate the growth of a number of ancilliary industries to supply parts and components as subcontractors or support the creation of medium and small downstream industries for further processing of their products. Thus, the establishment of heavy industries can, in many ways, bestow substantial social and economic benefits to the country. In this light, the Malaysian Government views the development of heavy industries as an instrument to: - "strengthen the foundation of the manufacturing sector. Heavy industries are needed to create new engines of growth and to provide strong forward and backward linkages for the development of industries. Heavy industrial can also have substantial effects on the growth of small scale industries if efforts are made to establish linkages and integrate small-scale industry development with heavy industries."

It has been pointed out that machines of older vintage are often recommended by firms in the developed countries for use by those in the developing countries. This could be advantageous in both ways. For the developed countries, it could mean disposing of relatively obsolete machines which have been

superseded by more technologically advanced ones. For the developing countries, on the other hand, this would amount to a lower capital input per employee. One problem with this, however, is that machines of older vintage are no longer produced in the developed countries. Therefore, such machines and their spare parts will be unavailable to user firms in the developing countries should the need arise. Thus, unless the production of machinery of older vintage based on old blueprints is undertaken in the developing countries, it may not really present itself as a technological alternative.

Foreign investments has figured prominently in economic development plans of most of the South Asian countries. While official development assistance predominates, private foreign investment has also been encouraged with the basic objective of transferring new technologies from the developed countries as a means of accelerating and raising the level of industrial development. Some countries of the region have accorded very high priority to private foreign investment in order to achieve export-led economic development. Foreign investment is expected to provide market access for a variety of new commodities and products to be manufactured with foreign technology and know how. In the short-term, private foreign investment has been treated as an important means of creating employment for some of the many young people in these countries who are unemployed at present. To a lesser extent, foreign investments has also been sought in

order to improve management skills.

In Thailand, theoretically there could be several motives for both contractors and subcontractors to be engaged in subcontracting arrangements. The contractor can gain from subcontracting in various ways. These include the utilization of specialized technology and skill of the subcontractor, the saving of investment and other costs in producing certain specialized parts and components, or engaging in some resource or time consuming processes. More importantly, subcontracting arrangements could be used as a buffer against business fluctuations. When demand is high and the increase in demand is considered temporary, instead of increasing their productive capacity, the contractor could subcontract out part of the demand which is beyond its ordinary capacity. This can also serve to reduce the adverse effect to its own business when demand is low. In the case that labor cost in small firms is lower, large scale firms could also take advantage in subcontracting out their labor-intensive products or processes to save their own labor cost. In short, the major motive for a contractor to engage in subcontracting is to make its own production to be more flexible and economical.

On the part of the subcontractor, the possible advantage gained in receiving subcontracting include the secured market resulting from the subcontracting arrangements, and the possible assistances given by the contractor in various aspects.

However, a subcontractor may be in a disadvantageous position if it tends to rely on one particular contractor and producing specialized inputs which cannot be marketed elsewhere. They may also suffer from unstable demand for their product if the subcontracting is of the nature of smoothing out demand fluctuation in the part of the contractor.

For the contractors, the four important motives cited are to improve production flexibility, to utilize the specialization possessed by the subcontractors, to satisfy the local content requirement imposed by the government, and to follow the suggestion of their parent firms. The last two motives of satisfying the advices of parent firms are all supplied by foreign-invested joint ventures.

For subcontractors, to enjoy the secured market and assistances provided by subcontracting, and to increase the capacity of production are the three most frequently mentioned objectives. Some subcontractors, on the other hand, give increased diversity of product items as their main motive for entering into subcontracting arrangements. And for some subcontractors, the very reason they are engaged in subcontracting is simply due to the fact that they were approached by the contractors. But it should be perceivable that had it not been beneficial for them in one way or another, they would not enter into the subcontracting agreements.

Besides benefits from increased demand and having a secured market for their products, there are other elements of the subcontracting arrangements which could render other benefits to subcontractors. Quite a number of subcontractors are provided with materials and a few of them also obtain technology and finance from the contractors. However, none of the contractors and contractors surveyed mention management and labor training as a source of benefit from subcontracting. This may reflect the fact that the actual degree of technological transfer from contractors to subcontractors in general is quite limited and assistance on training of workers in subcontracting firms by the contractors and almost nonexistent.

In Indonesia, the existence and growth of the small and medium scale industries are to a large extent to be determined by their comparative advantage, or disadvantage vis-a-vis the large scale industries regardless of whether their relationships are complementary or competitive.

When scale economies are not particularly important in applying manufacturing processes or in the making of products, the small and medium scale industries may be expected to have a comparative advantage. This source of comparative advantage may be found in industries where the manufacturing processes can be broken down into many separate operations; in simple assembly, mixing or finishing operation where quality, precision and

standardization requirements can be easily met; and in the production of certain specialized low-volume products. Even if there exists economies of scale in regard to finished products, but not in the processes for making the products, the smaller scale establishments can still enjoy comparative advantage and it will be worthwhile for the large scale industries to engage in sub-contracting arrangements with the small and medium industries.

Comparative advantage for the small and medium scale industries is not necessarily ruled out even if economies of scale within a given branch of industry prevail. Given technological heterogeneity, the small and medium scale industries can successfully compete by using intermediate and labour-intensive techniques which can be operated by cheaper and lower skilled labour; labour market imperfection allow the small and medium scale industries to pay lower wages while labour problems may induce the large scale industries to engage in sub-contracting arrangements; the ability to respond flexibly to volatile changes in products, technology and markets may place the smaller establishments in more advantageous position. Size-specific product differentiation may allow the small and medium scale industries to compete directly with the large scale industries in producing the same product, for example in the production of inferior goods for the lower income groups or even in the production of custom-made luxury items. In the case of size-specific vertical specialization, the small and medium scale industries may have cost advantages in producing simple

components, in providing industrial services to do jobs made to order, or in assembling highly diversified but standardized products.

Finally, it can be noted that through the exploitation of their comparative advantage the small and medium scale industries could play a dynamic role in the company and contribute substantially to the fast growth of exports, as demonstrated by the case of Hong Kong, Singapore, Taiwan and Japan. In the case of Taiwan, where the small and medium scale industries have accounted for 95% of all establishments, employed 70% of the working force and generate about 55% of GNP, it has been suggested that "their role cannot be replaced by large enterprises" and the "large enterprises cannot subsist without the support of small and medium business".

In the Philippines, the ways by which SMI subcontractors are favored by LSI contractors are:

- Assistance in the form of technical guidance and technical training are perhaps the most economically benefical because of their contribution to technological improvements of SMI subcontractors. Findings reveal that not so many SMI-sampled firms receiving subcontracting in both years 1978 and 1984 avail of such assistance although the proportion is increasing slightly from 46% to 49% in the case of the supply of equipment. Among SMI receiving subcontracting in 1984, there is a slight difference in proportion of firms which were provided with technical guidance but a marked margin with respect

to supply of equipment. A significant number of LSI that offered subcontracting in 1978 and 1985 reported provision of technical guidance coupled with supply of equipment.

- Financial assistance relieves SMI subcontractors from all trouble and cost of sourcing external funds from lending institutions to finance subcontracting transactions. Financial assistance does not only take the form of loan assistance. It can also be a way of LSI contractors' prompt payment to SMI subcontractors. A trend toward shorter terms of payment will help augment the working capital requirements of SMI subcontractors particularly during the periods of tight credit.

- Supply of raw materials by LSI contractors to SMI by counterpart by reasons of scarcity, high procurement cost and quality is imperative and redounds to mutual benefit of both parties.

More than one-half of total SMI repondents were of the opinion that foreign joint ventures have contributed significantly to the Philippine economy thru employment generation, technology transfer, foreign exchange generation and domestic income generation. Very few cited negative contributions such as competition with local industries, dominion of local economies and failure to make extensive use of indigenous materials.

The ASEAN countries, looking at Japan, Korea and Taiwan, also note the tremendous advantage from subcontracting.

3. The fusion of enterprises to optimize their scope of operation.

4. Joint R & D of new technology and the use of common trade marks.

Another cooperative undertaking is joint procurement at lower prices of a variety of raw materials or semi-finished products which small businesses need in small quantities and supplying the to members at the right time. Likewise, the cooperatives sell their members' products to the government and other public institutions in large quantities through collective contract as libitum and secure outlets for small businesses. Added to this, poor small businesses pool their resources for operation of a mutual assistance fund to facilitate raising funds by means of discounting bills. They also keep, through mutual assistance fund, their members from bankruptcy due to irrecoverable debts or delay in the recovery of debts.

The second pattern of cooperation --vertical cooperation exists between big businesses and small businesses. Contract awarding-enterprises allow small businesses to produce components and parts and semi-finished products for them. In this way, subcontractors and contract-awarding enterprises enter into a cooperative undertaking in certain specialized line of products. Under the arrangement, the former which produces components and parts or semi-finished goods enjoys long-term contracts in specialized field or fields, whereas the latter is assured of stable long-term delivery of goods. This has contributed to lower production costs and quality promotion.

hindrance in meeting worldwide technological innovation.

The large industrial enterprises normally prefer to do all their manufacturing under their own roof house because, in addition to their lack of confidence in the capability of the small firms to produce articles of the required quality within specified timetables, they prefer to retain full technical responsibility for manufacturing the product as a whole. They often manufacture critical parts themselves even when the product is uneconomical in order to avoid overdependence on subcontractors.

The assistance that large assemblers are said to render small subcontractors in the form of product design or new product development is more of a necessity for the assemblers than for suppliers. Technology transfer is minimal. Except for the provision of initial designs to the subcontractors by the assemblers, the subcontractors have to depend on indigenous skills and expertise for other matters.

The only area where significant assistance is rendered is that of quality control. In all other areas, especially training of workers, managerial guidance, layout and installation of equipment, the role of the large contractors is minimal.

The most important source of technological information is the machinery suppliers. Another good source of information on technology is the raw materials suppliers. Very few of them get information from government research institutions, universities and journals. Inter-firm exchange of information is limited. The case in the Philippines is such that gradually, large firms build up a family of subcontractors under their umbrella while horizontal integration of small industries, by way of organizing themselves into a cooperative, for example, faced many difficulties or ended up in failures. The subcontractors' own strength in technical know-how, therefore, constitutes their most important asset. The success of these subcontractors depends essentially on the experience and skill of the owner, more than anything else.

There is some kind of danger to which subcontractors expose themselves to when they depend too much on their contractors in a period of economic depression. In such times, contractors do pass on some of their difficulties to the subcontractors who in turn play it safe by working for as many contractors as possible in addition to carrying their own products. In the case of a firm wherein a former employee of PHILACOR became its subcontractor, production is almost 100% supplied to PHILACOR. To a great extent, having worked with the mother firm developed the technical know-how and skills of the former production manager turned independent subcontractor.

The contracts between PHILACOR and the small subcontractors suggest weak ties between them. Most contracts are on a batch basis or purchase orders which reduce PHILACOR's investment in inventories. These specify a time schedule over which the item is to be supplied. Orders generally run from 3 to 12 months, 6 months being the most common. Even the subcontractors prefer shorter contracts because longer contracts specify fixed prices which, owing to frequent increases in the price of raw materials, may entail losses on the later. On the other hand, they also complaining that there is no guarantee of re-order beyond one year and while it is true that continuing orders can be expected in most cases, there is no guarantee about the volume of the order.

A study on subcontracting showed that once a large firm decides to procure locally, its choice is limited to a few firms. Hence, it will be irrational for the large firm to antagonize the subcontractors by not continuing the orders. Often there are considerable costs entailed in changing subcontractors like search and establishment costs in developing new subcontractors. For instance, engineers from the large firm have to inspect the plant and equipment as well as the product of the subcontractor, all of which activities involve certain costs.

While it has been necessary for governments to take the lead in developing such programs (i.e. implementation of entrepreneurship and small business development programs) because

of the extent of the coverage needed and associated costs which many individual small enterprises cannot meet, experience shows that governments are generally severely limited in this task. Such limitations are largely caused by lack of understanding and knowledge about small enterprise on the part of government planners and civil servants, and the difficulties faced by the owners. This is compounded by the traditional mistrust of government among small businesses. Private entrepreneurs tend to stay away from involvement in government programs unless attractive incentives (e.g. funding) are offered.

Small enterprise owners are very independent people who see their own situation as unique and genuinely feel that they could only benefit from advice and assistance from practical successful business peers and not from bureaucrats.

At a recent Asian Productivity Organization Conference on "Linkages between Small and Large Industries", reference was made to a research conducted in Japan which identified the major concerns large industrial firms had with small subcontractors, namely: lower level of technology, product quality, product specifications, management skills and financial capability.

The biggest barrier to improve cooperation is the attitudes of both small and large enterprises based on past bad experiences and lack of appreciation of the other's point of

view.

Small enterprise attitudes which affect their willingness to cooperate are: the desire for independence and reluctance to lose any personal control; previous experiences with large enterprises generally result in lack of trust; unwillingness to obtain advice unless from practical successful business peers; lack of awareness or inability to admit their lack of knowledge and expertise in some areas; and general cynicism over government help.

On the other hand, attitudes among large firms affecting desirable cooperation are: lack of awareness and understanding of small enterprise and the difficulties they face; inability to see an identifiable benefit for themselves; and past experience which tends to make them feel it is "too much trouble so why should they make the effort?".

It is important to recognize these limiting attitudes when considering the more acceptable cooperation and development programs in the agricultural sector. Because farmers are not individual competitors and their major need is for improved technical knowledge and new technology, they are more willing to cooperate with each other or pass on knowledge and advice. Similarly, government programs are built around this technical aspect so that these extension services are sought by the

farmer.

But the aggressive market environment and resulting attitudes of other sectors are the main reason the agricultural extension and assistance models are not easily transferable to them.

Government policies can both encourage or inhibit technology transfer. Within the Asia-Pacific region, several factors encouraging foreign companies to transfer their technology are: the relatively open marketplace, stable economic policies, economic growth prospects, political stability and government policies that encourage private investment. In short, policies that encourage risk taking by firms also encourage companies to transfer technology.

Perhaps most important, however, are those policies that inhibit the flow of technology to a country. Within the Asia-Pacific region, the problems most commonly cited by technology suppliers are those that fall generally under the rubic of intellectual property protection.

Protection of patents, trademarks and other forms of intellectual property is critical not only to the supplier of technology, but also to the user. The supplier will be

understandably reluctant to run the risk of losing control of his technology to inadequate intellectual property protection. the user, in turn, will have far more limited array of technologies to choose from in setting his strategy for modernization and for establishing new ventures.

Counterfeiting and outright piracy are frequently cited by firms as dampening their enthusiasm for bringing their technologies to the Asia-Pacific region. Many government officials and businessmen believe that the issue is mainly over counterfeit cassette tape recordings, software, clone computers. The issue is much broader than one might believe looking solely at these few products. Indeed, the publicity given to computer clones in Taiwan and to the easy access to counterfeit tapes and software in Singapore and Hong Kong has made other suppliers reluctant to look into business opportunities in the Asia-Pacific region, or to find ways by which they can protect their technology in spite of the limitations of government policies.

To the subcontractors, subcontracting is a mixed blessing. Despite some of the benefits they obtained from the subcontracting arrangements, many of the subcontractors consider themselves as in a disadvantageous position compared to their counterparts. Low profits, lack of decision authority on their production, and dependence on their contractors are among the major complaints.

quality of the products turned out by their subcontractors.

Other major problems of subcontracting seen by the contractors besides the low quality of the subcontracted products are delay in delivery, and difficulty in finding suitable contractors.

In general, both contractors and subcontractors do not expect much from the government on the improvement of economic conditions for further subcontracting in the industrial sector. Although quite a number of them express the hope for the reduction of business tax rates, which work to hinder effective subcontracting. The subcontractors, however, expect more from their contractors on various types of assistance which are lacking at present. Besides the provision of raw materials (which tend to be concentrated in firms producing wood products and chemical products) the assistance wanted are in training of labor, provision of finance, and assistance in technology.

Most LDCs have a dual system in which large and small enterprises exist side by side but without the strong links that exist between them in developed countries, notably Japan. The result is often vertical integrated operations in large firms, largely because most SMIs lack the technological capacity and dependability to serve as partners of large-scale units. This is bad for both. SMIs without ample subcontracting opportunities

remain trapped in a low technology, low value added pattern of production. The large units, assuming responsibility for a wide range of production processes, have to spread their managerial and technical resources over all of them instead of concentrating on the critical ones. This also results in raising the capital-output ratio in some segments of the production process because the output of a component required for the company's own needs may be uneconomically small. There is also an increase in wage costs because workers in large enterprises tend to be paid more than in small ones. Japanese figures for 1978 show the difference between firms with 500 employees or more and those with less than 100 to be 30-40%.

It is claimed that the delivery requirement of LSI contractors is strict; again, this is a reinforcement of the finding that prompt delivery is a fundamental requirement to subcontracting. Inspite of the LSI contractors' strict requirement as perceived by SMI subcontractors, the former finds the latter's delivery of subcontracted jobs not always on time. Some (38%) SMI subcontractors reduced prices as a result of failure to meet delivery deadline.

Analysis of complimentary relationship or co-existence between SMIs and LSIs have been discussed extensively in the preceding sections. Apart from this kind of relationship is also the existence of competition between two sectors. The effects can either be healthy or inimical to both of them.

While government can be considered successful in bringing to the awareness of the SMI entrepreneurs assistance available to them, the extent of availment is still wanting. This calls for evaluating the efficiency of the delivery mechanisms of particular agencies involved in SMI promotion.

o Towards Greater Subcontracting in SMIs

* At the National Level

Technical cooperation in subcontracting at the country level could be further developed by:

a. The Establishment of Subcontracting Exchange

In both the Philippines and Malaysia a subcontractors' exchange has been set up to match the needs of large enterprises with the capabilities of the small firms. This mechanism facilitates the identification of probable clients and suppliers and assists in accelerating subcontracting in the country.

b. Assistance to Small Subcontractors

In all the ASEAN countries, various assistance programs in training, financing, marketing and production are being implemented to assist the small subcontractors. In most cases such assistance is given

programme required.

* At the Regional Level

In the area of ASEAN regional cooperation, the following action can be taken:

a. Sharing of Technology

The development of small and medium industries will gain impetus in the Asian countries through the mutual exchange of expertise, processes, techniques etc. among others. Countries with a more advanced level of technology in certain industries may share the knowledge with countries wanting in development. This likewise calls for the involvement of developed countries in assisting developing nations upgrade existing level of technology for mutual benefit. In turn, developing countries can complement the requirement of developed countries for necessary products or inputs at lower costs.

Sharing of technology can be encouraged through joint venture activities, subcontracting special government-to-government exchange projects or study visits of homogenous industry groups in the Asian region.

b. Complementation Program

This is similar to the comparative advantage

theory wherein countries with existing resources are able to produce more efficiently at lower costs. That is, Asian countries have the advantage of producing specialized SMI products for the region. This entails an agreement among governments for the conduct of such undertaking and an in-depth study on the various product specializations of each country. This arrangement will not only decrease competition and increase efficiency but also make possible the faster growth of the SMI sector.

c. Preferential Trade Agreements

Among the Asian countries, a preferential trade agreement can be entered into, that is imposing less tariffs on export products of these nations. For the developed nations, negotiation can be undertaken with the respective governments to remove tariff barriers and strict administrative procedures which hinder the penetration of SMI export products into their markets.

d. Information Campaign

Subcontracting is not very popular among Asian countries. The creation of awareness of such linkages through information dissemination and exchange of country experts will foster increased subcontracting activities.

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