Japan International Cooperation Agency (JICA)
Ministry of Industry and Trade, Republic of Indonesia

Study
On
Human Resource Development for SMEs
Focused on Manufacturing Industries
In
Republic of Indonesia

Final Report

(Summary)

September 2004

UNICO International Corporation

TOT (Training of Trainers) Model Training on Production Control Technology

For 29 potential trainers of production control technology from IDKM, PUSDIKLAT-INDAG, MIDC, IETC of the MOIT, the TOT was implemented by the experts of the Study Team for three (3) weeks in February, 2004.

SME Model Training on Production Control Technology for Manufacturing SMEs

The MOIT, with support of the Study Team, implemented the first training program on Production Control Technology for managers of manufacturing SMEs for three (3) weeks in June 2004. Instructors who participated in the TOT above prepared the teaching materials and took charge of classroom lectures and also factory visits

Work Schedule of the Study

Year	Month	Phase	HRD Supply/Demand Survey	Model Training	Recommendations	Report・Workshop
2003	9	Preparatory Work				IC/R
	9	1st Field Work	Survey on SME Promotion Policy Survey on HRD Policy HRD Supply Survey HRD Demand Survey			
	10					1st W/S
	11					
	11	1st Home-office Work				
	12	2nd Field Work	HRD Supply Survey Analysis of Results HRD Demand Survey Analysis of Results	Formulation of Training Scheme Preparation for TOT Model Training	Compilation of HRD Supply/Demand Survey Identification of Gap between Supply and Demand	IT/R
2004	1	3rd Field Work	Complementary HRD Supply Survey Complementary HRD Demand Survey	TOT Model Training Post-evaluation of TOT Model Training Preparation for SME Model Training	Compilation of HRD Supply/Demand Survey Identification of Gap between Supply and Demand Formulation of Recommendations	DF/R (1)
	4					
	5	4th Field Work	Complementary HRD Supply Survey Complementary HRD Demand Survey	SME Model Training Post-evaluation of SME Model Training	Compilation of HRD Supply/Demand Survey Identification of Gap between Supply and Demand Formulation of Recommendations Action Plans based on Recommendations	
	7	2nd Home-office Work				DF/R (2)
	8	5th Field Work				2nd W/S
	8	3rd Home-office Work				
	9					

Source : Study Team

Abbreviation

AFTA	ASEAN Free Trade Agreement
AIMC	Association of Indonesian Management Consultants
AMDI	ASTRA Management Development Institute
ASEAN	Association of Southeast Asian Nations
ASPEP	Association of Metalwork and Machinery
ATMI	Main Training Programs for Industry (Akademi Teknik Mesin Industri)
BDS	Business Development Service
BEED	Bureau of Entrepreneur and Enterprise Development, Thailand
BLK	Job Training House (JTH) (Balai Latihan Kerja)
BPPIP	Agency for Research and Development of Industry and Trade of MOIT (Badan Penelitian dan Pengembangan Industri dan Perdagangan)
CETRO-CRECE	Network of Regional Business Competitiveness Centers, Mexico
CRM	Customer Relation Management
CSM	Customer Satisfaction Management
DGC	Directorate General Control
DGCM	Directorate General Resident Mobility
DGFMD	Directorate General Foreign Manpower Development
DGHMD	Directorate General Home Manpower Development
DGIR	Directorate General Industries Relationship
DGTZD	Directorate General Transmigration Zone Development
DINAS	Industry and Trade Office of Provincial Government
DIP	Department of Industrial Promotion
E/E	Electric/Electronics
EATC	Employment Abroad Training Center
EMS	Environment Management System
EO	Extension Officer
GBHN	Broad Outlines of the Nation's Direction (Garis-Garis Besar Haluan Negara)
GO	Government Officer
IDKM	Directorate General of Small & Medium Industry and Trade of MOIT (Direktorat Jenderal Industri dan Dagang Kecil Menengah)
IETC	Indonesia Export Training Center of MOIT
ISMED	Institute for Small and Medium Enterprises, Thailand
ISTC	Industries and Services Training Center
JASMEC	Japan Small and Medium Enterprise Corporation
JICA	Japan International Cooperation Agency

JODC	Japan Overseas Development Corporation
KADIN	Indonesian Chamber of Commerce and Industry (Kamar Dagang dan Industri Indonesia)
LPSM	Human Development Institute under YPMG
LPTC	Labor Productivity Training Center
MBO	Management by Objectives
METI	The Ministry of Economy, Trade and Industry, JAPAN
MIDC	Metal Industries Development Center of MOIT
MITI	Ministry of International Trade and Industry, Malaysia
MOCSME	Ministry of Cooperatives and SMEs, Indonesia
MOEA	The Ministry of Economic Affaires, Taiwan
MOIT	Ministry of Industry and Trade, Indonesia
MOMT	Ministry of Manpower and Transmigration, Indonesia
MONE	Ministry of National Education, Indonesia
MRP	Material Requirement Planning
MTAP	Medium Term Action Plan
NAFED	National Agency for Export Development of MOIT
NECP	New Entrepreneur Creation Program, Thailand
OEM	Original Equipment Manufacturer
OJT	On the Job Training
OSMEP	Office of SME Promotion, Thailand
OVTA	Overseas Vocational Training Association of Japan
POLMAN	Manufacturing orient polytechnic (Polytechnic Manufaktur)
PPM	Center for Management Development (Pusat Pengembangan Manajemen)
PROPENAS	Five-year National Development Program (Program Pembagunan Nasional)
PUSDIKLAT-INDAG	Center for Education and Training of Industry and Trade (Pusat Pendidikan dan Pelatihan INDAG)
QCC	Quality Control Circle
QCD	Quality, Cost, and Delivery
QCDDM	Quality, Cost, Delivery, Development, Management
QS	Quality Standard
RENSTRA	Revitalization Strategy
REPETA	Annual Development Plan (Rancangan Rencana Pembangunan Tahunan)
SE	Ministry of Economy, Mexico (Secretaría de Economía)
SEAP	SME Expert Advisory Panel, Malaysia
SMEA	Small and Medium Enterprise Administration, Taiwan
SMIDEC	Small and Medium Industries Development Corporation, Malaysia

SMIDP	Small and Medium Industries Development Plan, Malaysia
SMK	vocational secondary education (Sekolah Menengah Kejuruan)
SOC	State -owned Company
STC	Staff Training Center
STPD	Secretariat of Training & Productivity Agency
TOT	Training of Trainers
TPA	Technology Promotion Association, Thailand
TQM	Total Quality Management
TTC	Transmigration Training Center
UPTs	Common Service Facilities
VA/VE	Value Analysis/ Engineering
WTO	World Trade Organization
YBMB	BINA MITRA BAKRIE Foundation (YAYASAN BINA MITRA BAKRIE)
YDBA	DHARMA BHAKTI ASTRA Foundation (YAYASAN DHARMA BHAKTI ASTRA)
YPMG	MATSUSHITA GOBEL Education Foundation (YAYASAN PENDIDIKAN MATSUSHITA GOBEL)

Table of Contents

1. Outline of the Study

1. Outline of the Study

1.1 Objectives

To support the Ministry of Industry and Trade (MOIT) of the Indonesian Government to formulate an improvement plan of SMEs HRD together with action plans focused on manufacturing industry in Indonesia with a view to improving managerial and technical capabilities of SMEs, by 1) supply of necessary information 2) policy advices, and 3) assistance with the implementation of the Model of SMEs HRD training programs.

1.2 Target Sector

The target sector of the Study is small- and medium-sized enterprises of the manufacturing sector of Indonesia. The following definition of the enterprise size according to the number of employees is used for the Study.

Table 1-1 Enterprise Size

Enterprise Size	Number of Employees
Micro	1 – 4
Small	5 – 19
Medium	20 – 99
Large	100 or more

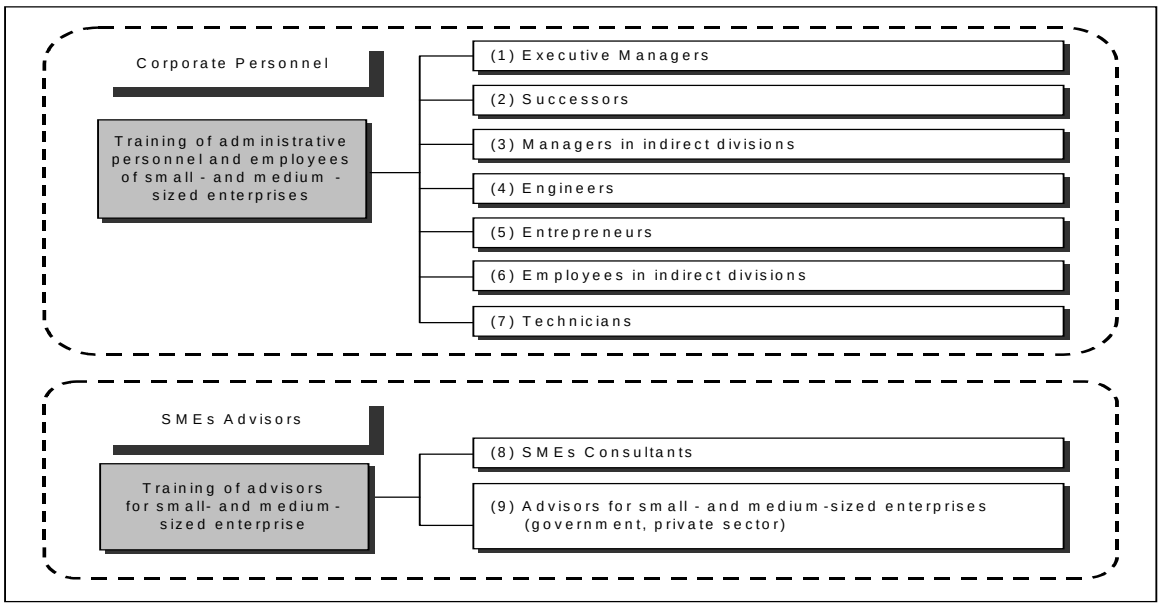
Source: MOIT

Due to the limitation of the Study period, however, demand survey of the Study was focused on the supporting industry of the manufacturing sector. "Supporting industry" is a group of parts and components manufactures for 1) transport equipment 2) electric and electronic machineries and 3) general machineries. The concept of the supporting industry is illustrated in Fig. 1-1.

1.3 Target Groups of the Human Resource Development of the Study

Target groups of the human resource development for SMEs of the Study are divided into 1) education and training of corporate personnel and 2) training of advisors who will provide support to SMEs. Fig. 1-1 shows target groups of the human resource development for SMEs.

Fig. 1-1 Target Groups of Human Resource Development for SMEs of Manufacturing Sector



Source: JICA Study Team

1.4 Training Areas of the Human Resource Development of the Study

Technologies to be covered by human resource development for manufacturing SMEs are divided into three categories: management and production control technologies, production technology, and skills.

Management technology refers to technology and expertise required for operation and management of a business enterprise, including marketing, personnel management, and accounting. They represent items for training of new entrepreneurs. Production control technology represents technology to improve the levels of products in terms of Q (Quality), C (Cost) and D (delivery) by using limited resources. New methods and techniques have been developed in a variety of fields, including process control, quality control, inventory control, cost control, machine maintenance and physical distribution. Management and production control technologies are called “soft technology” in comparison with the production technology.

Production technology is related to raw materials, process of base materials, die and tools and assembly (especially for supporting industries). It includes R&D technology, which is often referred to as product technology.

Finally, skills refer to machine operation techniques and primary processing skills. Basic knowledge required for application of production control technology is also included.

Table 1-2 shows the training areas of human resource development for manufacturing SMEs. Among the three areas, considering the time constraint, the focal area for the Study is management technology.

Table 1-2 Scope of SMEs HRD

Theme	Target	Subjects (examples)
Management technology	1) Corporate managers 2) Administrative staff 3) Entrepreneurs	1) Management 2) Production control 3) Marketing/Sales 4) Human resources development 5) Finance
Production technology	1) R/D staff 2) Engineers	1) R/D 2) Die/Molds, Jig/Tools 3) Material processing 4) Finishing/Final treatment 5) Assembly
Vocational skills	1) Technicians	Skills for administrative and production technologies

Source: JICA Study Team

1.5 Expected Output of the Study

Output of the Study is an improvement plan with action plans, worked out as a joint work of MOIT and the Study Team, for the improvement of the human resource development policies and programs to the manufacturing industry by MOIT. Immediate realization of the action plans with budget allocation in accordance with the recommendations of the Study is expected.

2. SME Promotion Policy and Human Resource Development Programs

2. SME Promotion Policy and Human Resource Development Programs

2.1 Human Resource Development for SMEs by the Indonesian Government

In Indonesia, the following four ministries are primarily engaged in human resource development for SMEs. Among them, the Ministry of Cooperatives and SMEs is responsible, under a presidential decree in 2001, for the planning of SME policy and overall coordination of SME-related programs, and it developed MTAP (Medium Term Action Plan) jointly with other ministries (including the Ministry of Industry and Trade) in 2002.

- Ministry of Cooperatives and SME - MOCSME
- Ministry of Industry and Trade - MOIT
- Ministry of Manpower and Transmigration - MOMT
- Ministry of National Education - MONE

Two approaches for SMEs promotion are normally followed, social development approach for poverty alleviation and job creation, and industrial approach for industrial development. In Indonesia, the vocational training programs by the Ministry of Manpower and Transmigration for job-seekers and the mission of the Ministry of Cooperatives and SMEs correspond to the former approach. On the other hand, the SMEs promotion by Ministry of Industry and Trade (MOIT) follows the latter approach.

The MOCSME became a state ministry in 1999 and even after that continued to implement programs under SMECDA, which is an organization to implement human resource development projects. However, SMEDA was dissolved in 2002 and the ministry no longer implements any human resource development program directly. Instead, it promotes SME guidance and support services via private BDSs, as well as programs led by provincial governments (DINAS).

The BDS is an organization that provides various support services for SMEs. It is established by NGOs, universities, trade associations, and financial institutions as facilitators, under financial and technical support of the MOCSME during the initial period. Each BDS has 2-10 consultants in finance and management technology, although their qualifications are not clearly defined. In 2002, Indonesian BDS Association was established. At present, there are approximately 800 BDSs throughout the country. It should be noted, however, that the manufacturing industry accounts for small portions of support service conducted by the BDSs, while most of the services for the manufacturing industry target local industry and few of them

cover supporting industries. In fact, the BDS's support service primarily covers micro enterprises and cooperatives in the agriculture and related sectors.

The MOIT is responsible for promotion of SMEs in the manufacturing, commerce and service sectors as part of national industrial policy. In 2002, it announced "Master Plan for Promotion of the SME Sector 2002 – 2004 (RENSTRA)" which defined the following four development priority groups, together with product groups belonging to each group.

- SMEs leading local economy
- SMEs in supporting industries
- Export-oriented SMEs
- Innovative SMEs

Note that, as decentralization of power progresses, the SME promotion budget is diverted to DINAS that is under jurisdiction of provincial government. Each DINAS plans and implements its own programs for promotion of local industries. Yet, the decentralization process is still in a transitional stage and the demarcation of responsibilities between the central and provincial governments is not very clear.

The demarcation of responsibilities between the MOCSME and the MOIT in the area of SME promotion is not clearly defined on a sector basis. As the former primarily covers cooperatives and micro enterprises, there seems to be not much duplication with the service coverage of the MOIT, except for some of small enterprises that may be covered by the both ministries. The MOIT is also implementing a pilot project to establish BDSs in four districts. In addition, reorganization of the present UPT to BDS is being considered.

The MOMT has a mission to provide skill training for job seekers, such as new graduates and unemployed persons. On the other hand, skill training provided by technical support organizations under the MOIT is designed to reeducate skilled workers of SMEs, clearly different from that conducted by the MOMT.

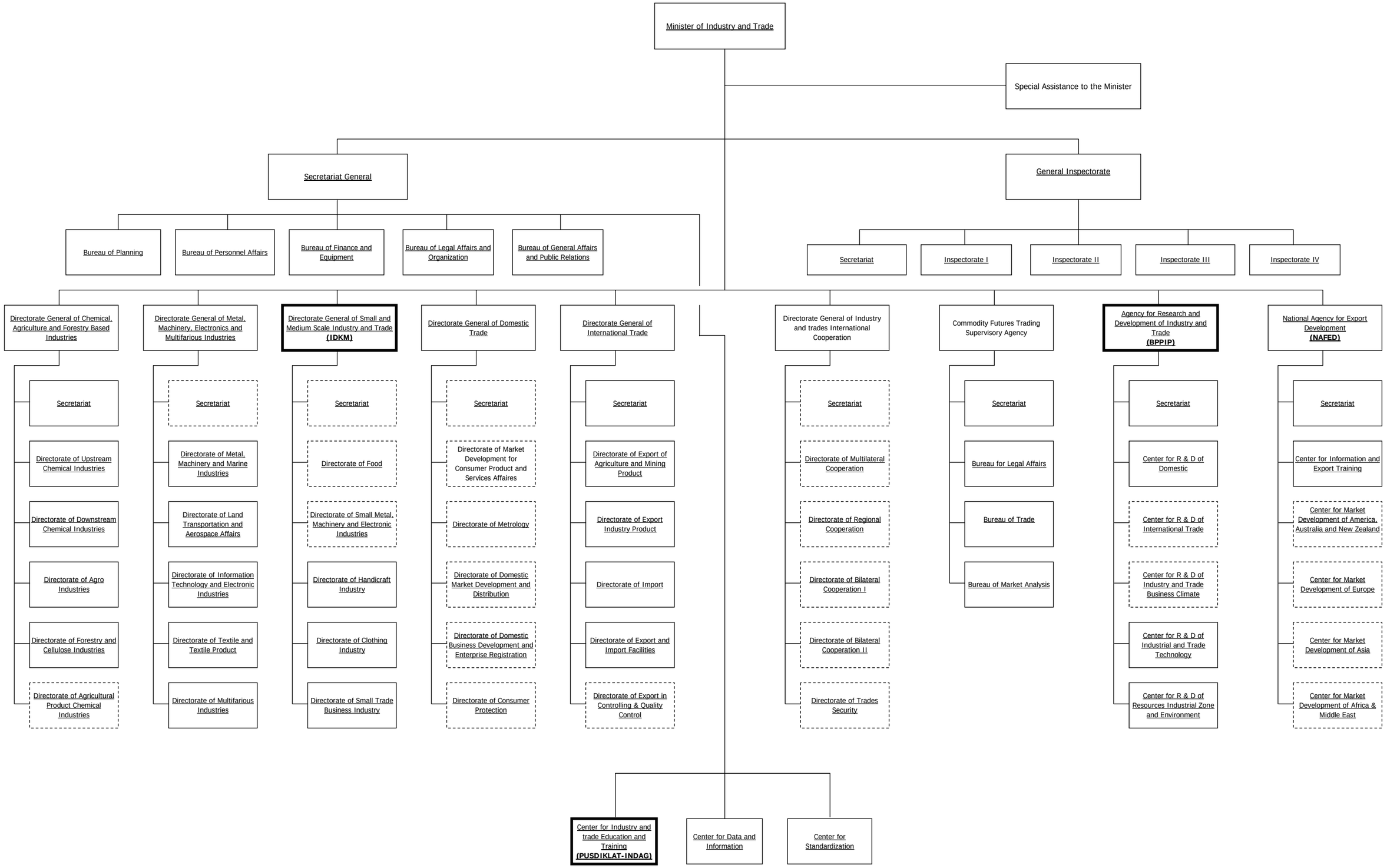
Needless to say, the MONE is responsible for school education. In addition, polytechnic schools offer extracurricular courses on production technology and skills for employees of SMEs. While many universities and other advanced educational institutions have special courses mainly of management technology, together with engineering and business administration curricular courses, for corporate employees.

2.1.1 Ministry of Industry and Trade (MOIT)

By restructuring of the ministries, the Ministry of Industry and the Ministry of Trade were merged to the Ministry of Industry and Trade in December 1995. Fig. 2-1 shows the organization of MOIT.

Directorate General of Small-Medium Scale Industries and Trade (IDKM) is the promotion policy section for SMEs of MOIT for all sub-sectors of industry and trade. As far as the SMEs of trade sectors, however, the demarcation of jurisdiction between IDKM and Directorate General of Domestic Trades is not very clear. The IDKM seems to concentrates on the manufacturing industry.

Fig. 2-1 Organization Chart of MOIT



Source: MOIT

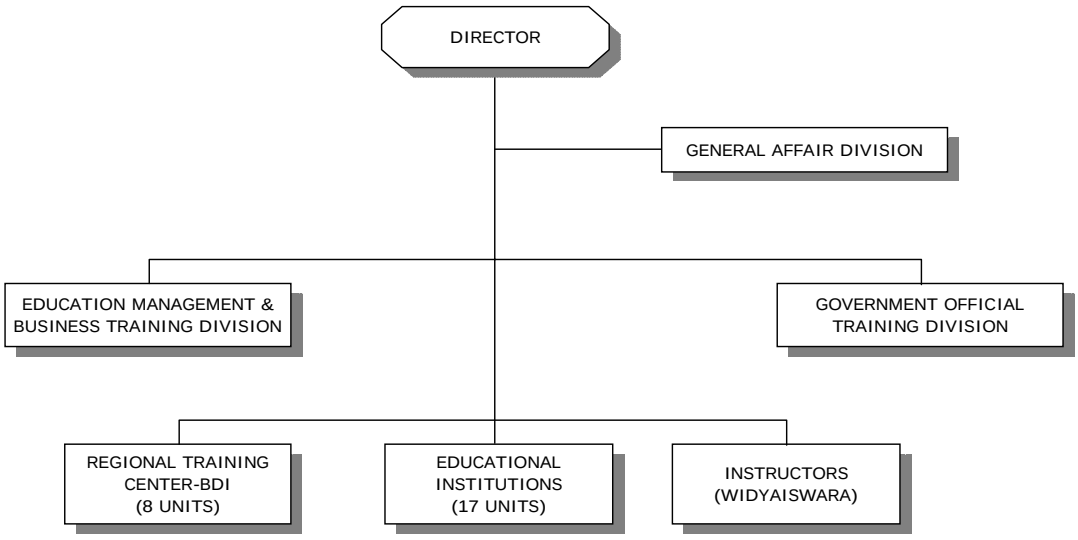
(1) PUSDIKLAT-INDAG

After the merge of two ministries, there were two training agencies under MOIT, 1) PUSBINLAT providing the academic education and training for private sectors and 2) PUADIKLAT providing training for the ministry staff and state-owned companies. Two agencies were merged to PUSDIKLAT-INDAG in June 2001 by decree.

PUSDIKLAT-INDAG is a HRD implementation agency under Secretary-General taking over the works of both former PUSBINLAT and PUSDIKLAT. The scope encompasses 1) training for ministry staffs and state-owned companies, 2) academic education and 3) training for private sectors.

Fig. 2-2 is the organization chart of PUSDIKLAT-INDAG. There are two (2) training centers in Jakarta with accommodations, and eight (8) regional training centers (BDI) which were under PUSDIKLAT-INDAG in Medan, Padang, Jakarta, Surabaya, Yogyakarta, Denpasar, Makassar and Bandung. Also PUSDIKLAT-INDAG runs 17 academic schools which were under PUSBINLAT. The 17 academic schools comprise of nine (9) vocational schools, including STMI and APP, and eight (8) colleges. At BDIs across the nation, the training for the provincial government staffs and state-owned companies is carried out. The supplementary training for the private sector targets mainly micro and small enterprises. Among 17 academic schools, STMI and APP have the training courses for the managers of SMEs.

Fig. 2-2 Organization Chart of PUSDIKLAT-INDAG



Source: PUSDIKLAT-INDAG

In 2003, PUSDIKLAT-INDAG provides in total 60 training programs for ministry staffs, state-owned companies, and private sectors. Out of 60, 13 programs were for ministry staffs, and 10 programs were for training of trainers (TOT).

Table 2-1 of the main Report includes training programs implemented by the headquarters of PUSDIKLAT-INDAG and two BDIs in 2003. Most of them dealt with general management theory and basic production technologies for local industries. There were no courses tailored to manufacturing industry. None of them targeted the supporting industry.

The average number of participants in the training was about 24. The target of each program is not clearly defined partly because of the intention of exchange promotion among ministry staffs, state-owned companies, and private sectors through the training programs. Table 2-1 of the main Report indicates the number of participants from SMEs, however, most of them were from micro and small enterprises.

For the selection of training themes, need assessment survey was done in 1999 from 20 to 25 SMEs of each of six (6) cities at a national level. But the survey has not been followed thereafter. Regarding the themes of training for the state-owned companies, PUSDIKLAT-INDAG has the regular contact with the person in charge of each company. At present, post-evaluation of the programs is not being done.

PUSDIKLAT-INDAG has about 120 internal instructors but no instructors of production technologies. As needs arise, PUSDIKLAT-INDAG invites outside instructors from universities or private training institutions.

The budget is divided into 1) routine budget and 2) project budget. Routine budget is for the fixed cost including salaries for the permanent staffs. The size of the project budget is 40 billion Rupiah for both 2002 and 2003. Out of the project budget, 2.5 to 3 billion Rupiah are allocated for the training programs and the rest is used for the maintenance of the facilities. Fees are not collected from the participants of the program for private sectors. Most of them are from micro or small enterprises.

(2) Directorate General of Small-Medium Scale Industries and Trade (IDKM)

IDKM is responsible for the formulation of promotion policy for SMEs in all sub-sectors of industry and trade. Focused on the manufacturing sector, the promotion of the supporting industry is one of the main missions of the IDKM.

Several sections of MOIT other than PUSDIKLAT-INDAG organize and provide the training programs for private sectors. The IDKM, whose principal mission is policy-making to promote SMEs, also provides training programs. Table 2-1 of the main Report lists training programs implemented by IDKM in 2001, 2002 and 2003. On average, the programs are conducted during one week for 20 – 30 participants. Some of the programs are implemented by other agencies with the fund of IDKM. There are cases where extension officers of IDKM work as an instructor. Most of the training instructors, however, are invited from outside. Fees are not collected from the participants of the programs.

As far as the Study Team investigated, IDKM does not have any section responsible for overall planning and implementation of the training programs.

(3) DINAS

IDKM used to have the regional offices. However, under the drive of the decentralization, the regional offices of IDKM were converted to Industry and Trade Offices (DINAS) belonging to the provincial governments in 2001. The project budget of IDKM for SMEs promotion in 2003 was about 53 billion Rupiah, out of which 30 billion Rupiah corresponding to 70% were passed to the DINAS. DINAS organize and implement various programs for SMEs promotion by own initiative. Besides the budgetary support, the function of the IDKM over activities by DINAS is limited to coordination. IDKM does not completely grasp the activities by DINAS.

DINAS of the provincial government of Surabaya, which is the second largest industrial area after Jakarta, has the yearly project budget of 4 billion Rupiah, 3 billion Rupiah from MOIT and 1 billion Rupiah from the provincial government. Out of 4 billion Rupiah, 26 million Rupiah are used for training programs for SMEs. Most of the programs are for the production technologies of local industries.

As mentioned above, DINAS plan and run various industry promotion programs with their own initiative with the subsidy from MOIT and their own budget from the provincial government. Table 2-1 of the main Report shows the list of training programs for SMEs by 28 DINAS for 2002. For 3,500 people, 217 training programs were carried out. There were many participants from micro enterprises. Table 2-1 is a summary of the 217 programs of Table 2-1 of the main Report based on the contents. The total number of

training programs of production technology for local industries accounts for 54.4%, and general management accounts for 22.1%.

Table 2-1 Training Programs by DINAS in 2002 by Category

Production Technology for Local Industries	118	54.4%
Management/Entrepreneurship/Registration	48	22.1%
Facilitator Training	16	7.4%
Quality	9	4.1%
Cleaner Production/Environment	8	3.7%
Fertilizer	6	2.8%
Metal Skills	5	2.3%
IT	4	1.8%
Packing	3	1.4%
Total	217	100.0%

Source: JICA Study Team

UPTs (Common Service Facilities) which were established at a national level to provide technical support to local SMEs also belong to DINAS. There are 90 UPTs at present. Facilities and equipment of most of the UPTs, however, are too old to meet the demand of the industry. The services of four (4) UPTs in Java including the UPT in the province of Surabaya, BPTLOGAM Sidoarjo, are relatively active to help local metal industry. But their services regarding HRD are limited to the training of machine operation.

(4) Metal Industries Development Center (MIDC)

MIDC used to be one of the technical centers under BPPIP for metal and machinery industries. Due to the stronger contact with the industry through various types of technical services, such as R/D and technical training programs, than other centers, MIDC came under IDKM in 2002. IDKM has a plan to convert MIDC into a core of its technical supports to manufacturing SMEs.

The specialties of MIDC are 1) casting 2) heat treatment and metal plating 3) machining 4) metal joining and forming 5) calibration and testing 6) CAD/CAM and 7) industrial management. Activities are R/D and trainings for private sectors and government officials. The percentage of the training is on the increase lately.

MIDC maintains a list of SMEs of the relevant sectors to whom the training programs are informed for participation. Table 2-1 of the main Report is a list of 17 training programs MIDC provided in 2003 to the industry. Most of the programs dealt with metalworking technology. Four (4) programs were for ISO 9000 series. Out of 17, five (5) programs were intended for SMEs.

(5) Agency for Research and Development of Industry and Trade (BPPIP)

Under BPPIP, there are eight (8) technical centers (Balai Besar) listed below and 13 regional offices (BARISTAND-INDAG).

Center for Chemical and Packaging – Jakarta
Center for Agro-based Industry – Bogor
Center for Material and Technical Product (B4T) - Bandung
Center for Pulp and Paper – Bandung
Center for Ceramic – Bandung
Center for Textile – Bandung
Center for Leather, Rubber and Plastic – Yogyakarta
Center for Handicraft and Batik - Yogyakarta

Secretariat of BPPIP controls the budget of Balai Besar and BARISTAND-INDAGs. Detailed planning of the activities is done by each Balai Besar or BARISTAND, but the overall policy is formulated by the Center for R/D of Industry and Trade. Refer to the Fig. 2-1.

Each Balai Besar has respective specialty area, and the scope of the activities covers R/D and training programs for private sectors. They have equipment and machinery necessary for the activities. BARISTAND concentrates on the technical support to local products of respective region. There are programs implemented by BARISTAND at the request of DINAS of the provincial government. But BARISTAND operates under control of BPPIP, and there is not any institutional cooperation with DINAS.

Table 2-1 of the main Report shows the training programs by eight (8) Balai Besar's and eight (8) out of 13 BARISTANDs in 2003. Programs by BARISTAND are intended to meet the needs of the local industries and there are many participants from micro enterprises.

(6) Indonesia Export Training Center (IETC)

IETC was established in 1989 under Ministry of Trade. After the merge of Ministry of Trade and Ministry of Industry, IETC belonged to PUSBINLAT of MOIT. Then, before the merge of PUSBINLAT and PUSDIKLAT, IETC moved under NAFED in 1998.

The mission of IETC is training and dissemination of the know-how of international trade. In order to expand its activities to a regional level, IETC is developing RETPCs (Regional Export Training Promotion Centers). The first RETPC was opened in Surabaya in 2002. By 2004, there will be four (4) RETPCs (Surabaya, Medan, Makassar, and Banjarmasin). Unlike BDI of PUSDIKLAT-INDAG and BARISTAND of BPPIP, RETPCs belong to DINAS operating with the budget from the provincial government, NAFED and IETC. Conversion of RETPC to UPT is in the study.

Activities of IETC are:

- Education for 1) export-import management 2) rubber technology
- Training of 1) international trade 2) quality control 3) exhibition 4) business language
- Consultation for 1) post training 2) product testing

Table 2-1 of the main Report shows the number of training programs conducted by IETC and participants in 2003 by category. Total number of programs was 96 and total number of participants was 2,389. The 95% of participants in education and training are junior staff of SMEs, 80% of which are from manufacturing sectors and 20% from trading companies. The remaining 5% are government officials.

IETC has 20 internal instructors. Training is provided by internal and outsourced instructors. The routine budget for 2003 was 2.54 billion Rupiah and project budget was 3.15 billion Rupiah. A half of the project budget is used for maintenance of facilities and purchase of new equipment. Two (2) billion Rupiah are allocated for implementation of the training programs. On the other hand, the amount of self-finance reached 5.5 billion Rupiah accounting for 49% of the total budget.

2.1.2 Other Ministries Relating to Human Resource Development

Besides MOIT, the following ministries are executing human resource programs:

(1) Ministry of Manpower and Transmigration (MOMT)
(2) Ministry of National Education (MONE)
(3) Ministry of Cooperatives and Small and Medium Enterprises (MOCSME)

(1) MOMT

MOMT conducts training under the mission of "Getting people well-prepared to enter the job market". Therefore, the objective of the training held by MOMT specifically is to reduce the high unemployment. MOMT provides so many training programs replying the job market requirements. The training itself is more concentrated on how people can find a job either locally or abroad at any education level.

1) SYSTEM

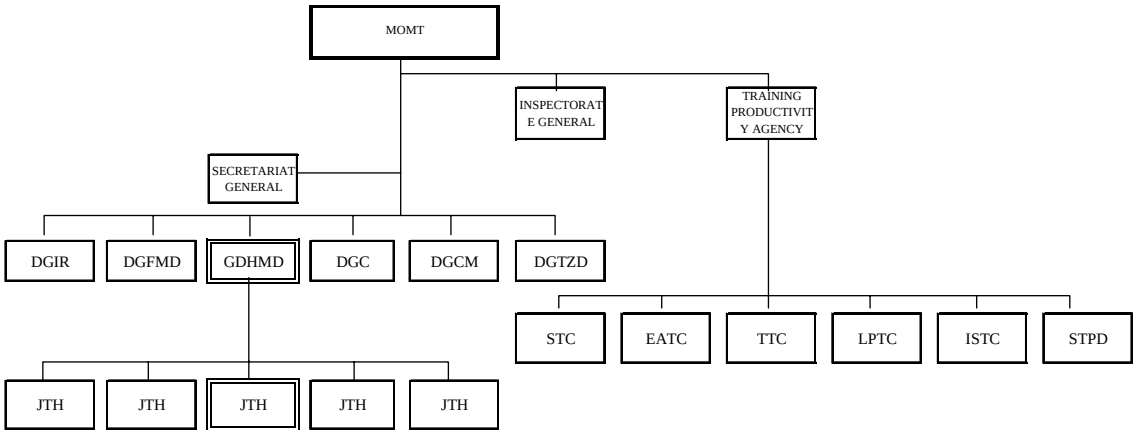
Prior to step forward into the training contents and scheme, the history of each department at MOMT will be introduced. Actually, this department is a merger of two departments. The Department of Manpower is one side and the Department of Transmigration is the other side. Each of the departments has a training center. They are still on service even after the merger of the departments.

There are two training centers as:

- BLK (Balai Latihan Kerja) or JTH (Job Training House).
- Badan Pelatihan dan Produktivitas Pegawai or Training and Productivity Agency

Organization chart showing the position of JTH and Training Productivity Agency is shown below:

Fig. 2-3 Organization Chart of MOMT



NOTE:

DGHMD: Directorate General Home Manpower Development
DGFMD: Directorate General Foreign Manpower Development
DGIR: Directorate General Industries Relationship
DGC: Directorate General Control
DGCM: Directorate General Resident Mobility
DGTZD: Directorate General Transmigration Zone Development
STC: Staff Training Center
EATC: Employment Abroad Training Center
TTC: Transmigration Training Center
LPTC: Labor Productivity Training Center
ISTC: Industries and Services Training Center
STPD: Secretariat of Training & Productivity Agency
JTH: Job Training House

Source：MOMT

2) Training Program held by JTH

There were 156 JTHs (BLK) all over Indonesia under the supervision of MOMT in the past. After decentralization policy has been enforced 150 JTHs belong to the provincial government. The remaining 6 JTHs are now supervising the activities of other JTHs as UPT.

The 6 JTHs are located in Medan, Samarinda, Makasar, Surabaya, Lembang and Serang. They are called Center of Job Training House and are fully financed by the Central Government.

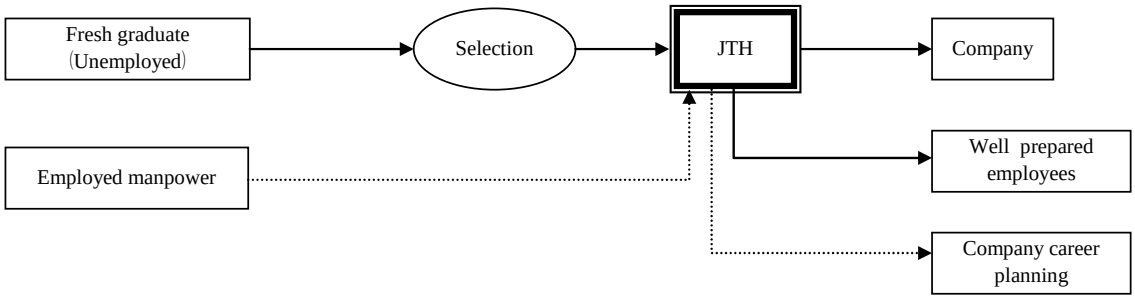
The training is provided for new graduate and consists of some subjects in line with the job market requirements i.e.:

Mechanical Engineering, Automotive, Electricity, Construction, Motor Cycle Mechanic, Handy Craft etc.

These JTHs also provide a vocational training for industries that expect to improve the technical skill of employees.

The training scheme of JTH can be drawn as follows:

Fig. 2-4 Training Scheme at JTH



Source：JICA Study Team

3) Training Program held by Training and Productivity Agency

Previously, there were two PUSDIKLATs in the past. One is Pusat Pelatihan Transmigran (Training Center for Transmigration) and another is Pusat Pelatihan Pegawai (Training Center for staff), and after 1999 they were consolidated into Badan Pelatihan dan Produktivitas (Training and Productivity Agency).

There are six sections in the Agency:

1. *Sekretariat Badan Latihan dan Produktivitas (Secretariat of Training and Productivity Agency).*

   The principal activity of Secretarial of Training and Productivity Agency is publicity work to disseminate activity of the Center as a whole.

2. *Pusat Latihan Transmigrasi (Transmigration Training Center).*

   Transmigration Training Center provides training to people who are willing to move to another area within the country of Indonesia. This training puts more

emphasis on to train peoples in the field of agriculture, such as how to use the best fertilizer, how to maintain the irrigation, how to develop new plants and so on.

3. Pusat Pelatihan Tenaga Kerja Luar Negeri (Employment Abroad Training Center) formerly called CEVEST, located in Bekasi.

Employment Abroad Training Center provides training by Japanese instructors and the trainee who graduated from this training center is well prepared to follow the job training in Japan. But currently it has changed. The training is provided for other participants who want to get a job in another country such as Saudi Arabia as well. The curriculum includes intensive foreign language course. All participants who passed from this training are afford to communicate with a language used in the target country for his or her job.

In addition, CEVEST has more important rolls to industry as 'trainer's training (TOT)', 'general skill training' and 'issuing skill certificate'.

TOT under CEVEST covers the following 8 sub-sectors and fundamental skills:

1) Machining, 2) Electric, 3) Welding, 4) Metalworking, 5) Automotive, 6) Information, 7) Electronics, 8) Industrial Electronics

In addition, furniture course is under preparation now.

The training for vocational instructors (TOT) is held to provide skilled and competent government and non-government instructors, and is made of the 4 training programs as 1)initial training (long training), 2)skill upgrading training, 3)promotion training and training technologies.

4. Pusat Pendidikan Pegawai (Staff Training Center).

Staff Training Center provides training for the staffs of the Department of Manpower and Transmigration for career planning.

5. Pusat Pelatihan Industri Jasa dan Manufaktur (Manufacturing Industries & Services Training Center), located in Bandung.

Manufacturing Industries & Services Training Center provides training for people who want to find a job and people who want to improve the skill to find better job, and also provide training for the trainer. This training center provides some training among other things:

- Mechanic
- Electronic
- Automotive
- Plumbing
- Welding

- Electric
- Construction
- Information Technology.

This training targets to boost skills of participants so the duration of training depends on the subject to be taken. Generally, each subject varies from 3 to 6 months. The trainees are able to acquire advanced technical skills with full assistance from high proficient instructors. Therefore, this training center is called as “Center of Excellent”.

The main emphasis of this training center is to advance the learning of the participants and provide them with the means to develop their own lives and careers.

6. *Pusat Produktivitas Tenaga Kerja (Manpower Productivity Center).*

Manpower Productivity Center provides management training to some institutions specifically in order to get ISO Certificate and other Industrial Certification for the business support.

(2) Ministry of National Education (MONE)

The Minister conducted national education with a mission: “To educate citizens to be smart and wise”, and under this mission, all citizens have a chance to get formal education for the duration of 9 years or until graduation from Junior High School.

The children at seven years old have a right to enter primary school for the duration of six years and they can enter Junior High School for three years after success of level six achievement test at the end of primary school. This is the mandatory education regulation that all citizens should have to obtain. For the poor after passed from level three of Junior High School, they may find a job or attend short course such as beautician, hairdresser, mechanic, tailor and afterward they may find a job.

Remaining students can continue their study at Senior High School and after they try to find a job or chose to continue. Many choices of the study are available such as Diploma I for 1-year duration, Diploma II for 2 years duration, Diploma III or Polytechnic for 3 years duration, or University for 4 years duration.

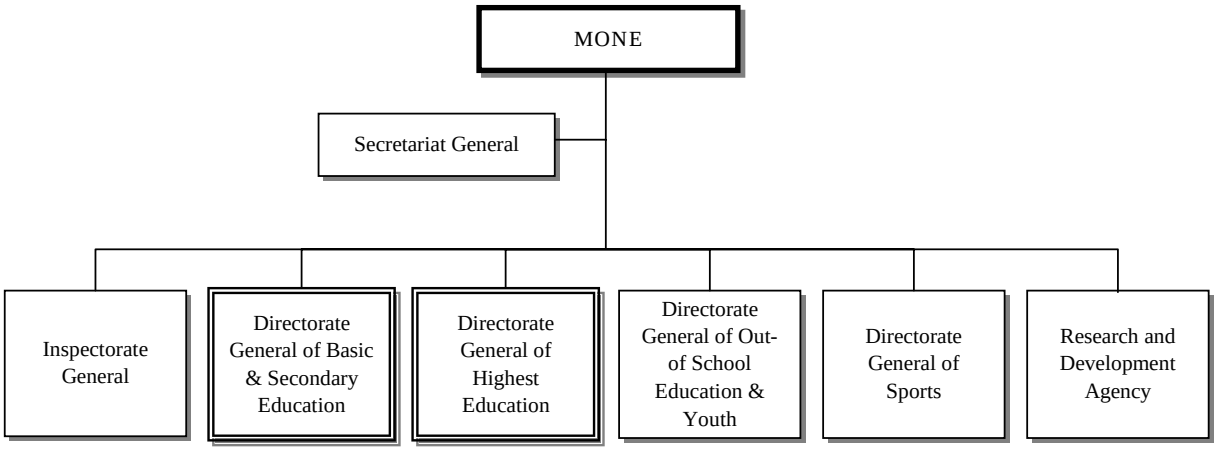
When we focus on the skill training/education rather than general education, it is covered by “vocational secondary education (SMK) and consists of 6 study groups as 1.Agriculture

and forestry group, 2.Technology and industry group, 3.Business and management group, 4.Community's welfare group, 5.Tourism group, and 6.Arts and handicrafts.

Polytechnics play an important role for industries to nurture quality technicians not only to incubate younger and candidate technicians (students). Some private polytechnic established under the technical and financial assistance from foreign countries, are well organized and afford to nurture quality technicians for the industry.

Organizational structure of the ministry and the concerned division for secondary and higher education is shown below.

Fig. 2-5 Organization Chart of MONE



Source: MONE

(3) Ministry of Cooperatives and Small and Medium Enterprises (MOCSME)

The training conducted by MOCSME has more emphasis on providing knowledge to cooperative members and SMEs. The mission is to coordinate members and to improve the capability of business management. Therefore, the training is corresponding to the business requirements to develop human resources in the cooperative members in order to contribute to the economy.

1) SYSTEM

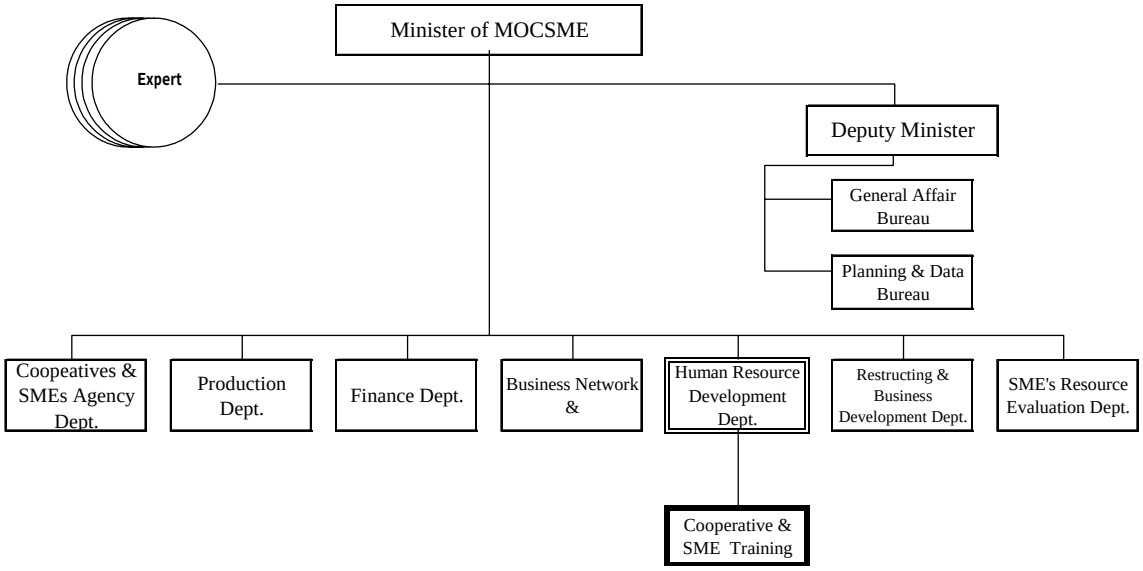
There are no clear demarcation in SMEs promotion between MOIT and MOCSME even though the presidential law No. 201 of the year 2001 regulates the MOCSME as a policy maker for SME promotion. Rather, services conducted by the both ministries indicate that

MOCSME targets mainly small to micro farming industry to secure social welfare and MOIT for small to medium enterprises in the view of strengthening industrial development.

Cooperative is a business entity set up by individuals who usually only has a small amount of capital, and the business itself managed by one or two of the elected members. Cooperative members are cooperative committees and playing a wide role in the organization. To improve the capital of cooperative members, it is obliged to deposit a monthly contribution at certain amount called contribution by obligation in addition to voluntary contribution.

In 1999, the independent agency of Cooperative & SME was liquidated and changed into State Ministry of Cooperative & SME and there was a new organization called SMECDA as the executive body, while the State Ministry of Cooperative & SME as policy maker. By this organization, the State Ministry of Cooperative & SME has 7 deputies to manage all kinds of Ministry activities as shown in the structure of organization below.

Fig. 2-6 Organization Chart of MOCSME



Source: MOCSME

Seen from organization above before the year 1999 there was Puslatkop & PK (Cooperative and SME Training Center) and Pusat Pelatihan Pegawai (Staff Training Center) located in Jakarta, and 27 Balatkop & PK (Cooperative & SME Training Agency) located in each of province in Indonesia were under MCSME supervision. And since 1999,

said training activity was taken over by SMECDA, especially for cooperative and SME training, and then, in 2001, due to the liquidation of SMECDA, the training activity held by SMECDA is transferred to MOCSME.

In connection with the decentralization, training agencies under the Cooperative & SME were taken over by province and currently it seems there is no activity anymore.

2.2 Private Sector

There are various private organizations for human resource development nationwide. The following private organizations that are representing each society or sub-sector group contribute much to the human resource development for the industry.

2.2.1 Non-profit Organizations

(1) YAYASAN PENDIDIKAN MATSUSHITA GOBEL (YPMG)

YPMG is an independent non-profit private organization established for human resource development to the public. YPMG's services started in 1979 and actual public services such as workshop-based practical trainings are handled by LPSM (Human Development Institute under YPMG). LPMS offers regular and custom-designed training programs as well as seminars and workshops in the areas of manufacturing-related management and technical skills mainly in electrics and electronics field.

Six (6) full-time and forty-three (43) part-time instructors manage training programs offered by LPSM. In case of necessity, strong supports such as machine/equipment donation and or dispatching instructors to training programs. International agencies such as JICA (Japan International Cooperation Agency), OVTA (Overseas Vocational Training Association of Japan), JODC (Japan Overseas Development Corporation) etc. have been supporting the activity of LPSM mainly through technical collaboration.

(2) YAYASAN DHARMA BHAKTI ASTRA (YDBA)

YDBA is a member of ASTRA Partnership headed by both ASTRA Group*) and ASTRA International. Strictly speaking, ASTRA International sponsors YDBA. YDBA was established in 1980 to render non-profit social contribution to public. More precisely,

*) ASTRA Group: Astra Mobil, Toyota Astra Motor, Astra Heavy Industry, Astra Honda Motor, Astra Otopart and Astra Agro Lestari

YDBA is expecting to promote the growth of SME possessing a high competitive ability in the domestic as well as in the global market

YDBA's service has two directions. One is technical training to ASTRA affiliated companies and another is promotion of SMEs and micro-enterprises through training in both technical and managerial aspect, matchmaking, production control, and financial assistance. As for financial assistance, ASTRA Partnership has an agent opened for intermediate services among commercial banks and SMEs.

As for instructors, YDBA has regular instructors only in financing and repair/maintenance of automobiles. Training programs in other fields have been provided by out-sourcing method.

(3) YAYASAN BINA MITRA BAKRIE (YBMB)

YBMB is a non-profit foundation to optimize the proceeding of partnership program within Bakrie group, in order to achieve synergy advantages obtainable from the partnership programs conducted. Recently, in order to comply with social compliances, YBMB started the following services to non affiliate SMEs:

- BDS for small farmers inclusive of plantation workers
- Business matching
- Community development to nurture entrepreneurship
- Production skill training and auditing
- Management technology training(marketing, trading, financing, environmental protection)
- Credit guarantee for SMEs

These services are available upon request from the SMEs and YBMB has neither regular training programs nor in-house lecturers. When YBMB requested assistance from SMEs, they will prepare training program with outsourcing method.

2.2.2 Management Institutions

There are many private management institutions nationwide. Some management consulting firms operate management training school as a part of services opened for industry. On the other hand, there are some private management institutions specializing only in human resource

development through school education. PPM is one of the most successful and high-level institutions for management skill development through school education in the country.

(1) PPM (Pusat Pengembangan Manajemen): Center for Management Development

PPM is one of the oldest private management school, founded in 1967, to nurture promising managers. Therefore, programs provided by PPM target management specialists and/or people in industry who are seeking for higher knowledge and understandings in management.

Around 12,000 people from different companies, organizations and different positions attend the program annually to develop themselves. The 69 executive development programs and one program for new managers were provided in 2003.

(2) ASTRA MANAGEMENT DEVELOPMENT INSTITUTE (AMDI)

AMDI is an institute opened only for employees in ASTRA affiliate companies to satisfy specific needs within the affiliates. Topics and target goals in each training program offered in the institute are complying with the actual request from the affiliates. Their influence to the industry cannot be neglected though AMDI's services are limited only to affiliates. Because the number of employees covered in ASTRA partnership is huge in the country.

Curriculum is separated into four major courses as:

1. Leadership competence
2. Functional competence
3. Basic competence
4. In house training

(3) PRASETIYA

Just like PPM, PRASETIYA is a business management school opened for all the industry. The training programs provided by the school are targeting practical topics that are required for business activities rather than boosting business knowledge at all. However, programs are specialized only in the management technology but no programs that are targeting production control and production technology is provided. Almost all the training programs are consisted of short courses and not one of them exceeds 5 days.

2.2.3 POLMAN (Manufacturing orient polytechnic)

POLMAN under supervision of MONE are categorized in higher education institutions.

Three POLMAN introduced here are popular for practical and systematic training programs. Two of them are established by foreign assistance about 30 years ago and are of European style craftsman bringing-up program concentrating on production techniques at real manufacturing process. These are D-III level higher education institutes, but their services are opened for industry as well.

Most of the training programs for industry are provided upon request. Therefore, the training range from basic to advance level of technology is available.

(1) POLMAN ATMI (Akademi Teknik Mesin Industri)

ATMI founded in 1968. ATMI provides mechanic and manufacturing technology rather than management technology. As of May 2002, there is 284 staff within the institution. The mission of the institution, if we quote from the profile, the program is designed to provide professional and skilled labor for the industry, and the educational focus is on a method which is known as: production based education and training.

Main fields of services opened to industry are consulting, technical research and skill training. Following industrial trainings are available as a regular program:

Table 2-2 Major and Regular Training Programs Opened for Industry (ATMI)

a. Basic mechanics	b. Technical drawing	c. Mould maintenance
d. Applied mechanics	e. CAD / CAM / CATIA	f. Maintenance & repair
g. Advanced mechanics	h. Heat treatment	i. Workshop management
j. CNC programming	k. Metal sheet fabrication	l. Pressing tool design
m. Welding		

Source : POLMAN ATMI

In addition to the regular program, custom-made program is available upon request from industry. Training course for plastic mould fabrication, for example, can be provided as a special course.

(2) Polytechnic Manufaktur (POLMAN), Bandung

POLMAN was established in 1976 under the technical and financial assistance from Switzerland and ITB (Institute of Technology, Bandung). Its history, how the POLMAN came about and services for industry are almost same as ATMI. Similar training programs as ATMI are prepared for industry. Nowadays, 41 regular training programs and irregular but special programs (custom made) have been opened for industry. For example, the following training programs were opened:

Table 2-3 Major and Regular Training Programs Opened for Industry (POLMAN Bandung)

a. Basic mechanics	b. Technical drawing	c. Mould maintenance
d. Applied mechanics	e. CAD/CAM	f. Maintenance & repair
g. Advanced mechanics	h. Heat treatment	i. Workshop management
j. CNC programming	k. Metal sheet fabrication	l. Die casting
m. Pressing tool design	n. Welding	o. Foundry techniques
p. Production control	q. Mechatronics	

Source : POLMAN Bandung

Also, custom-made training programs will be opened upon request from industry. It includes plastic processing technology.

(3) POLMAN ASTRA

POLMAN ASTRA is founded by ASTRA foundation.

Production based education and training system with technical support from ASTRA group (TOYOTA, HONDA, ISUZU, DAIHATSU, NISSAN DIESEL, BMW, PUJET, KAMATSU, PATRIA, AGRO-BUSINESS) is the strength and educational principle of ASTRA.

As for vocational training and industrial training, 1,100 to 1,500 gross totals of trainees have participated annually in these few years. Objectives of the industrial training are ‘skill training for job seekers’, ‘technology transfer to SME’ and ‘improvement of production techniques for operators’. These industrial trainings are not limited to ASTRA affiliate members.

ASTRA has special advantages in metalworking and electrical control devices and software field because technical assistance and manpower are available from the supporting organization.

2.3 Overview of Off-JT Organizations and Supply Capacity

The following two tables are summing-up of training programs in the field of fundamental production technology, and management technology including production control technology respectively.

(1) Trainings for Skills/Techniques

As shown in the Table 2-4, most of the production technology training seems to place emphasis on the basic skills as vocational training or skill improvement for operators.

Advanced level training, however, is available at the higher education institutions as an irregular course or a custom made program upon request from industry. YPMG is trying to correspond to specific training needs from industry especially in the field of electrics and electronics related technology utilizing full advantages of technical assistance from Matsushita-Gobel group and foreign technical assistance.

Also, POLMAN can afford to provide both regular training and custom-made program to industry. Especially, three POLMAN listed in the table have strength in practical training that can meet the technical requirement from the global market in supplying parts and components.

Table 2-4 Number of Training Programs and Estimated Number of Participants at Major Training Institutes

(Major Training Programs opened for Industry：Production technology/ techniques)

Criteria		Metalworking									
		Private agencies									Public
		NON PROFIT FOUNDATION			MANAGEMENT INSTITUTE			POLMAN			MOMT
		YPMG	YDBA	BAKRIE	PPM	AMDI	PRASETIYA	ATMI	BANDUNG	ASTRA	CEVEST
Vocational skills (basic)	No.of programs (actual)	1	4	0	0	0	0	4*	4	6	8.1
	Annual participants (estimate)	n.a.	1800	0	0	0	0	120	n.a.	n.a.	324
Engineering /Design (intermediate)	No.of programs (actual)	3	0	0	0	0	0	3*	2	2	84
	Annual participants (estimate)	n.a.	n.a.	0	0	0	0	100	n.a.	n.a.	336
R/D (advance)	No.of programs (actual)	1	0	0	0	0	0	n.a.	n.a.	3	0
	Annual participants (estimate)	n.a.	n.a.	0	0	0	0	n.a.	n.a.	n.a.	n.a.

Criteria		Plastic									
		Private agencies									Public
		NON PROFIT FOUNDATION			MANAGEMENT INSTITUTE			POLMAN			MOMT
		YPMG	YDBA	BAKRIE	PPM	AMDI	PRASETIYA	ATMI	BANDUNG	ASTRA	CEVEST
Vocational skills (basic)	No.of programs (actual)	1	*	0	0	0	0	1*	*	1	n.a.
	Annual participants (estimate)	n.a.	*	0	0	0	0	30	n.a.	100	n.a.
Engineering /Design (intermediate)	No.of programs (actual)	2	*	0	0	0	0	1*	*	1	n.a.
	Annual participants (estimate)	n.a.	*	0	0	0	0	n.a.	n.a.	30	n.a.
R/D (advance)	No.of programs (actual)	1	*	0	0	0	0	n.a.	n.a.	n.a.	n.a.
	Annual participants (estimate)	n.a.	*	0	0	0	0	n.a.	n.a.	n.a.	n.a.

Criteria		Die/Mold									
		Private agencies									Public
		NON PROFIT FOUNDATION			MANAGEMENT INSTITUTE			POLMAN			MOMT
		YPMG	YDBA	BAKRIE	PPM	AMDI	PRASETIYA	ATMI	BANDUNG	ASTRA	CEVEST
Vocational skills (basic)	No.of programs (actual)	0	2	0	0	0	0	2	2	2	36
	Annual participants (estimate)	0	800	0	0	0	0	60	n.a.	n.a.	144
Engineering /Design (intermediate)	No.of programs (actual)	0	2	0	0	0	0	1*	2	2	50
	Annual participants (estimate)	0	800	0	0	0	0	30	n.a.	n.a.	200
R/D (advance)	No.of programs (actual)	0	0	0	0	0	0	n.a.	n.a.	n.a.	0
	Annual participants (estimate)	0	0	0	0	0	0	n.a.	n.a.	n.a.	0

Criteria		Final Treatment									
		Private agencies									Public
		NON PROFIT FOUNDATION			MANAGEMENT INSTITUTE			POLMAN			MOMT
		YPMG	YDBA	BAKRIE	PPM	AMDI	PRASETIYA	ATMI	BANDUNG	ASTRA	CEVEST
Vocational skills (basic)	No.of programs (actual)	3	*	0	0	0	0	1	1	1	8
	Annual participants	n.a.	*	0	0	0	0	n.a.	n.a.	n.a.	32
Engineering /Design (intermediate)	No.of programs (actual)	0	*	0	0	0	0	1	1	1	0
	Annual participants	0	*	0	0	0	0	n.a.	n.a.	n.a.	0
R/D (advance)	No.of programs (actual)	0	n.a.	0	0	0	0	n.a.	n.a.	n.a.	0
	Annual participants	0	n.a.	0	0	0	0	n.a.	n.a.	n.a.	0

Criteria		Traditional Skills									
		Private agencies									Public
		NON PROFIT FOUNDATION			MANAGEMENT INSTITUTE			POLMAN			MOMT
		YPMG	YDBA	BAKRIE	PPM	AMDI	PRASETIYA	ATMI	BANDUNG	ASTRA	CEVEST
Vocational skills (basic)	No.of programs (actual)	0	*	0	0	0	0	*	*	*	2
	Annual participants	0	*	0	0	0	0	*	*	*	n.a.
Engineering /Design (intermediate)	No.of programs (actual)	0	n.a.	0	0	0	0	*	*	*	*
	Annual participants	0	n.a.	0	0	0	0	*	*	*	*
R/D (advance)	No.of programs (actual)	0	n.a.	0	0	0	0	n.a.	n.a.	n.a.	*
	Annual participants	0	n.a.	0	0	0	0	n.a.	n.a.	n.a.	*

Remarks Data in the table indicates regular ongoing training programs except custom made program
Polytechnic is a DIII level institute to nurture quality technicians. Annual graduates is 100 to 120 except those people received short training programs
No. of programs at each criteria in Polytechnic are estimated by JICA team based on the curriculum.
BAKRIE(YAYASAN BINA MITRA BAKRIE) provides services under request base from industry. Bakrie has no regular training programs now.
*: Exact data is not available but trainings have been provided irregularly
1*, 2*, 3*, 4*: at least 1 or 2 or 3 or 4 training programs are provided to industries
n.a.: Not available
Criteria of technique and skills are made by the JICA team

Source：JICA Study Team

(2) Trainings for Management and Production Control Technologies

Table 2-5 shows a general figure of trainings conducted in the popular private organization in the Republic.

Advanced level training is available at organizations that have boasts of the strength of its finance and network or at management schools having quality lecturers/instructors. Two

non-profit foundations and three management institutes are included in this category. Moreover, some management-consulting firms are preparing training programs to industry as well. However, their capability and achievements are separated into two types: high quality and low quality.

Table 2-6 Number of Training Programs and Estimated Number of Participants at Major Training Institutes

(Major Training Programs opened for Industry: Management Technology)

Criteria		Administrations										
		Private Agencies									Public Entities	
		NON PROFIT FOUNDATION			MANAGEMENT INSTITUTE			POLMAN			MOMT	Province
		LPSM	YDBA	BAKRIE	PPM	AMDI	PRASETIYA	ATMI	BANDUNG	ASTRA	CEVEST	PEMDA
Basic course [1]	No. of programs (actual)	0	2	0	0	1	0	0	0	0	0	n.a.
	Annual participants (estimate)	0	800	0	0	200	0	0	0	0	0	n.a.
General management skills [1]	No. of programs (actual)	2	2	0	0	2	0	0	0	0	0	n.a.
	Annual participants (estimate)	180	800	0	0	450	0	0	0	0	0	n.a.
Business tactics development [1]	No. of programs (actual)	1	n.a.	0	6	5	20	0	0	0	0	n.a.
	Annual participants (estimate)	240	n.a.	0	750	300	1600	0	0	0	0	n.a.

Criteria		Marketing/Sales Promotion										
		Private Agencies									Public Entities	
		NON PROFIT FOUNDATION			MANAGEMENT INSTITUTE			POLMAN			MOMT	Province
		LPSM	YDBA	BAKRIE	PPM	AMDI	PRASETIYA	ATMI	BANDUNG	ASTRA	CEVEST	PEMDA
Basic course [1]	No. of programs (actual)	0	2	0	0	0	0	1	1	1	0	n.a.
	Annual participants (estimate)	0	800	0	0	0	0	130	100	100	0	n.a.
General management skills [1]	No. of programs (actual)	0	2	0	0	0	0	0	0	0	0	n.a.
	Annual participants (estimate)	0	800	0	0	0	0	0	0	0	0	n.a.
Business tactics development [1]	No. of programs (actual)	1	n.a.	0	7	1	11	0	0	0	0	n.a.
	Annual participants (estimate)	60	n.a.	0	475	100	400	0	0	0	0	n.a.

Criteria		Human Resource Development										
		Private Agencies									Public Entities	
		NON PROFIT FOUNDATION			MANAGEMENT INSTITUTE			POLMAN			MOMT	Province
		LPSM	YDBA	BAKRIE	PPM	AMDI	PRASETIYA	ATMI	BANDUNG	ASTRA	CEVEST	PEMDA
Basic course [1]	No. of programs (actual)	0	0	0	2	0	0	1	1	1	0	n.a.
	Annual participants (estimate)	0	0	0	100	0	0	130	100	100	0	n.a.
General management skills [1]	No. of programs (actual)	1	0	0	2	2	0	0	0	0	0	n.a.
	Annual participants (estimate)	100	0	0	100	175	0	0	0	0	0	n.a.
Business tactics development [1]	No. of programs (actual)	1	0	0	8	2	11	0	0	0	0	n.a.
	Annual participants (estimate)	125	0	0	900	275	1175	0	0	0	0	n.a.

Criteria		Finance										
		Private Agencies									Public Entities	
		NON PROFIT FOUNDATION			MANAGEMENT INSTITUTE			POLMAN			MOMT	Province
		LPSM	YDBA	BAKRIE	PPM	AMDI	PRASETIYA	ATMI	BANDUNG	ASTRA	CEVEST	PEMDA
Basic course [1)]	No. of programs (actual)	0	2	0	0	0	0	1	1	1	0	n.a
	Annual participants (estimate)	0	800	0	0	0	0	130	100	100	0	n.a
General management skills [1)]	No. of programs (actual)	0	2	0	0	0	2	0	0	0	0	n.a
	Annual participants (estimate)	0	800	0	0	0	200	0	0	0	0	n.a
Business tactics development [1)]	No. of programs (actual)	0	0	0	6	1	10	0	0	0	0	n.a
	Annual participants (estimate)	0	0	0	475	50	500	0	0	0	0	n.a

Criteria		Production Control										
		Private Agencies									Public Entities	
		NON PROFIT FOUNDATION			MANAGEMENT INSTITUTE			POLMAN			MOMT	Province
		LPSM	YDBA	BAKRIE	PPM	AMDI	PRASETIYA	ATMI	BANDUNG	ASTRA	CEVEST	PEMDA
Basic course [1)]	No. of programs (actual)	8	2	0	0	2	0	1	1	3	9	n.a.
	Annual participants (estimate)	1040	800	0	0	150	0	130	100	100	225	n.a.
Business tactics development [1)]	No. of programs (actual)	1	0	0	4	3	11	2	2	2	0	n.a.
	Annual participants (estimate)	20	0	0	375	150	475	260	200	200	0	n.a.

Remarks - Number of trainees in the table is of the regular course curriculum and custom made programs are not included.
- YDBA limits their services to affiliate companies within ASTRA International.
- 1): For classification of management technologies, refer to Chapter 4.

Source: JICA Study Team

3. Demand Surveys for Human Resource Development

3. Demand Surveys for Human Resource Development

The Study team conducted two surveys of manufacturing SMEs in the supporting industry to make sure and assess the demands of small and medium enterprises for human resource development. The team carried out 1) the interview survey and 2) the questionnaire survey.

(1) Interview Survey

The experts of the Study team who have long experiences to consult and train SMEs visited the SMEs and interviewed their policy and activities of human resource development.

The team selected 80 parts and components manufacturers for assemblers of transportation equipment, electric and electronic appliances, and general machineries. The local SMEs which have not yet a constant and stable contract with assemblers were targeted.

The selection was made using the directories of industrial associations. In addition, some of the large scale foreign assemblers were visited to ask them to introduce the local supporting SMEs.

(2) Questionnaire Survey

Through the interviews of the local consultant visit, questionnaires survey to 263 SMEs of the supporting industry in Jakarta, Bandung, Semarang and Surabaya was conducted.

3.1 Questions

The following questions were asked in the interview and questionnaire surveys.

(Interview Survey)

(1) Outlines of the company
(2) What is the urgent problem of your company to solve? How do you evaluate the competitiveness of your products?
(3) Policies for human resource development of the staff?
(4) Past records of the Off-JT (subject, training agency, trainees, results)？
(5) Priority area and target employees for the Off-JT in the future?
(6) If you are not interested in the Off-JT, why?
(7) Do you know the MOIT training agencies and their programs?
(8) Have you invited the consultants or advisors from outside? If yes, in which area? Results?
(9) Do you want the support of outside consultants or advisors in the future?
(10) Any requests to the Government on the human resource development?

(Questionnaire Survey)

(1) How do you grapple with the problem of training?
(2) Past records of the Off-JT (subject, training agency, trainees)？
(3) Comments on the cost of the Off-JT
(4) Results of the Off-JT?
(5) If results were negative, what do you think was the reason?
(6) How did you know the Off-JT programs to which you sent your staff?
(7) Will you send your staff to the Off-JT in the future?
(8) If you are not interested in sending your staff to the Off-JT, why?
(9) Priority area and target employees for the Off-JT in the future?
(10) What kind of training do you prefer?
(11) Available time or duration of the Off-JT?
(12) Any limit of cost to bear?
(13) Have you invited the consultants or advisors from outside? In which area? Results?
(14) Do you want the support of outside consultants or advisors in the future? In which area?
(15) Do you know the MOIT training agencies and their programs?
(16) Any requests to the Government on the human resource development?

3.2 Outline of the Companies

The outline of the target companies for the interview and questionnaire survey is as follows. For business development stages, see 3.3.

Table 3-1 Summary of SMEs Surveyed

		Interview survey		Questionnaire survey	
Number of the surveyed companies		80 companies in Jakarta		263 companies in Jakarta, Surabaya, Semarang and Bandung	
Industry or Products					
	Transportation machinery	42	51%	192	73%
	Electrical/ electronics appliances	28	34%	67	25%
	Jig, tools, metal fittings	5	6%	-	-
	Others	7	9%	4	2%
	Total	82	-	263	-
Technology fields					
	Press	13	12%	91	35%
	Dies/ moldings	-	-	54	21%
	Plastic injection	-	-	4	2%
	Plastic tooling	18	17%	-	-
	Casting	11	10%	24	9%
	Forging			10	4%
	Machining	-	-	24	9%
	Machine tooling/ metal dies	39	36%	-	-
	Assembling	10	9%	51	19%
	Surface treatment	5	5%	-	-
	Sheet metal/ welding	3	3%	-	-
	Heat treatment	3	3%	-	-
	Others	5	5%	5	2%
	Total	107	-	263	-
Business development (Stages)					
	Stage 1	-	-	111	42%
	Stage 2	5	6%	85	32%
	Stage 3	20	25%	38	15%
	Stage 4	24	30%	28	11%
	Foreign owned/ joint venture	31	39%	-	-
	Total	80	–	262	-

Source: JICA Study Team

3.3 Business Development of the SMEs in the Supporting Industry

To analyze the results of the demand surveys of the supporting industry, SMEs were classified into four (4) groups by the stage of business development based on the contract situation with the OEM buyers. See Fig.3-1.

Stage-1 Products are for after-market.

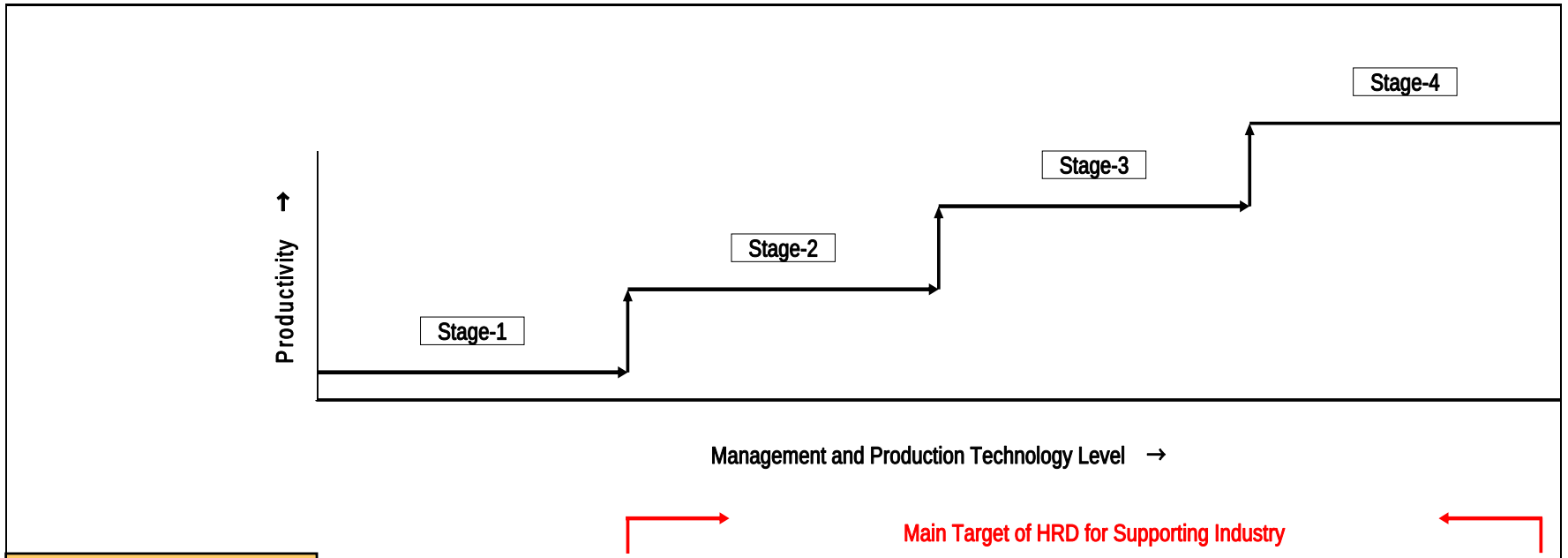
Stage-2 QCD (Quality, Cost, and Delivery) of the products have not reached the audit level of the OEM buyers yet.

Stage-3 Contract with the OEM buyers is unstable.

Stage-4 Contract with the OEM buyers is stable.

The criteria for classification of SMEs by stage established by the interview survey were applied to analyze the questionnaire survey.

Fig. 3-1 Business Development by Stage



Business Development		potential SMEs for Supporting Industry	viable SMEs for Supporting Industry	Supporting Industry
Market	Mostly to after-market	does not reach audit level	unstable contract with buyers	stable contract with buyers
Sales per Employee per year	less than 10 million Rp.	10 - 30 million Rp.	30 - 50 million Rp.	more than 50 million Rp.
Rejection Rate	more than 10%	9% - 1%	0.9 - 0.1%	less than 0.1%
Stock Control	3 months	1 months	0.3 month	less than 0.1 month
Delivery Control	10%	1%	0.1%	0.01%

Source: JICA Study Team

3.4 Estimated Number of Companies in the Supporting Industry by Stage

The number of companies in the supporting industries by stage at a national level of Indonesia is estimated as follows.

Unit: No. of Companies

	Stage 1	Stage 2	Stage 3	Stage 4
Electrics/Electronics Appliances	98,000 ←	(3) −10,900 ←	(2) − 1,600 ←	(1) − 560
Transportation Machineries	1,000 ←	(6) − 700 ←	(5) − 600 ←	(4) − 240
General Machineries	*	*	* ←	(7) − 250
	99,000	11,600	2,200	1,050

Remark *, primary and secondary parts/components suppliers for general machinery are deemed as the same as supplier of electrics/electronics and transportation machinery
Source: JICA Study Team

The number of stage-4 companies of each sub-sector is discussed at sections 3.4.2, 3.4.3 and 3.4.4.

(1)：The number of stage-3 group companies is assumed approximately to be 3 times bigger than that of the stage-4 according to relevant industrial associations.

(2) and (3)：The numbers of stage-2 and -1 companies are taken from statistical data (the number of small and medium sized companies of electric appliances). One tenth of the figure of the statistical data is applied to the stage-2 and the remaining portion has been allocated to stage-1.

(4)：The number of stage-3 is estimated approximately 2.5 times bigger than that of the stage 4 according to the relevant association.

(5) and (6)：The number of small scale “Motor vehicle” plus “Other transport equipment” in the statistical data has been used to stage-2 and -1.

(7)：Manufacturers in stage-3 and -2 are included in Electrics/Electronics Appliances as well as Transportation Machineries. Small and medium sized general machinery manufacturers do not appear in statistical data whereas there are statistical data for large-scale general machinery manufacturers.

3.4.1 Precondition for Estimation

(1) Data sources utilized

The sources utilized are listed here.

1. Statistical Year Book of Indonesia, 2002, National Bureau of Statistics
2. Directory for Electric/Electronics Manufacturers in Indonesia, National Investment Board, Indonesian Electrics & Home Electric Appliances Industries Association (Association of ELECTRONIC)
3. Directory for Electrics & Home Electric Appliances Industries Association members
4. List of Supporting Industries by Association of ELECTRONIC
5. Directories of GAIKINDO and GIAMM
6. Activity Report 1998, MOIT & JICA Study Team (on Production in Indonesian machinery industry by type of products)
7. Directory of Association of Metalwork and Machinery (ASPEP)
8. Result of interviews to manufacturers by JICA Study team, 2003

Note: Transformers, power units, electric motor, generator sets, circuit breakers, lighting assembles, etc. are considered as parts/components.

(2) General feature of manufacturers at each stage

Stage 4: (Stable parts/components suppliers): The manufacturers in this stage supply their products to assemblers regularly. And their parts/components are acknowledged as genuine parts. Generally, quality, highly processed and/or precision parts and components manufacturers are categorized in this group.

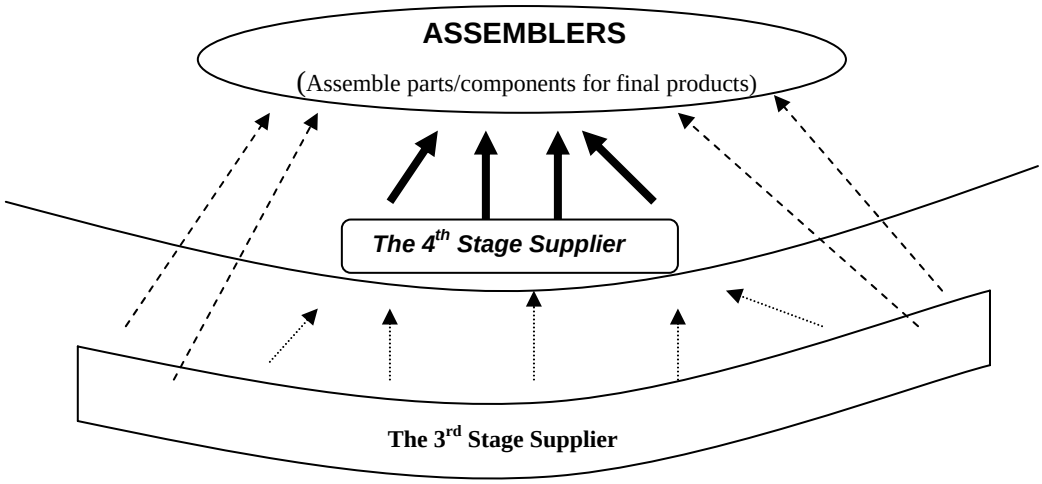
Stage 3: (viable suppliers): The manufacturers in this stage receive orders from OEM buyers (assemblers or 1st tier suppliers) occasionally (unstable).

Stage 2: (potential suppliers): Suppliers target post-sales and maintenance-purpose market because their QCD do not meet the requirement of assemblers.

Stage 1: Manufacturers apply only basic skills for production of aftermarket.

The structure of parts and components supply to assemblers is illustrated in Fig.3-2.

Fig. 3-2 Structure of Parts and Components Supply



Source: JICA Study Team

3.4.2 Electric/Electronics Appliances (E/E)

Table 3-2 summarizes the estimated number of stage-4 suppliers.

Table 3-2 Summary Table of the Estimated Number of Stage-4 Suppliers (E/E)

	Electronic Appliances[2)]	Electric Machineries[2)]	Total
(1) Estimated number of exclusive suppliers[1)] by interview to the relevant associations	4	4	
(2) Total number of electric/electronics assemblers based on the data from Investment Board and estimation made by the Association of ELECTRONIC	36	12	48
(3) Number of common suppliers	268[3)]	96[3)]	
(4) Estimated number of stage-4 suppliers: (2)×(1)＋(3)	420	140	560

Remarks:
1): Exclusive supplier means the manufacturer that produces special parts/components only for specific assembler.
2): These classifications are complying with the Statistical Year Book.
3): Most of suppliers except exclusive suppliers do not limit the market only to one assembler. According to the relevant associations and assemblers, the number of common parts and components suppliers was estimated.
Source: JICA Study Team

3.4.3 Transportation Machineries

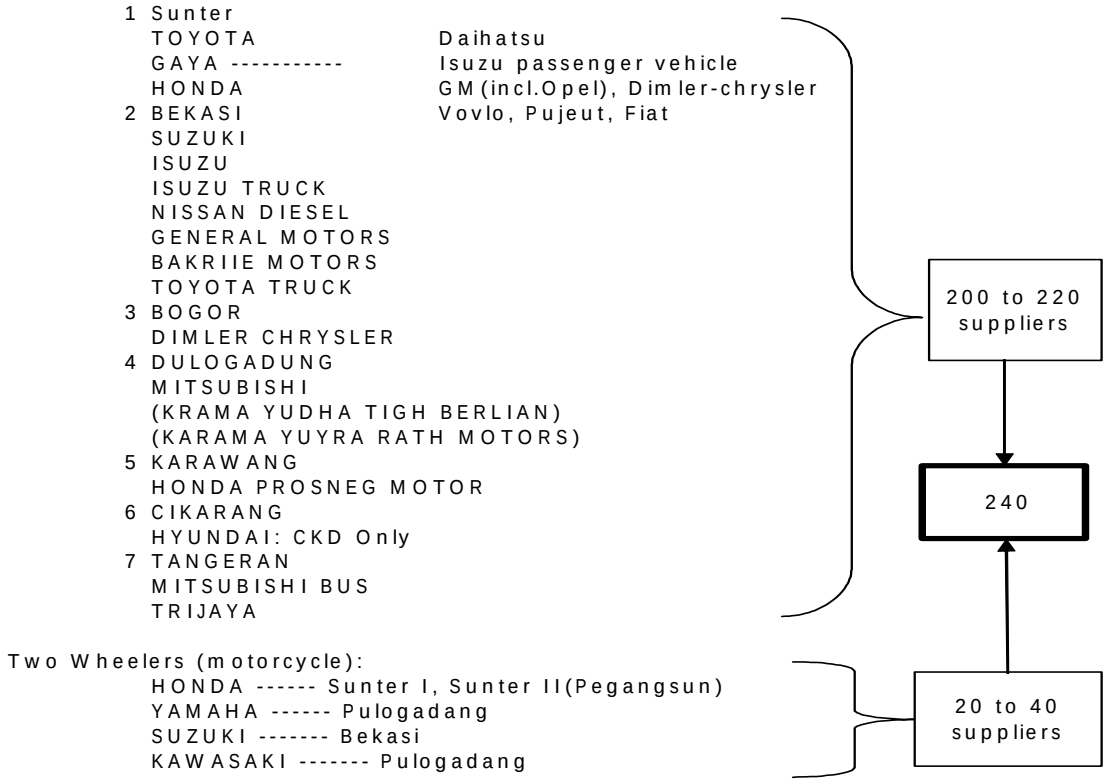
The number of stage-4 suppliers has been calculated by using data collected by interview, handbook of ASTRA group, directories of GAIKINDO, GIAMM and others. There are two

leading auto-assembling groups, ASTRA and INDOMOBILE. Parts and components suppliers do not overlap between them, i.e. stage-4 suppliers under ASTRA do not supply to INDOMOBILE.

The number of stage-4 suppliers of each group is about 100 to 110 respectively. In addition, there are suppliers mainly to two wheeler assemblers.

Accordingly, the number of stage-4 suppliers in the transportation machinery manufacturers is estimated as 240.

Fig. 3-3 Automotive Assemblers and the Stage 4 Suppliers



Source: JICA Study Team

3.4.4 General Machineries

The number of state-4 suppliers in General Machinery sub-sector will be given by two approaches, 1) field survey report under the follow-up study on the supporting industry in Indonesia by JICA in 1999, and 2) “Statistical Year Book of Indonesia, 2002”.

JICA's field survey report gives a basic data in the sub-sector. Data in the Statistics is another significant source to observe the sub-sector. However, the number of manufacturers of statistical data and JICA's data differ from each other. The statistical data covers both large-scale assemblers and parts manufacturers. Also the statistical data does not have any indicative information on small and medium scale manufacturers.

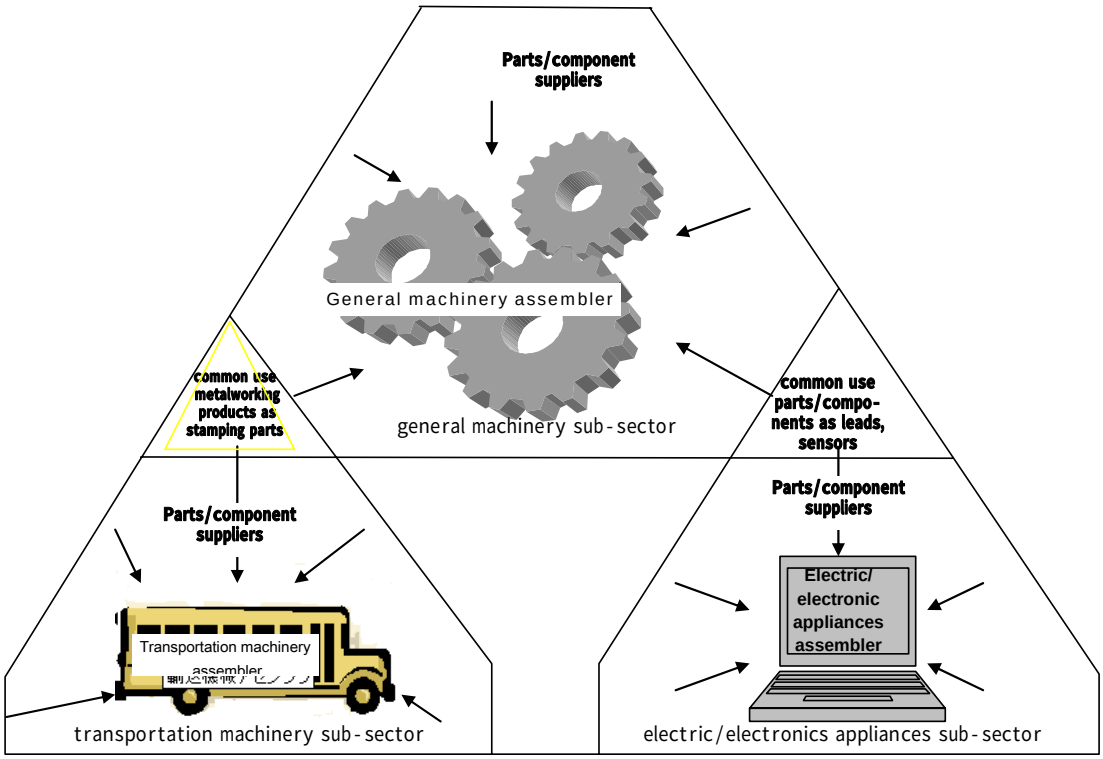
Assuming that the statistical data covers assemblers and the stage-4 suppliers for the sub-sector, the study team estimated the number of stage-4 suppliers as shown in Table 3-3.

Table 3-3 Summary Table of Estimated Number of Stage-4 Suppliers (GM)

Fabricated machinery		companies
	Gross total (GT) in JICA report	186
	GT-parts manufacturers = Estimated No. of Assemblers	137
Machine tools		
	Gross total (GT) in JICA report	57
	GT-parts manufacturers = Estimated No. of Assemblers	26
Agricultural machinery		
	Gross total (GT) in JICA report	105
	GT-parts manufacturers = Estimated No. of Assemblers	81
Construction machinery		
	Gross total (GT) in JICA report	53
	GT-parts manufacturers = Estimated No. of Assemblers	28
a	**General machinery assemblers**	272
b	**Number of machinery & equipment manufacturers from statistical data**	528
b-a	**No. of stage-4 Suppliers**	256 (250)

Source: JICA Study Team

Fig. 3-4 Image of Structure of Parts and Components Supply to General Machineries Sub-sector



Source: JICA Study Team

3.5 Result of Interview Survey

(1) Problems faced by companies

Foreign owned / joint venture companies: 1) Employee motivation and leadership are extremely large issues. 2) China is presenting strong competition, and QCD improvement is also an issue. 3) Boosting operator quality is an issue in corresponding advanced technology.

Stage 4 group: QCD improvement is an overwhelmingly large issue.

Stage 2-3: 1) QCD improvement is a priority issue. 2) Boosting marketing and product development prowess are issues because strengthening marketing prowess means establishing a niche with assembly companies.

(2) Results of off-JT

More companies in the Stage 3 and 2 groups than those in the other groups are sending their employees (mostly engineering staff and operators) to off-JT, in order to improve their production technology and skills. On the other hand, although the companies in the Stage 4 group are enthusiastic in their pursuit of training in production control, the companies in the

Stage 3 and 2 groups cannot afford to send their employees to the training because of shortage of budget.

(3) Training fields and positions to be targeted for future

The contents of training should be improved to fit the needs of the companies in each stage because there are different needs between companies in Stage 2 and 3 and the Stage 4 companies.

Foreign-owned / joint-venture companies focus on strengthening the middle management level and operators. These companies want to strengthen especially in the areas of production control and management.

The companies in stage 4 hope to boost production control and production technology at the middle management level. For Stage 4 companies, the cultivation of middle management level personnel such as supervisors and managers is an urgent issue.

For training contents, production engineering and production control need to be covered as a set, but it would be good to put slightly more emphasis on production control. Machine maintenance methods, Areas relating to development prowess (metal die and mold design, product design strength, CAD/CAM, measurement equipment, etc.), and Measures to boost operator incentive and motivation, and to demonstrate leadership at the middle management level are also important issues among the companies in this group.

The companies in stage 3 and 2 want to strengthen their production technology for operators, engineering staff and manager levels.

Training needs consist of finding ways to deal with the problems outlined in 1) to 5).

1) With respect to skills, plant managers are training operators through on-the-job training. Consequently, training needs to focus on the plant managers or manager class, and covers production engineering and production control as a set.

2) Training contents

- Knowledge of production engineering and production control, in order to pull quality up to the OEM level
- Measures and leadership to boost operator incentives and motivation with regard to production
- Machine maintenance, layout, 5S
- The rudiments of marketing technology, starting with methods for creating samples that will cultivate new customers.

3) Training period

Plant is being run by a single person. Because there is no staff available to substitute for the person undergoing training, it is important to utilize a system in which a single training session should consist of a minimum of three days and to repeat the three-day session a number of times.

4) Training expenses

Many of the companies have no financial leeway, so it is important to conduct training at low costs. A fee of around 300,000 to 500,000 Rupiah per person, per three-day session, is the limit of what most companies can afford.

5) Training curriculum planning

In addition to the above, when the companies in stage 2 and 3 select the training contents, it is realistic to refer the contents of audits being implemented by assembly companies for stage 4 companies.

(4) Requests for the government relating to human resources development

(1) Period: A maximum of three days for one training course. Repeating a 3-day course would enable systematic training.

(2) Expenses: Rp.300,000 to Rp.500,000 per person for three days of training

(3) Training that could be participated at any time throughout the year

(4) Small numbers of attendees, around 10 to 20 people per class

(5) Companies prefer training locations that are close to the company and highly convenient.

(6) Invitations to training should reach the companies at least two weeks in advance, and should state the training contents, period, location, instructors, expenses and other information in detail and in a straightforward manner.

(7) Training that combines production control and production technology as a set is preferable. In addition, companies would like training to focus on stimulating operator motivation and leadership at the middle management level.

(8) Training should include not only lectures, but also plant tours and practice as well.

3.6 Result of Questionnaire Survey

[Necessity of employees' training (human resource development)]

Eighty-three (83) companies (32%) answered that employees' training is strongly necessary and 156 companies (59%) replied that it is necessary. On the other hand, 24

companies (9%) said that the training is not currently necessary. This means that the majority of responding companies admit the importance of the employees' training.

[Past record of Off-JT]

One hundred thirty eight (138) companies (53%) conducted the off-JT since 2001. Out of the one hundred thirty-eight (138) companies, forty-seven (47) companies sent their employees to off-JT for management technology, while thirty (30) companies conducted off-JT for production technology. Also, sixty-one (61) companies replied that they conducted off-JT for both management and production technology.

Fifty (50) % of the companies in stage 1 did not recently conduct any human resource developments. Forty-one (41) % of the companies in stage 4 carried out in-house OJT, while twenty-seven (27) % of the companies in stage 1 conducted the OJT. More companies could afford to conduct OJT as the companies move from lower to upper stages.

(1) The number of programs

"Management" was the most popular training subject in management technology and "production control" follows as the second popular subject. Regarding production technology training, "material processing" is predominant to other subjects.

(2) Training expenses

Thirteen (13) % of responded companies considered expenses for the current training being appropriate. However, the majority (62%) of responded companies did not return their answers.

(3) Usefulness of the training

Fifty-two (52) companies, 48% of the companies that conducted management technology training, answered that the **management technology** training program was useful for their employees and forty (40) companies (37% of the companies that carried out management technology training) said that the programs were partly useful. The effective points of the management technology training were a) expansion of the management knowledge, b) practice of the theory that they learned during the training, c) improvement of the management efficiency, etc. On the other hand, 36% of the responded companies that carried out the management technology complained that the level of programs was low, and 30% considered that the programs were not practical due to no field works conducted.

Eighty-one (81) companies out of 92 companies that carried out **production technology** training answered that the training programs were useful or partly useful for their employees.

The effective points of the production technology training were a) improvement of the products' quality, b) expansion of the knowledge, c) acquirement of the new technology, d) improvement of the employees' skills, etc. On the other hand, unsatisfied points of the current production technology training were a) the training was not practical, b) the training did not meet the need of the market, and c) the low quality of the instructors, etc.

[Future Off-JT]

(1) Wishes to apply off-JT

Two hundred twenty-two (222) companies (85%) answered that they would have their employees apply off-JT. Thirty-nine (39) companies (15%) said that they would not like their employees to take off-JT in the future. The most common reason not to send their employees to off-JT was that the training would interfere with the employees' everyday duties. The next reason was that the courses that comply with their needs were not available now.

When we see the wishes to apply off-JT according to the size of companies, more small firms wish to conduct off-JT (89% of small companies) than medium and large companies do. Small companies currently recognized the necessity of the off-JT.

(2) Methods of the trainings

Fifty-eight (58) companies (22%) would like classroom lecturing and eighty-three (83) companies (32%) want practical training or practical guidance workshops for **management technology**. However, the majority of the companies which answered "other" mentioned that they would want the combined training of classroom lecturing and practical training. Companies wish to learn **theory and practice** at a time.

Only nineteen (19) companies (7%) would like classroom lecturing and one hundred thirty-three (133) companies (51%) want practical training or practical guidance workshops for **production technology**. The majority of the companies which answered "other" also answered that they would want the combined training of classroom lecturing and practical training for the production technology.

(3) Length of the training

For **the full day course**, two hundred (200) companies (80%) want to allocate **2-5 days** per trainee and thirty (30) companies (12%) want to allocate 6-10 days.

Two hundred one (201) companies (79%) answered that they would allocate 1-2 weeks for **the evening and weekend courses**. Thirty-two (32) companies would allocate 3-4 weeks for the training.

(4) Compensation for the off-JT

During the working hours, fifty-nine (59) companies (23%) would compensate full expenses for the employees' training. Ninety-seven (97) companies (37%) answered that they would partly compensate the expenses. However, one hundred five (105) companies (40%) would not compensate their expenses even though the training would be conducted during the working hours.

(5) Priority areas by the scale of the companies

Small companies indicated that marketing/sales for the directors were the first priority area, followed by die/molds and management for directors. Among small-scale companies, interests are overwhelmingly with the boosting market channel. Small scale companies considered that director was an important prioritized position for many areas of the training.

Medium enterprises rated management skills for directors as the top and production control for engineers as the second area respectively. For medium-scale companies, interests in "marketing/sales" became the third priority. It seems that they are willing to strengthen corporate management as well as to promote production efficiently. Also, except for management skills, it seems that medium enterprises are trying to train managers for several areas such as marketing/sales and production control.

Production control for managers and engineers were ranked as the top and second prioritized areas by **large companies**. Management skills were the third ranked popular subject for large-scale companies. As for the large-scale companies, their interest seems to put special focus on the market competitiveness through up-grading productivity and/or pursuing production efficiency.

(6) Priority areas by the stage

Stage 1 companies are expecting to expand the market/sales capability as well as management skills as prioritized subjects to boost their businesses. Dies/molds processing and material processing technology follow. The most interesting characteristic of this group is that they are expecting to undergo these training to directors. It means that there is no clear job demarcation within the companies.

In stage 2 and 3 companies, their wishes indicate job demarcation within the companies arises. They pointed out that management skills for directors and production control for engineers are the most important training subjects. Also, wishes of these stage companies are focusing on management technology rather than production technology.

In stage 4 companies, marketing/sales for directors is currently the most important subject and production control for engineers is the second. These companies pointed out the importance of assembling for engineers as the third prioritized area.

[In-house Training by SME Advisors]

(1) Past record to hire SME advisors

Sixty one (61) companies (23%) conducted the in-house training by SME advisors since 2001. However, two hundred two (202) responded companies (77%) did not have any experiences on hiring SME advisors.

(2) In-house training areas by SME advisors

The "management" for the directors was the most popular area for the SME advisors. The second ranked area was the "material processing" for technicians.

(3) Usefulness of the in-house training by SME advisors

For both management and production technologies, the in-house trainings conducted by SME advisors were useful.

(4) Priority areas for in-house training by SME advisors

Respondents were asked to indicate three (3) areas with priority they wish to have in-house training by SME advisors. Respondents expect to accept SME advisors to train in three areas as "Marketing/sales", "Management" and "Production control".

[The biggest problems which the companies are now facing]

One hundred nine (109) companies (41%) were struggling with the lack of the market information. Money shortage was the second biggest problems (69 companies, 26%).

The lack of the market information was the common difficulty to all stages. The fund shortage was the second ranked problem except for stage 3. For stage 3 companies, low production technology was bigger problem than the fund shortage. It seems that stage 3 companies were considering that the promotion of the production technology was an important condition to step into the stage 4.

[Requests to the Indonesian government about SMEs training]

Ninety-five (95) responses requested that the programs should **meet the need of the industry and market.** Seventy-nine (79) responses pointed out that the classroom lectures

should be combined with the **practical training at plant sites**. Sixty-five (65) companies want to have training of **sales and marketing with provision of the market information**.

4. Problems of Human Resource Development Programs in Indonesia

4. Problems of Human Resource Development Programs in Indonesia

This chapter discusses the problems of human resource development programs for the manufacturing sector in Indonesia identified through demand/supply surveys. Note that the demand survey of the Study was focused on the supporting industry of the manufacturing sector.

4.1 Supply

4.1.1 Ministry of Industry and Trade (MOIT)

Based on the national development plan by BAPENAS, MOIT issued the "Master Plan of Small and Medium Industry Development 2002-2004". The plan emphasizes the importance of human resource development and lists the prioritized curriculums. The training programs by training agencies of MOIT listed in Chapter 2 of the main Report are in accordance with the curriculums.

Table 2-1 of the main Report is the list of the training programs implemented by departments or agencies under MOIT inclusive of regional offices. Table 4-1 summaries the number of the programs listed on Table 2-1 of the main Report by content. Those programs, however, only for government staffs, state-owned companies, large enterprises, or instructors/advisors are excluded.

Table 4-1 No. of Training Programs of MOIT by Content

		Secretary General PUSDIKLAT-INDAG BDI (2) *1	IDKM	IDKM DINAS	IDKM MIDC	BPPIP Balai Besar BARISTAND (8) *2	NAFED IETC	
		2003	2003	2002	2003	2003	2003	Total
1	General Management			17				17
2	Business Promotion/Entrepreneurship	4		15				19
3	Business Contract	2						2
4	International Trade Transactions						75	75
5	Exhibition Management						1	1
6	Motivation Training			13				13
7	Finance and Accounting	1		1				2
8	Intellectual Property Right			4				4
9	Audit							0
10	Security							0
11	Environment	1		1		7		9
12	Standardization			1		2		3
13	Inspection and Quality Control			1		6	13	20
14	HACCP	2				1		3
15	Business Language						5	5
16	Other		3	2	2		2	9
17	Metalworking			3	3	6		12
18	Plastics					1		1
19	Calibration					6		6
20	R/D							0
21	Oil and Lubricant			7		2		9
22	Cleaner Production		1	3				4
23	Food	4		33		22		59
24	Textile/Garment	3	1	29		41		74
25	Leather	1		1		10		12
26	Furniture/Handicraft	1	1	17		27		46
27	Wood			3		1		4
28	Fertilizer			5				5
29	Packaging	2		6				8
30	IT			3				3
31	Other	4	2	25		33		64
	Total	25	8	190	5	165	96	489

*1 Data of six (6) BDIs are yet to be received.
*2 Data of five (5) BARISTANDs are yet to be received.

Source: JICA Study Team

4.1.2 Summary of the Activities of HRD Supply Agencies

Fig.4-1 is the summary of the activities of the public and private training agencies of Indonesia.

Fig. 4-1 Supply Map of HRD

Training Contents/ Target \ Training Agency	MOIT - IDKM	MOIT - IDKM - MIDC	MOIT - PUSDIKLAT-INDAG	MOIT - BPPIP	MOIT - IETC	MOMT - CEVEST (BEKASI, BANDUNG)	MOMT - Vocational schools (ie.BLKs*)	MONE - Polytechnics	MONE - Management schools/Institutes	MOCSME	Provincial Governments - DINAS	BPTLDGAM & LIK SIDOARJO - UPT	LPSM**	ASTRA (except AMDI)
Management Technology - Basics	○		○					○1	○	○	○		○	○
Management Technology - General management skills for MFRs									○				○	○
Management Technology - Business tactics development			○		○				○				○	
Basic Production Control						○	○	○	○				○	○
Applied Production Management						△							○	△
Production Technology - Metal - Vocational Skills		○		○		○	○	○				○	○	○
Production Technology - Metal - Engineering/Design		○		○		○		○				○	○	○
Production Technology - Metal - Research and Development (R/D)		○		○										
Production Technology - Plastics - Vocational Skills				○				○					△	△
Production Technology - Plastics - Engineering/Design				○				△					△	△
Production Technology - Plastics - R/D				△										
Production Technology - Die/Mold - Vocational Skills		○				○	△	○				○	○	○
Production Technology - Die/Mold - Engineering/Design		△				○		○				○	○	○
Production Technology - Die/Mold - R/D														
Production Technology - Final Treatment/Sub assembling - Vocational Skills		○				○	○	○				○		○
Production Technology - Final Treatment/Sub assembling - Engineering/Design		○						○						○
Production Technology - Final Treatment/Sub assembling - R/D														
Production Technology - Local Industries - Vocational Skills				○		○	○	○		○	○			
Production Technology - Local Industries - Engineering/Design	○		○	○	○			○			○			
Production Technology - Local Industries - R/D				○										
Vocational training for Job-seekers						○	○							

Remarks: ○: Regular program、△: Available upon request、○1:Available only for their DIII course students as a part of entrepreneurship training
BLKs*: Balai Lathan Kerja (Training Institutes under Ministry of Manpower)
LPSM**: Human Resources Development Institute under Matsushita Gobel Education Foundation

Source: JICA Study Team

4.2 Demand for Training by Area

Questionnaire survey was carried out to 263 supporting SMEs in Jakarta, Surabaya, Semarang, and Bandung area. The results of the survey are reported in the Chapter 3.

The 52.5% of the respondents have sent their employees to Off-JT since 2001. Table 4-2 summarizes the total number of programs of Off-JT to which respondents sent their employees since 2001. Table 4-3 shows the total man-hours of Off-JT programs the participants of respondents spent since 2001. In Chapter 3, SMEs of the supporting industry were classified into four (4) groups by the stage of business development based on the contract situation with the OEM buyers. It is observed that SMEs of lower stages are more interested in the training of production technology.

Table 4-2 No. of Training Programs Attended since 2001

	Management Technology					Production Technology				
	Management	Production Control	Market/ Sales	Human Resources	Finance	R/D	Dies/Molds Jigs/Tools	Material Processing	Final Treatment	Assembly
Managers	57	33	18	21	11	0	14	22	4	1
Engineers/Supervisors	2	20	5	2	4	2	11	26	7	10
Technicians/Operators	1	3	0	1	0	3	23	24	9	14
Total	60	56	23	24	15	5	48	72	20	25
Order	**2**	**3**	**7**	**6**	**9**	**10**	**4**	**1**	**8**	**5**

Source: JICA Study Team

Table 4-3 Total Man-Hours Spent for Off-JT since 2001

	Management Technology					Production Technology				
	Management	Production Control	Market/ Sales	Human Resources	Finance	R/D	Dies/Molds Jigs/Tools	Material Processing	Final Treatment	Assembly
Managers	2,862	1,281	936	566	126	0	682	1,032	47	216
Engineers/Supervisors	136	3,339	87	44	31	190	431	2,185	352	604
Technicians/Operators	160	75	0	160	0	83	1,254	1,069	334	1,185
Total	3,158	4,695	1,023	770	157	273	2,367	4,285	732	2,004
Order	**3**	**1**	**6**	**7**	**10**	**9**	**4**	**2**	**8**	**5**

Source: JICA Study Team

Regarding the participation in Off-JT in the future, as much as 85.2% of the respondents wish to send their employees to outside training. In the questionnaire, they were requested to indicate five (5) training areas by priority order. With priority points, 5 to 1, the priority training areas are summarized in the Table 4-4 by stage of business development. Respondents of all stages give the top three (3) priorities to “Production Control”, “Market/Sales”, and “Management”.

Table 4-4 Priority Area for Training by Stage

		Management Technology					Production Technology				
		Management	Production Control	Market/ Sales	Human Resources	Finance	R/D	Dies/Molds Jigs/Tools	Material Processing	Final Treatment	Assembly
Stage I	Managers	185	138	254	67	119	3	114	104	69	66
	Engineers/Supervisors	13	58	36	35	32	6	7	22	9	25
	Technicians/Operators		21					27	21	19	47
	Total	198	217	290	102	151	9	148	147	97	138
	Order	**3**	**2**	**1**	**8**	**4**	**10**	**5**	**6**	**9**	**7**
Stage II	Managers	173	79	114	73	43	2	23	16	9	26
	Engineers/Supervisors	19	128	38	46	9	4	14	16	2	22
	Technicians/Operators		8					43	31	27	40
	Total	192	215	152	119	52	6	80	63	38	88
	Order	**2**	**1**	**3**	**4**	**8**	**10**	**6**	**7**	**9**	**5**
Stage III	Managers	64	30	63	35	20		16	14	3	11
	Engineers/Supervisors	9	41	11	15	4	11	15	11	5	22
	Technicians/Operators		7					23	21	19	11
	Total	73	78	74	50	24	11	54	46	27	44
	Order	**3**	**1**	**2**	**5**	**9**	**10**	**4**	**6**	**8**	**7**
Stage IV	Managers	37	45	61	20	21	7	10	16	4	1
	Engineers/Supervisors	4	30	2	19		7	12	12		26
	Technicians/Operators		2					4	7	7	13
	Total	41	77	63	39	21	14	26	35	11	40
	Order	**3**	**1**	**2**	**5**	**8**	**9**	**7**	**6**	**10**	**4**

Source: JICA Study Team

Table 4-5 projects the demand for Off-JT at a national level by stage multiplying the ratio of the number of the supporting industry companies estimated in the Chapter 3 by stage to the number of respondents. The order of the demand level by all stages is as follows.

Table 4-5 Demand for Training at a National Level by Stage

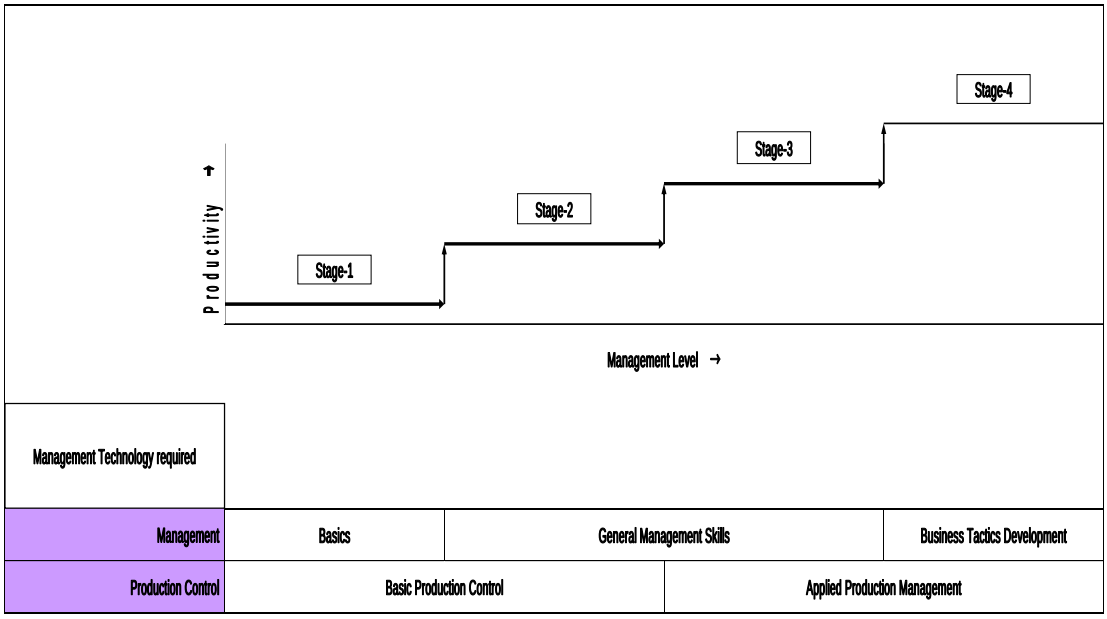
		Management Technology					Production Technology				
		Management	Production Control	Market/ Sales	Human Resources	Finance	R/D	Dies/Molds Jigs/Tools	Material Processing	Final Treatment	Assembly
Stage I	Managers	165,000	123,081	226,541	59,757	106,135	2,676	101,676	92,757	61,541	58,865
	Engineers/Supervisors	11,595	51,730	32,108	31,216	28,541	5,351	6,243	19,622	8,027	22,297
	Technicians/Operators	0	18,730	0	0	0	0	24,081	18,730	16,946	41,919
	Total	176,595	193,541	258,649	90,973	134,676	8,027	132,000	131,108	86,514	123,081
	Order	**3**	**2**	**1**	**8**	**4**	**10**	**5**	**6**	**9**	**7**
Stage II	Managers	23,609	10,781	15,558	9,962	5,868	273	3,139	2,184	1,228	3,548
	Engineers/Supervisors	2,593	17,468	5,186	6,278	1,228	546	1,911	2,184	273	3,002
	Technicians/Operators	0	1,092	0	0	0	0	5,868	4,231	3,685	5,459
	Total	26,202	29,341	20,744	16,240	7,096	819	10,918	8,598	5,186	12,009
	Order	**2**	**1**	**3**	**4**	**8**	**10**	**6**	**7**	**9**	**5**
Stage III	Managers	3,705	1,737	3,647	2,026	1,158	0	926	811	174	637
	Engineers/Supervisors	521	2,374	637	868	232	637	868	637	289	1,274
	Technicians/Operators	0	405	0	0	0	0	1,332	1,216	1,100	637
	Total	4,226	4,516	4,284	2,895	1,389	637	3,126	2,663	1,563	2,547
	Order	**3**	**1**	**2**	**5**	**9**	**10**	**4**	**6**	**8**	**7**
Stage IV	Managers	1,388	1,688	2,288	750	788	263	375	600	150	38
	Engineers/Supervisors	150	1,125	75	713	0	263	450	450	0	975
	Technicians/Operators	0	75	0	0	0	0	150	263	263	488
	Total	1,538	2,888	2,363	1,463	788	525	975	1,313	413	1,500
	Order	**3**	**1**	**2**	**5**	**8**	**9**	**7**	**6**	**10**	**4**
		208,561	230,285	286,039	111,570	143,949	10,008	147,019	143,681	93,675	139,138
	Order	**3**	**2**	**1**	**8**	**5**	**10**	**4**	**6**	**9**	**7**

Source: JICA Study Team

The high demand for the training of so-called soft technology is notable. However, it is often the case with SMEs, especially those for the aftermarket, that managers do not realize their own level of production technology, and have tendency to hanker for the advanced management tools.

In the Annex-1, three (3) categories of management technology and two (2) categories of production control technology were proposed. Assuming the required technology level varies according to the stage of the business development of the company as shown in the Fig. 4-2, Table 4-6 is converted to Table 4-5 with reclassification of the management technology. The demand at a national level after reclassification of Table 4-6 is illustrated in Fig. 4-3.

Fig. 4-2 Required Management Technology Level by Stage



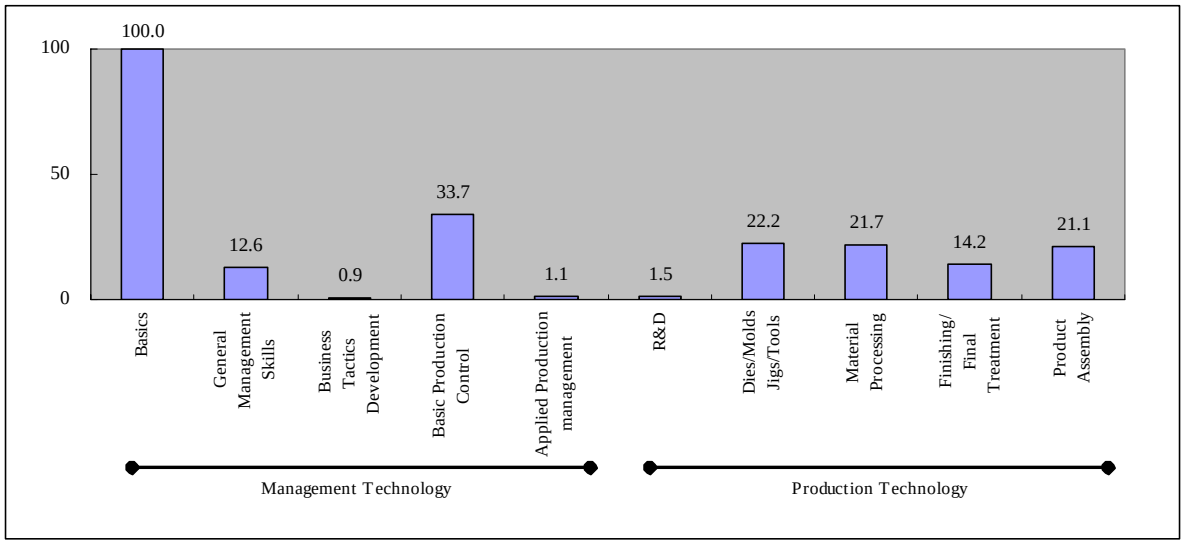
Source: JICA Study Team

Table 4-6 Demand for Training at a National Level

	Management Technology					Production Technology				
	Basics	General Management Skills	Business Tactics Development	Basic Production Control	Applied Production Management	R&D	Dies/Molds Jigs/Tools	Material Processing	Finishing/ Final Treatment	Product Assembly
Manager	557,432	65,534	5,213	133,862	3,424	3,211	106,116	96,351	63,092	63,087
Engineering Staff/ Supervisor	103,459	17,543	938	69,198	3,499	6,797	9,472	22,892	8,589	27,548
Technicians/ Operators	0	0	0	19,821	480	0	31,431	24,439	21,993	48,502
Total	**660,891**	**83,077**	**6,151**	**222,881**	**7,403**	**10,008**	**147,019**	**143,682**	**93,674**	**139,137**
Order	**1**	**7**	**10**	**2**	**9**	**8**	**3**	**4**	**6**	**5**

Source: JICA Study Team

Fig. 4-3 Demand for Training at a National Level (Basic Management Technology=100)



Source: JICA Study Team

Due to the numerous companies of stage-1 who require the basic level of the management technology, the demand for the training of basics of management technology and basic production control technology stands out. As for the production technology, the relatively high demand for the training of dies/molds and material processing technologies is observed.

The high demand for the acquisition of management technology is also recognized through the visit survey of the Study Team. The managers of the companies visited confirmed that they prioritize the management technology for Off-JT as follows.

Table 4-7 Priority Area for Training

	Management Technology	Production Technology
Stage II – III	56%	44%
Stage IV	54%	46%

Source: JICA Study Team

4.3 Supply and Demand Gap in the Ongoing Human Resource Development Programs

1) Extensive demand for training of basic and practical management technologies for manufacturing industry; and
2) Strong needs for training and technical support relating to material processing and die/mold technologies.

4.3.1 Management Technology

Most of training programs on soft technology currently offered by PUSDIKLAT-INDAG of MOIT specialized in human resource development is intended for government staffs, and employees of large state-owned companies. Few of them are planned and implemented for SMEs. Programs participated by SME employees deal with general management knowledge only and do not cover production control technology required by manufacturing industries.

The study team reviewed several textbooks and some course materials used by PUSDIKLAT-INDAG. Generally, most of them cover general management knowledge, not focusing on specific industrial sectors, while some have been developed jointly with universities and contain the advanced and modern management theories, which are comparable to those taught in MBA courses.

The similar situation is observed at DINAS, which is specialized in training of local SMEs. Its programs on soft technology are chiefly designed to disseminate management knowledge that is commonly used by all sectors, including the training to raise employee motivation.

In addition to universities and other educational institutes that offer management courses for students, several private training institutes offer programs on business and production management techniques for the manufacturing sector. They are operated by major assembly manufacturers and have been started as training organizations for their suppliers. Their programs are also open to the public and are widely recognized for their content that addresses the practical needs on the shop floor. Unfortunately, however, they cannot meet huge demand from manufacturing SMEs throughout the country. Programs of private training institutes are limited in terms of location and require high costs that create heavy financial burdens for many SMEs.

Other public organizations under MOMT or MONE offer courses on production control technology on a periodical basis, although they are very basic in content. These courses are generally considered as supplemental and are limited in number. Moreover, they do not contain the curriculum most demanded by the private sector, i.e., production control techniques that are readily applicable to an actual production line.

While the present Study focuses on the fostering of supporting industries for assembly manufacturers, production control technology, knowledge and techniques, is highly useful also for local industries, such as food processing, textile and furniture. In fact, they are indispensable for promotion of these industries.

Despite of the fact that there is strong demand among many SMEs for training programs that teach practical techniques and skills readily applicable to the shop floor at an affordable cost, few institutes and programs are meeting such demand. Clearly there is a large gap between supply and demand.

Finally, it is noteworthy that production control techniques to be taught by programs should include preventive maintenance, for most SMEs have financial difficulty and own old machinery and equipment, which maintenance is a critical issue to be dealt with immediately.

4.3.2 Production technology

The manufacturing sector in the country, except for capital intensive industries such as petrochemical, is roughly divided into: (1) local industries including food processing, textile, furniture and woodworking products; and (2) supporting industries that form the supplier base

for assembly manufacturers in a hierarchical structure. As mentioned in Chapter 2 and Table 4-1, technical support in the area of production technology by the MOIT's organizations, except for MIDC and some Balai Besars, is primarily intended for local industries. Thus, the MOIT is expected to improve its support in the area of engineering technology demanded by supporting industries.

The demand and supply survey has revealed that there is strong demand for teaching and technical support for material processing and die/mold making techniques. In particular, machining involves a variety of production techniques, and as discussed below, plastics molding and metal pressing techniques suffer the largest supply and demand gap in terms of human resource development.

The current supply and demand situation is generally described as follows.

(1) Market

Assembly industries in Indonesia are led by automobile and electrical/electronics equipment industries, which are concentrated in the capital region, JABOTABEK, including Jakarta. Most of supporting industries serving the assembly industries are also operating in the region.

The development history of assembly industries in the country is closely related to Japanese companies, which have been driving the automobile and electrical/electronics industries since their birth in the country. As a result, the ability of supporting industries to establish and maintain good relationships with Japanese assemblers holds the key to their success in the domestic market for parts supply.

(2) Assembly industries and parts supply

There are a large number of local manufacturers that make a variety of parts and components used by assembly industries, including casting, die cast and press working products used for automobile production, classified as the shaped materials industry. It should be noted, however, that many of them do not supply their products directly to assembly manufactures and rather sell them to the aftermarket.

Looking at component parts of passenger cars, metalworking products account for slightly over 70% of the total in terms of value. (See Table 4-8.) The table shows data obtained from sampling surveys in Japan, but it also represents the situation in Indonesian accurately

because there is little difference in component parts among countries. On the other hand, the breakdown in terms of engineering technology is casting + die cast 20%, forging 7% and press working 32%. Thus press working technology holds the highest share. In particular, for all motor vehicles including motorcycles and large vehicles (such as buses and trucks), press working parts account for 21% of the total. (See Table 4-9.) As passenger cars are composed of 20,000 – 30,000 parts each, press working parts alone amount to thousands in number and are made using as much dies or molds.

Table 4-8 Automotive Parts Market (Value of Shipment)

Final product: Automobiles			
Market size		Ave.	Share
Machine parts market		8,881,298	100%
Iron and steel	Casting	1,002,552	11%
	Forging	614,521	7%
	Press working	2,752,759	31%
	Printing	1,190,965	13%
	Others	121	0%
	Total for steel and iron	5,560,918	a: 63%
Non-ferrous metal	Casting/die cast	813,800	9%
	Press working	88,100	1%
	Cut	26,312	0%
	Others	5,716	0%
	Total for non-ferrous metal	933,928	b: 11%
Non-metal	Plastics	1,623,372	18%
	Ceramics	159,238	2%
	Others	603,842	7%
	Total for non-metal	2,386,452	27%

Note: Figures in "Ave." column are indicated in 100 million yen.

Source: "Current State of and Future Outlook for the Shaped Materials Industry in the Period of Structural Change," June 1994, Shaped Materials Center

Table 4-9 Composition of Mechanical and Electrical Parts in Motor Vehicles and Electrical/Electronic Equipment (Value of Shipment)

Unit: (%)

Share of total parts	Passenger cars	Trucks, buses and other vehicles	Motorcycles	Motor vehicles in total (average)	Industrial machinery	Consumer electrical equipment	Electronic equipment	Other electrical machinery	Overall average
Press working parts	32.0	25.7	6.0	21.3	15.3	8.7	33.4	9.1	18.6
Plastics parts	18.3	17.4	19.1	18.2	5.0	30.9	11.9	31.5	19.2
Others	49.7	56.9	74.8	60.5	79.7	60.4	54.7	59.4	62.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: "Current State of and Future Outlook for the Shaped Materials Industry in the Period of Structural Change," June 1994, Shaped Materials Center

On the other hand, plastics parts account for slightly over 18% of all parts used for production of passenger cars, following metal and non-ferrous metal parts. For household appliances (consumer electrical equipment), share of plastics parts reaches 31%. Note that "Others" in Table 4-9 include, as seen in Table 4-8, casting, forged, print and cut parts.

1) Position of plastics parts in the assembly industries

In the manufacture of parts and components for household appliances and motor vehicles that are sold globally, precision plastics molding and mold making technologies are essential.

According to the Indonesia Olefin & Plastic Industry Association, there are approximately 6,000 plastics-related companies in the country, of which 90% (5,400 companies) are said to be small enterprises. Manufacturers of plastics parts for automobiles, electrical and electronics equipment, and industrial machinery are estimated to range between 500 and 700, including those serving the aftermarket. (The figures are estimated from the results of interviews to trade associations and other industry sources, for there are no detailed statistics on the number of establishments by product item.) These manufacturers are required to establish and maintain middle-level and advanced mold maintenance and production technologies. In addition, more than 4,000 companies manufacture plastics parts and products that do not require a high level of precision, for a variety of markets including containers for medicines and beverages, and kitchen goods.

During the past five years, an increasing number of companies have gained the ability to make molds for plastics parts and components used by assembly manufacturers. They are mostly located in JABOTABEK and Bandung. Yet, as plastics parts demanded by

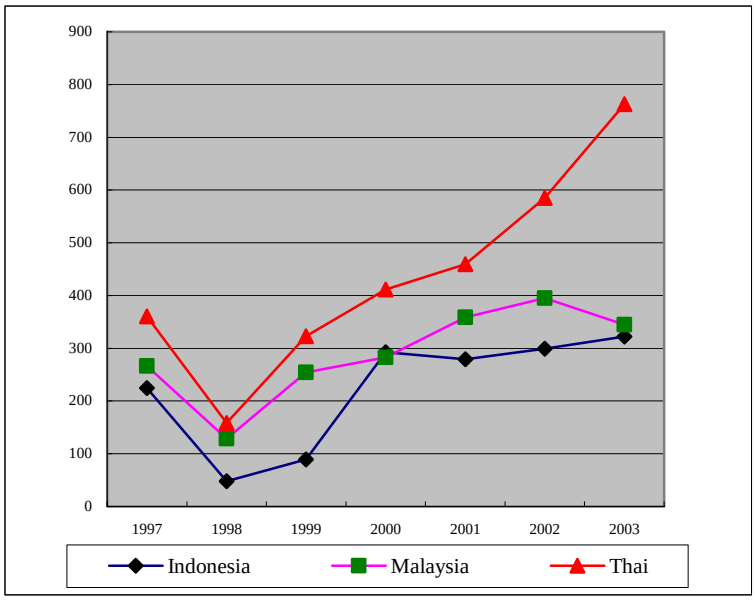
assembly manufacturers require a significant high level of technology in comparison to ordinary plastics products, the supply and demand balance in this field is substantially on the shortage side.

2) Position of metalworking and press working parts

As discussed in the previous section, the automobile industry is a leading sector of the country's economy and is said to be founded upon metalworking technology in the light of a dominant share of metal parts used in each vehicle; more than 80% of automotive components and parts are processed using one or more metalworking technologies. The same thing can be said about the motorcycle industry that has been rapidly expanding with growth of the domestic market.

As seen in the chart below, automobile production in Indonesia has overcome the Asian currency crisis in the late 1990s and has been steadily growing to establish its leadership in the manufacturing sector.

Fig. 4-4 Yearly Change of Automobile Production in Indonesia and Neighboring Countries



Source: JICA Study Team

It should be noted that production in Thailand has been growing faster than that in Indonesia, with an increasing margin year after year, while production in Malaysia follows a similar pattern to Indonesia.

Steady growth of the Indonesia auto industry has been bolstered by healthy growth of the domestic market and high import tariff imposed on automobiles and automotive parts. Now that the AFTA is launched, the ASEAN region is expected to undergo an accelerated rate of globalization. Under these circumstances, unless Indonesia's supply capability of automotive parts is upgraded to rank high in the ASEAN market, the local parts industry will be further lagged behind its competitors. In fact, a whole range of automotive parts (from tires to engines) will be liberated by 2005 as products under the CEPT (Common Effective Preferential Tariff) list. To establish competitiveness in the ASEAN market, it is imperative to raise the levels of production technology for metal parts that account for 70% - 80% of automotive component parts. At present, such efforts are being seen in the area of foundry technology as a trade association is in place and MIDC and other technical support organizations conduct R&D activities and provide technical assistance. As for press working technology, as well as plastics molding, visible initiatives have yet to be undertaken in the country.

5. Recommendations for Improvement of MOIT's Human Resource Development Program

5. Recommendations for Improvement of MOIT's Human Resource Development Program

This chapter discusses and presents the recommendation for improvement of human resource development program by MOIT. Recommendations are for manufacturing sector.

5.1 Assumptions for Recommendations

5.1.1 Industrialization and the Role of the Manufacturing Industry

In any country, growth of the manufacturing industry stimulates that of the upstream sector (e.g., raw materials and services) and the downstream one (e.g., packaging and transportation). The manufacturing industry is thus the kingpin of industry and the industrialization process. As industrialization progresses, the manufacturing industry gains its share of GDP. Although the share generally peaks out at 20-23% due to faster growth of the service sector that thrives on expansion and diversification of the national economy and market, the manufacturing sector continues to serve as a primary sector to drive the country's economic development in terms of job creation, the rise in personal income, and the earning of foreign currency reserves.

At present, the IT industry is widely touted as a leading industry in the next generation, but the fact is that it is founded upon a myriad of technologies to manufacture information and communication equipment and systems, as well as production management techniques. While IT is highly revered as an emerging economic engine, it is not IT itself that creates employment opportunities, earns foreign currency and increases personal income, but the presence and operation of manufacturing and related industries that promote, leverage or exploit evolution of IT. As economic development is one of the most important issues facing any countries, industrialization is the most practical and feasible way to achieve it and must be driven by the manufacturing industry.

For manufacturing industries of less industrialized countries, which strive to participate in the international market dominated by those of industrialized countries, it is important to recognize a formidable advantage that they inherently have over competitors, i.e., the fact that they are latecomers. Being a latecomer means that they can use a wealth of technology and knowledge that has been developed, and, more importantly, proven to be commercially feasible, saving the enormous time and cost which otherwise might be required for

development of new products or technologies. This is exactly the situation that Japan took advantage of in her industrialization process. A key success factor here is to introduce, disseminate and upgrade, in an efficient and effective manner, technologies and systems that are available in industrialized countries. Needless to say, it is a complex and time-consuming process, starting from imports of advanced products, to introduction and accumulation of technology, the startup of local production to substitute for imports, and exports of own products to the world market. To manage the process properly requires a strong government leadership and well-coordinated industrial policy. In fact, the role of government is indispensable for less industrialized countries to take full advantage of their latecomer position. And many governments, including Japan, South Korea, and Taiwan, have successfully exerted their leadership in the industrialization process.

In this conjunction, SMEs occupy an important position. In newly industrialized countries as well as industrialized ones, SMEs are playing a critical role in national economy, as evidenced by the fact that they account for a dominant share (sometimes 98-99%) in the total number of enterprises or employees in many countries. In Indonesia, SMEs led a recovery from the economic crisis in 1997 and their promotion now receives a renewed attention as a key policy agenda. Also, government policy to promote decentralization of power to rural regions, as initiated by a presidential decree in 1991, helps shed the spotlight on SMEs as a core element of local industries.

Government intervention in SME promotion is generally justified in the belief that public programs are designed to provide a level playing field for SMEs to compete fairly with larger enterprises by improving the conditions otherwise unfavorable to SMEs, which cannot be solved through the working of a market mechanism, such as financial access, the shortage of management resources (technology and market), and difficulty in entering a new business.

It should be noted, however, that the environment surrounding less industrialized countries today is different from that facing Japan, Korea and Taiwan, where they were able to promote industrialization under rather audacious government policies and programs. Today, industrialization has to proceed under a more competitive environment created by the wave of globalization that entails the force to demand market opening. As a result, SME promotion policy as part of industrial policy is fairly limited and should therefore be more focused. For instance, assembly manufacturers of products intended for the OEM market are currently practicing "global sourcing" – to purchase components and parts that meet specific QCD (quality, cost and delivery schedule) requirements regardless of location of their plant. Also,

technology innovation in the private sector progresses at a dazzling speed. Under these circumstances, a government is in a difficult position to adopt traditional measures to promote "supporting industries" competitive over products from other countries in an attempt to foster them by giving artificial advantages that would go against the global trend demanding market liberalization, such as market intervention and financial incentive.

Under these circumstances, human resource development for bottom-up upgrading of production and management technology levels of SMEs in the supporting and local industries of the manufacturing sector should constitute a key element of government SME promotion policy and is as important as school education. It helps adopt and accumulate advanced technology from industrialized countries, develop its own product development capability, and improve the competitivity of the products.

5.1.2 Integrated Planning and Implementation

MOIT has, under the jurisdiction of the Secretary General, an organization specializing in human resource development, PUSDIKLAT-INDAG. In actuality, however, several agencies and sections other than PUSDIKLAT-INDAG are implementing human resource development programs on their own. An official notice has been issued by the vice-minister, urging the betterment of mutual coordination to provide human resource development for private sectors. But it is hard to say that the aim is being implemented as intended. There continues not to be enough contact and coordination among them, and programs are continuing to be implemented without integrated long-term policies in place.

5.1.3 Existing Human Resources

There are instructors in PUSDIKLAT-INDAG under MOIT, and there are many extension officers at the MOIT headquarters and provincial governments. New roads could be opened up by having these instructors undergo re-training and then participate in the new training schemes. The possibility of making the most of existing resources should be studied.

5.1.4 Programs Tailored to Needs of Private Sectors

At present, there are many state-owned companies in Indonesia. The improvement of their management is urgent task of the Government. There is reason in many training programs of PUSDIKLAT-INDAG and other agencies of MOIT being implemented for their staff for the moment. But the privatization of the state-owned companies is being expedited. Training

agencies will need to reform their constitutions reflecting the mission of the government toward private sectors.

5.1.5 Provincial Government

Provincial governments must take it on themselves to provide detailed and careful support for SMEs in their localities. In Japan, the leading role in human resource development for SMEs is played by nine (9) SMEs institutes nationwide, and by regional governments. The regional governments are building networks of certified management consultants and engineers, and are sending the advisors to the production workplaces of companies in response to a call from SMEs.

IDKM of MOIT used to have regional offices, which now belong to provincial governments. Nevertheless, more than a half of its promotion budget of SMEs is distributed to DINAS of provincial offices. An approach is necessary in which MOIT would put into practice a model for human resource development tailored to the needs of the industry, and gradually transfer the model to provincial governments.

5.2 Recommendations for Improvement of MOIT's Human Resource Development Programs

Based on 1) the results of the supply and demand survey conducted under the present Study and 2) current state and major issues of human resource development programs summarized in 5.3, the following are proposed for the improvement of the MOIT's human resource development programs. Proposals are roughly divided into two; the improvement of program content and the reinforcement of the program implementation organization.

A. Recommendations relating to the improvement of program content

A.1 Start of a training program for basic management and production control technologies suitable for manufacturing SMEs

A.2 Reinforcement of a support system for upgrading of plastics molding, metal press and die/mold technologies

B. Recommendations relating to the program implementation organization

They are designed to reinforce the program implementation organization in order to ensure coordination among human resource development programs conducted by various agencies and departments, and to promote development and implementation of the MOIT's long-term human resource development plans. Organizations proposed will spearhead the implementation of training programs proposed in A.

B.1 Establishment of a department in charge of human resource development for SMEs within the IDKM

B.2 Establishment of a department specialized in training for manufacturing SMEs within the PUSDIKLAT-INDAG

B.3 Establishment of a human resource development committee led by the IDKM's new department (above) and consisting of representatives of the MIDC and the PUSDIKLAT-INDAG's department in charge of training for manufacturing SMEs (above)

5.3 Rationale for Recommendations

A.1 Start of a training program for basic management and production control technologies suitable for manufacturing SMEs

In the demand survey conducted under the present Study, "market" was cited by the largest percentage of respondents as a main theme of human resource development programs wanted by SMEs. As already pointed out, however, the market means market information, particularly information on buyers, rather than market-related management technology. Then, management and production control technologies came second as the subject of training. In fact, the results generally agree with those of similar surveys conducted by the study team in other countries.

The reasons for the above responses can be summarized as follows.

- The manufacturing industry in less industrialized countries generally originates in the form of assembly operation using imported parts. It gradually extends to surface/final treatment, manufacture of parts, design and manufacture of dies and tools, and finally the development of original products. This is an evolution that goes backward the entire

production process. To promote the evolution process, many countries establish import processing zones to attract assembly plants of foreign manufacturers by offering incentives and encourage growth of supporting industries as the foreign manufactures gradually transfer part of the assembly process to local suppliers.

- Human resource development for manufacturing SMEs, when conducted as part of industrial policy, should primarily focus on support for introduction, pervasiveness and upgrading of imported technology. In this case, it should be assumed that technology can only be learned in several stages. Government policy should not be founded upon the hope that the technology learning process can be dramatically shortened by IT or local manufacturers can develop innovative technology quickly. Rather, business opportunities in new industrializing countries can be created by using "soft" technology, i.e., a wise combination of management resources and technologies to create a competitive advantage (each resource or technology may be obsolete or non-competitive). This "latecomer's advantage" can be leveraged by: 1) proper industrial policy; 2) business management capabilities of individual enterprises; and 3) workers' skills. The manufacturing sector in less industrialized countries is dominated by assembly operations, followed by material processing. Many machine shops use dies, molds and tools supplied by buyers (manufacturers). Under these circumstances, a key success factor for assemblers and material processing manufacturers is their production management capabilities, which should be supported by workers' skills. In fact, this is a main reason behind development of production management technology in Japan.

While government policy should focus on the establishment of human resource development plans for production management technology, production technology, and shop floor skills, as well as dissemination of such technologies and skills through actual training programs, the Indonesian government should give priority to two elements, namely production management technology and workers' skills (the latter is under the jurisdiction of the MOMT).

In Indonesia, there are a fairly large number of training organizations teaching management and production control technologies, including polytechnic schools and special courses for industry people conducted by organizations engaged in support in the area of production technology. As this type of training does not require special facilities or equipment as in the case of skill training, some vocational training schools offer special courses to teach "soft" technology. However the management and production control technologies for manufacturing SMEs are taught as main courses only at private training

institutes established by some assembly companies, setting aside courses offered by universities, graduate schools, and private management schools that provide education equivalent to the graduate level. The training institutes emphasize on practical knowledge and technology, and hire instructors who have ample field experience. Because of this, their training programs are highly rated. As pointed out earlier, however, they were established to reinforce a parts supply network for a respective assembly manufacturer. Their training service is not fully available to manufacturing SMEs including local industries.

The MOIT has training programs on "soft" technology, but they are mainly general management courses such as leadership and motivation, together with the preparation for ISO certification.

In Indonesia, a large number of SMEs operate without basic management and production control technologies or knowledge, or without an opportunity to learn them. Advanced production control techniques for specific industries are the property of the private sector, and are transferred and naturally propagated through the business scene through production activities. But, in the same way as vocational training outside of academic education, the government needs to take it on itself to spread the fundamental administration and management technologies to the industry.

While the MOCSME and the MOIT plan to provide guidance service for individual companies via the BDS, most of companies to be covered by the service are not manufacturers. Also, the BDS's consultants are not familiar with manufacturing industries. Besides, as most consultants in the country are not officially certified according to specific criteria, they cannot make much contribution to technology transfer and the provision of learning opportunity for SMEs.

It is therefore recommended that the MOIT, responsible for promotion of SMEs in the manufacturing, commerce and service sectors, plan and implement the training programs for basic management and production control technologies and thereby promote propagation of appropriate technology, encourage self-education of SMEs, and support human resource development efforts.

At present the MOIT often hires instructors from outside for training programs whereas the PUSDIKLAT-INDAG has many internal instructors and the IDKM has extension officers. Through the TOT (Training of Trainers) for present instructors and extension officers of the

MOIT conducted jointly by the MOIT and the Study Team, their potentiality as a instructor of the recommended training programs on "soft technology" has been confirmed. From the standpoint of maximum use of exiting resources, MOIT should repeat training programs for those who participated in the TOT and implement a new training program on "soft technology" for manufacturing SMEs on a regular basis.

A.2 Reinforcement of a support system for upgrading of plastic molding, metal press and die/mold technologies

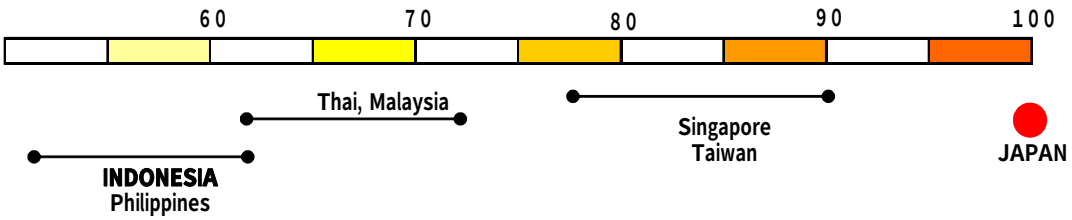
(1) General outline of the plastics molding and metal press forming industries

1) Plastics molding industry

Competitiveness

In Indonesia, key plastics parts used for production of electrical/electronics equipment (household appliances) and office equipment are mainly imported from various countries such as Singapore and Malaysia. While some of local companies are capable of making plastics parts, including dies/molds, they are lagged behind competitors in the ASEAN countries (Singapore, Malaysia and Thailand) in terms of production volume and product quality; the results of interview surveys conducted in Japan and Indonesia indicate that, when the average quality of plastics products made in Japan is rated as 100, that of the products made in Singapore 80 – 90, Thailand and Malaysia 70, and Indonesia slightly below 60. Thus, plastics manufacturers in Indonesia lack international competitiveness. The similar evaluation was made for dies/molds that are indispensable for plastics molding. It should be noted, however, that detailed data and information are not available because there is no trade association representing dies/mold manufacturers.

Fig. 5-1 Quality Rating of Plastics Products and Dies/Molds in Selected Countries

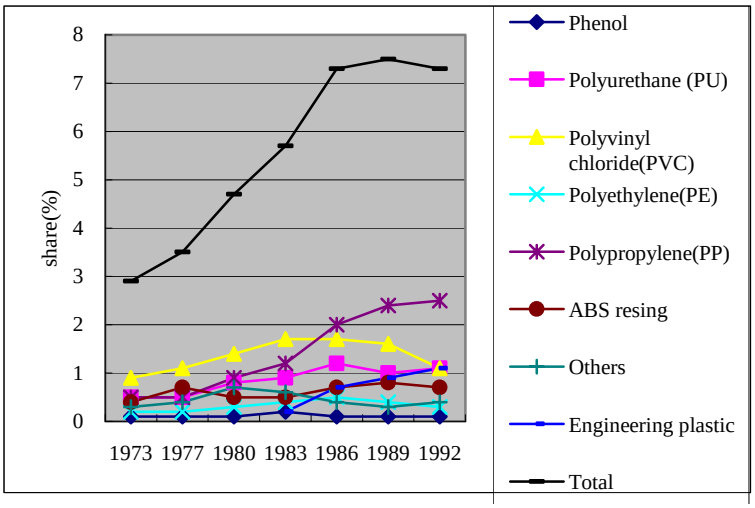


Source: Interview surveys conducted by the JICA study team

Automotive industry and plastics

Plastics parts gained importance in automobile production rapidly in and after the 1970s. Their share of automotive parts stabilized at around 7.5% from the late 1980s to 1992 (Fig.5-2) and rise again in recent years due to the improvement of strength and quality.

Fig. 5-2 Composition of Plastics and Resin in Automotive Production



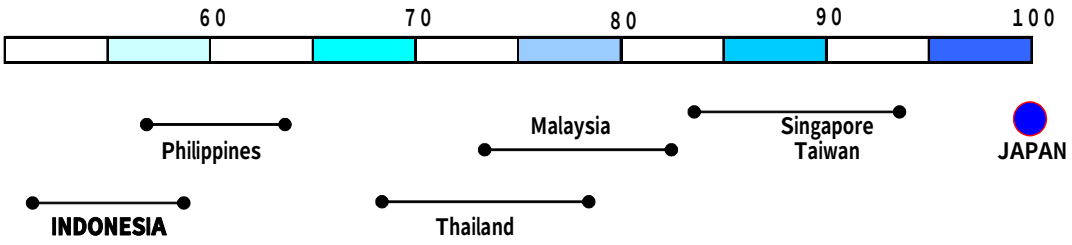
Source: Automotive Industry, Vol.26

2) Metal press working industry

Competitiveness of press dies made in Indonesia

The study team also conducted interview surveys to evaluate quality of metal press dies, and the results indicate that, when that of Japanese products was rated as 100, Singapore, Taiwan and South Korea followed with around 90, then Malaysia 80, Thailand 75, the Philippines 60, and Indonesia 55.

Fig. 5-3 Quality Rating of Press Dies in Selected Countries



Source: Interview surveys conducted by the JICA study team

(2) Improvement of plastics injection and press working technologies

In Indonesia, there have been some discussions on the need to promote the improvement of engineering technology including metal press forming. For instance, the JICA Follow-up Study on the development of supporting industries in the Republic of Indonesia in 1996 and 1997 has proposed the development of a support system for improvement of engineering technology in "Program 11: Expansion of Human Resource Development." Unfortunately, however, no concrete measures have been taken to put proposals into practice. The present study therefore reiterates the need for public support if engineering technology in Indonesia is to be upgraded. In particular, as plastics molding and metal press working cannot do without dies and molds, they should be fully included in the discussion.

In Japan, parts manufacturers belonged to a "keiretsu" system in which they were virtually captive suppliers to specific assembly companies. This business practice prevailed in the automotive industry and most parts manufacturers served as subcontractors of car assemblers and did not supply their products to assemblers other than their "virtual parents." In 1999, however, the keiretsu system collapsed and disappeared in Japan.

In Indonesia, two keiretsu systems (Astra and Indo-Motor) prevails and supply of parts is still confined within each keiretsu system. As a result, technology transfer and technical assistance take place within the keiretsu system and a large number of SMEs that do not belong to neither system are left without any technical assistance.

In a sense, the shortage of public support organizations is considered to be a major factor for impeding the development of press working and plastics molding technologies. For some areas, no technical support is available. As for precision plastics molding and mold design and manufacturing techniques, only three organizations provide training, namely POLMAN ATMI (SOLO), POLMAN BANDUNG, and POLMAN ASTRA. In practice, however, they primarily teach the manufacturing of casting and press dies but that of plastics molds is not a center of attention. Compared to the actual training demand, the three organizations are not capable of meeting it as seen from their capacity. Also, they are primarily concerned with skills training for people with no work experience and the training for upgrading of workers' skills is not their main task. Similarly, training centers under the MOIT (Balai Besar Kulit, Karet Dan Plastik, and Yogyakarta) offer basic training in the area of plastics molding, but they appear not to be capable of providing training for skills improvement as judged from their equipment. Also, Yogyakarta is not located in an industrial area and is far from Jakarta, thus it is not likely to be used by private enterprises.

1) Plastics molding technology

In Indonesia, only a handful of organizations provide training for precision plastics molding and mold design/manufacturing techniques, so that there is a substantial gap between supply and demand.

Furthermore, there is no organization – regardless of private or public - to provide training for maintenance of plastics molds. The trade organization does not have the ability to provide technical support. As a result, plastics molds used by SMEs in the country are said to have a much shorter service life (around 10%) than those used by SMEs in the ASEAN countries, which produce similar plastics products. This constitutes a significant disadvantage in terms of production cost.

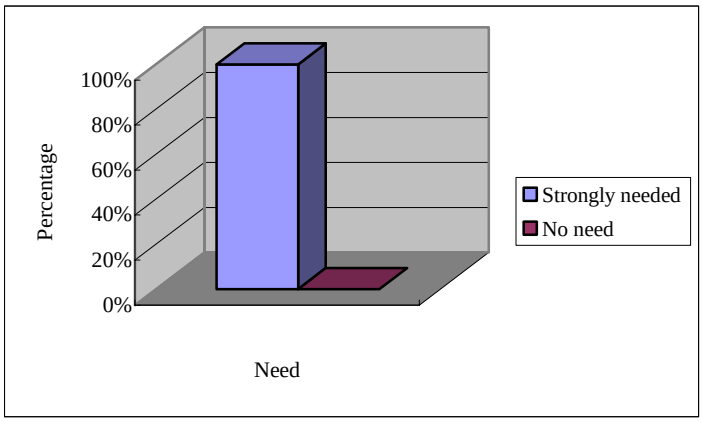
Some component manufacturers who have relocated to Indonesia with assembly companies point out that "the absence of local companies that can make precision plastics molds necessitates imports to unduly increase the mold cost and set off the labor cost advantage." As assemblers do not expect local manufacturers to have sufficient technology levels, a technology gap between local and OEM manufacturers may widen further. Unless effective measures are taken to narrow the gap, development of the local industry cannot be hoped.

In addition to the above interview surveys, it is pointed out by the Indonesia Electronic and Electrical Appliance Industries Association (EEAI) - which is composed of companies engaged in the manufacture of plastics parts - that little training is undertaken to improve plastics injection technology in Indonesia. In this recognition, the study team conducted a questionnaire survey of companies that manufactured plastics components to identify what the industry expected from the training to improve plastics molding technology[1].

The results of the questionnaire survey are summarized in Figures 5-4, 5-5, 5-6, 5-7, and 5-8.

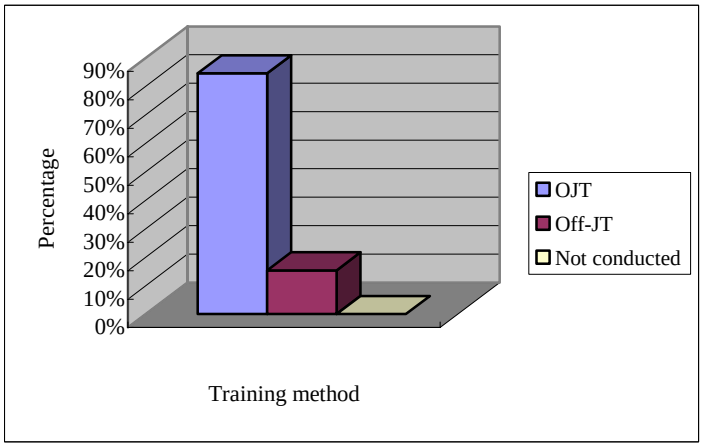
[1] 15 companies surveyed; respondents ranging between middle managers and CEO; survey methods (5 companies - direct contact and immediate response; 15 - response by facsimile); rate of response – 50%

Fig. 5-4 Need for Training for Improvement of Plastics Injection Technology



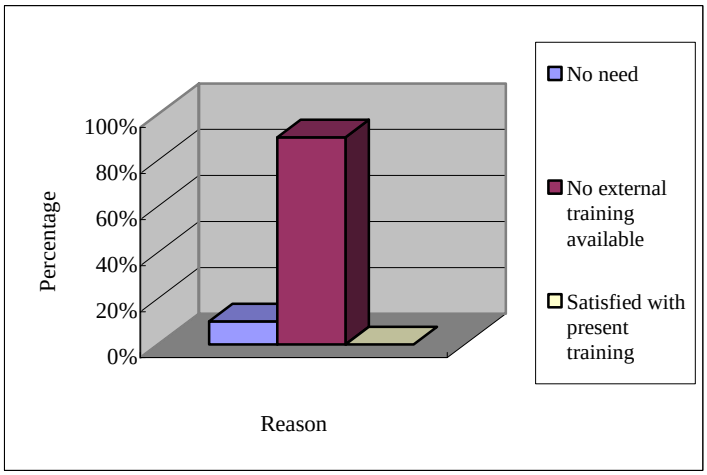
Source: JICA Study Team

Fig. 5-5 Training Method



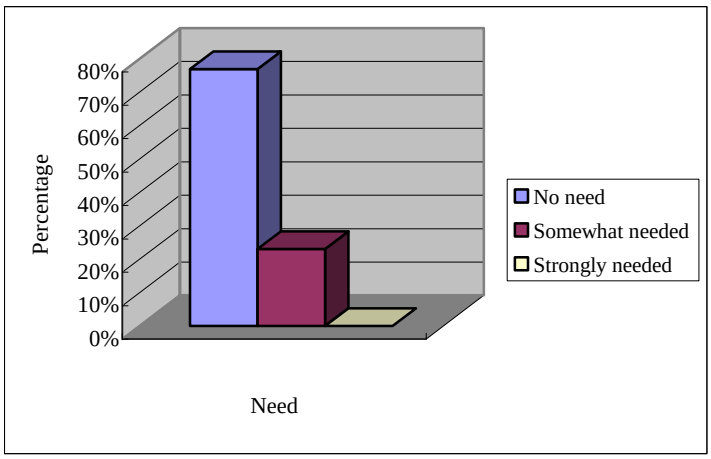
Source: JICA Study Team

Fig. 5-6 Reasons for Not Conducting External Training



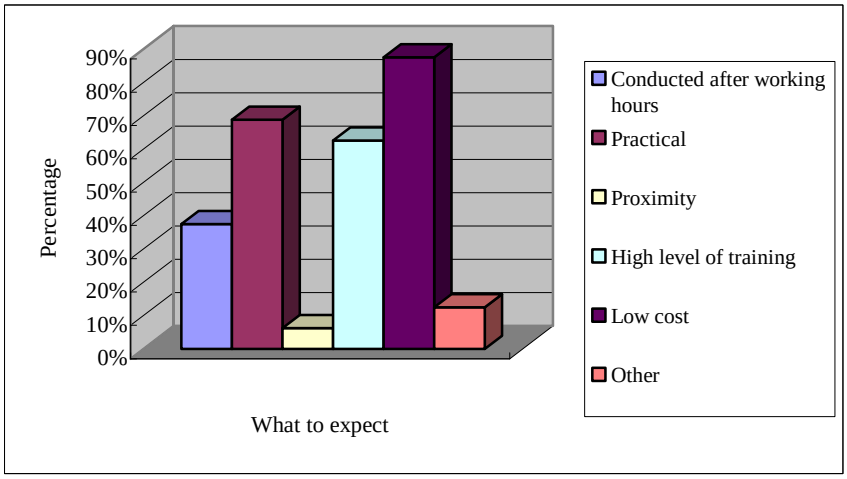
Source: JICA Study Team

Fig. 5-7 Need for Training for Plastics Injection Technology by External Organization



Source: JICA Study Team

Fig. 5-8 Requests for Training



Source: JICA Study Team

As seen from the results, many companies feel the need for training for improvement of plastics injection technology, but present efforts are mostly limited to the OJT because there is no training organization outside the company. Many companies want to receive adequate training from an external organization and give priority to: 1) low cost; 2) practical training; and 3) high level. The fact that the low cost is given of highest preference clearly suggests strong demand for the reinforcement of public support.

2) Press working technology

In the course of the present study, the study team has come to realize the need for upgrading of press working technology in the country. As a part of efforts to set a strategic direction, an interview survey was conducted for the trade association representing automotive parts manufacturers – which use a large number of metalworking

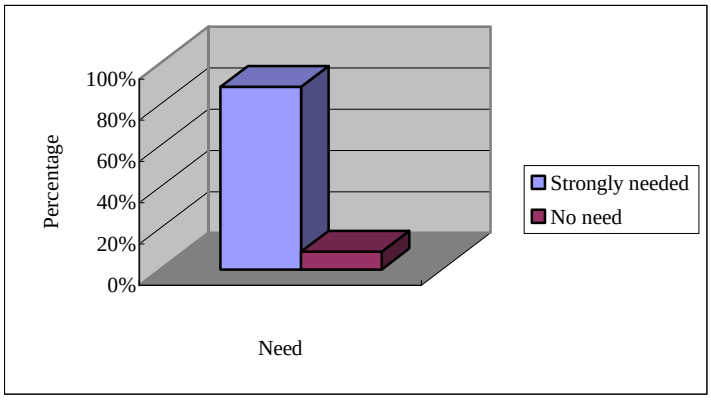
parts with high precision requirements - to find the industry's recognition on their present technology levels.

The Indonesian Automotive Parts & Components Industries Association (GIAMM), which responded to the survey, consists of 130 member companies, mainly SMEs, and was established to promote development of the automotive parts industry and improve its position and recognition. Thus, the GIAMM is considered as an organization representing the interest of the automotive parts sector and its views.

Responses from the GIAMM are summarized as follows. First of all, they are currently relying on the OJT as a principal means of training for press working technology and skills but are not necessarily satisfied. Although many companies feel the need for further improvement of press working technology, they do not have any other way to achieve the goal, largely because no external training organization is available. Finally, it is important realize that press die design and maintenance technologies form an integral part of press working technology, and training should preferably cover die-related field skills, namely: 1) to read and understand parts drawings; 2) to design and make a die; and 3) to use the manufactured die for actual press working.

Based on the results of the interview survey, a questionnaire survey was conducted for manufacturers of press working parts[2]. The results support the conclusion drawn from the GIAMM survey results. (See Figures 5-9, 5-10, 5-11, 5-12, and 5-13.)

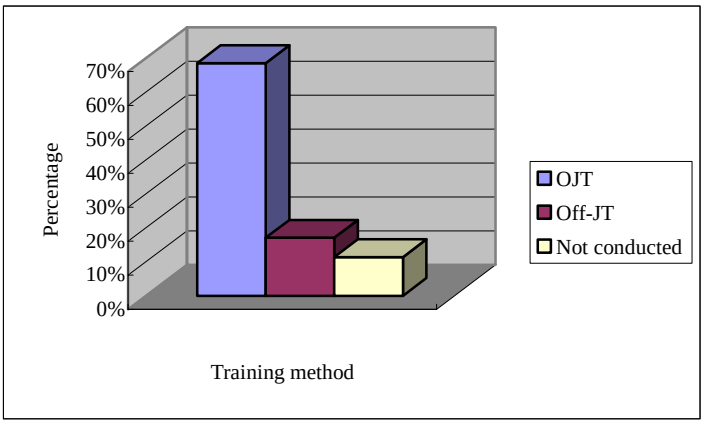
Fig. 5-9 Need for Training for Improvement of Press Working Technology



Source: JICA Study Team

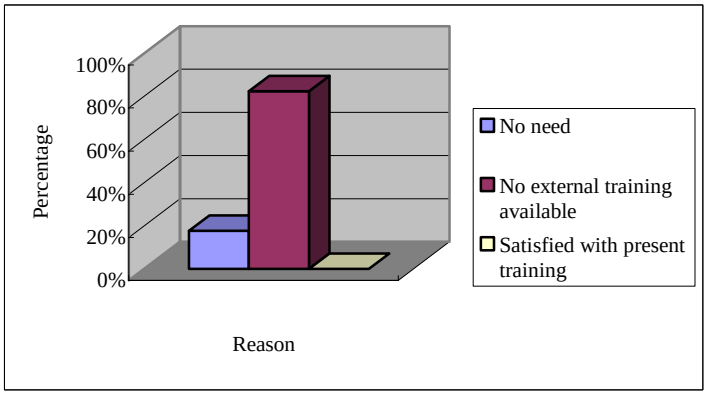
[2] 35 companies surveyed; respondents ranging between middle managers and CEO; survey methods (30 companies - direct contact and immediate response; 5 - response by facsimile); rate of response – 100%

Fig. 5-10 Training Method



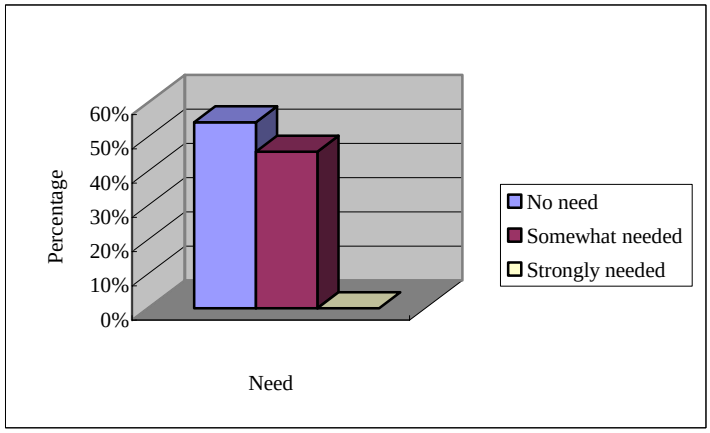
Source: JICA Study Team

Fig. 5-11 Reasons for Not Conducting External Training



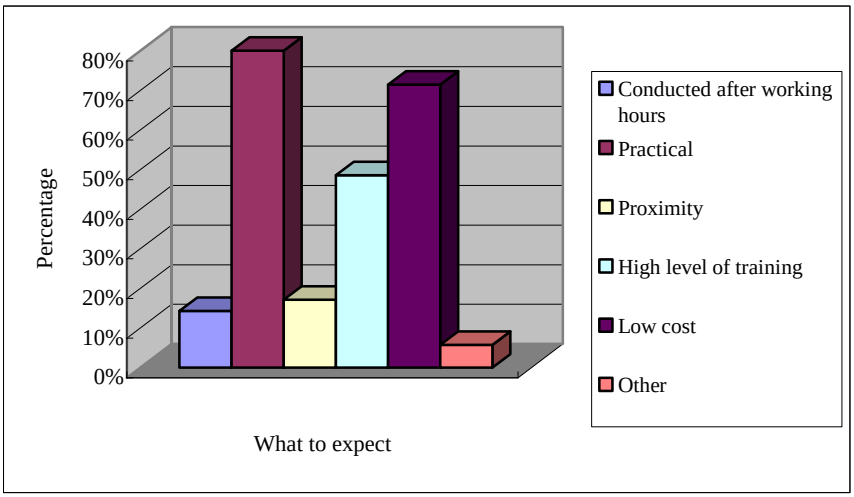
Source: JICA Study Team

Fig. 5-12 Need for Training for Press Working Technology by External Organization



Source: JICA Study Team

Fig. 5-13 Requests for Training



Source: JICA Study Team

The survey results indicate the absence of training organizations in the field of press work and strong demand for such training from many companies. Then, many expect that training should be conducted at low cost, while teaching practical and advanced techniques.

From Fig. 5-11, it is clear that many companies do not train their employees for improvement of press working technology largely because there is no outside organization that offers a suitable training program. On the other hand, as indicated in Fig. 5-13, many companies are willing to participate in an outside training program, even if it is offered after working hours and is far from their companies. As in the case of plastics injection technology, therefore, the results reveal the need for reinforcement of public support in the field of press working technology.

B.1 Establishment of a department in charge of human resource development for SMEs within the IDKM

Among the responses to the demand survey of SMEs, many complained about the inconsistent training programs by the government pointing out lack of a long-term plan.

Within the MOIT, the PUSDIKLAT-INDAG is a sole organization specialized in education and training. However, various departments implement training programs for private enterprises according to their own policy. Neither of them, including the IDKM, has no section specialized in human resource development. This suggests that the MOIT's

training programs are not necessarily conducted under a long-term plan. Most importantly, no coordination or information exchange has been made among related departments, including the PUSDIKLAT-INDAG, although several attempts to improve the situation have been made in the past. Clearly, the present implementation system does not satisfy its users.

Long-term policy making, annual planning, budget allocation, and coordination of program implementation organizations can be made efficiently by assigning all the functions to a single organization, while enabling the government to meet the actual needs of the affected industry effectively and quickly. As government involvement in human resource development for SMEs is positioned as part of SME promotion policy, and as the IDKM is responsible for the development of SME promotion policy for the manufacturing and service sectors within the MOIT, it is therefore recommended to create, within the IDKM, a department in charge of human resource development for SMEs in the manufacturing sector.

In Chapter 4 of the main Report, we have analyzed various governments and their organizations engaged in human resource development for SMEs. In Japan, the METI has the Small- and Medium-sized Enterprises Agency as its external agency, under which the Japan Small and Medium Enterprise Corporation (JASMEC) is operating. Within the JASMEC, the Institute for Small Business Management and Technology conducts training programs, thus the implementation organization is directly below the policymaking agency. In Thailand where promotion of supporting industries has been successfully progressing, the Department of Industrial Promotion (DIP) under the Ministry of Industry (MOI) is responsible for policy making, and under the DIP, the Bureau of Entrepreneur and Enterprise Development (BEED) has been implementing SME human resource development programs for an extensive period of time. An emphasis has been placed on dissemination and teaching of management technologies in collaboration with the private sector (including educational institutions), although the focus is recently being shifted to business startup support. In Taiwan, the Small and Medium Enterprise Administration (SMEA), which was established by the Ministry of Economic Affairs (MOEA) in 1981, builds national networks and is responsible for both policy making and operation of human resource development programs as part of policy implementation. In Malaysia, human resource development programs are largely conducted by private organization, universities, and local governments under subsidy of the central government, while the Small and Medium Industries Development Corporation (SMIDEC) under the central government supervises departments in charge of planning of human resource development in collaboration with policymaking departments.

Whether government is directly involved in implementation of human resource development programs for SMEs varies among countries, most governments leave the functions of SME promotion policy making and program implementation (including human resource development) to a single organization. This should constitute a reliable ground for the establishment of a department in charge of human resource development for SMEs within the IDKM.

B.2 Establishment of a department specialized in training for manufacturing SMEs within the PUSDIKLAT-INDAG

General profiles of the PUSDIKLAT-INDAG, a sole training organization under the MOIT, are described in Chapter 2. It was created from a merger of the former PUSDIKLAT that carried out training of employees of state-owned companies and the MOIT staff, and the PUSBINLAT that was responsible for school education and training of corporate employees. Thus, the PUSDIKLAT-INDAG is currently responsible for: 1) training of employees of state-owned companies and the MOIT staff; 2) school education; and 3) training of employees of private enterprises. Within the MOIT, it is positioned as an independent organization separate from the IDKM, the BPPIP, the NAFED, and other departments.

Its training programs are specialized in "soft" technology whereas the programs by BDI include those of production technology for local industries. Notably, as for training programs open to the private sector, the PUSDIKLAT-INDAG is responsible for soft technology and the BPPIP hard technology.

As for effectiveness of training programs intended for employees of private enterprises at the PUSDIKLAT-INDAG, however, the following problems are pointed out.

- Basically, the training of employees of private enterprises is placed in a subordinate position among other functions. Aside from MOIT staff training and school education, most training programs are designed for employees of state-owned companies and some of them accept employees of SMEs. There is no training program specifically designed for SME employees.
- As a result, there is no training program that teaches basic management and production control technologies, which are highly demanded by manufacturing SMEs.

In Indonesia, there are approximately 160 state-owned companies, although they have been gradually decreasing with the progress of privatization. All of them are large enterprises

employing more than 2,000 persons each. Their line of business includes cement, fertilizer, paper making, shipbuilding, and banking. The PUSDIKLAT-INDAG provides training for employees of around 20 state-owned companies on a fee basis (no government subsidy).

In planning and implementing a training program, it is imperative to define a type of person for which the program is designed. More precisely, knowing the type of industry, the type of ownership, the enterprise size, and the position and the function of a participant is essential for the program organizer to provide information useful for the participant in an effective and efficient manner. The problems cited above come from the fact that the PUSDIKLAT-INDAG tries to accommodate training of employees of SMEs within training programs designed for state-owned companies, which are essentially large enterprises.

It is important to realize that background knowledge of employees and their area of interest vary greatly between large enterprises and SMEs, which are summarized as follows.

- Generally, employees of large enterprises have higher levels of knowledge (basic management knowledge and latest management techniques) than those of SMEs. As a result, a training program for the latter should often start with basic knowledge before teaching a main theme of the program. The program content should be tailored to the actual level of understanding, including technical terms and expressions that often vary according to the enterprise size or the type of industry.
- Employees of large enterprises perform the function that is narrower in scope and higher in the degree of specialty, compared to those of SMEs. A training program for the former, therefore, should provide information that is highly focused and responds to a specific interest in professional knowledge.
- Managers of large enterprises have less knowledge on day-to-day field operation than those of SMEs do, so that a training program for the former needs to avoid such subject or give background knowledge as introduction.
- Employees of large enterprises tend to prefer a subject that is related to a management theory and principle, rather than practical knowledge, compared to those of SMEs. They believe that their job is to learn and apply theoretical knowledge to actual operation. On the other hand, employees of SMEs expect to obtain practical knowledge that can be applied to every operation as it is.
- By the same token, large enterprises generally prefer a training program that serves the interest of human resource development from long-term perspectives, whereas SMEs opt to send their employees to a training program that teaches knowledge and skills that can readily be applied to field operation. As a result, training programs for employees of

large enterprises generally emphasize theories and long-term human resource development. On the other than, those for SME employees tend to focus on hands-on knowledge and know-how.

- Managers of large enterprises are supported by a larger number of staffers, while those of SMEs have much fewer supporting staff. As a result, many SME managers are willing to participate in a training program because, in many cases, they do not have staff that can understand and apply the learned knowledge to the betterment of operation.

Since there is a large difference between large enterprises and SMEs in the type and level of training expected, together with background knowledge, it is not appropriate, and more infeasible to offer the same training program for employees of the two types of enterprises.

The organizational chart of the PUSDIKLAT-INDAG is presented in Chapter 2. Notably, there is a department in charge of MOIT staff training, whereas a department is responsible for school education, training of state-owned companies' staff, and training of employees of private sector. Even in the proposal of restructuring of human resource development organizations of the MOIT presented by the Indonesian University in December 2003, one department of the PUSDIKLAT-INDAG remains responsible for training of both state-owned companies and private sector.

As pointed out earlier, training programs to teach soft technology to manufacturing SMEs should be separated from those for state-owned companies, which are large enterprises with a different area of interest. To plan and implement the training programs effectively by understanding the needs of potential participants, it is recommended to establish a department exclusively in charge of training programs for SMEs in the manufacturing sector.

B.3 Establishment of a human resource development committee led by the IDKM's new department in charge of human resource development and consisting of representatives of the MIDC and the PUSDIKLAT-INDAG's department in charge of training for manufacturing SMEs

The MOIT has transferred the MIDC, which was previously a technical support center under the BPPIP, to the IDKM for the purpose of developing it to an organization to provide integrated support for SMEs in the area of production technology. On the other hand, a new department of the PUSDIKLAT-INDAG in charge of training programs for private sector, as proposed here, should serve as a core element of teaching and disseminating management and

production control technologies to SMEs, for the PUSDIKLAT-INDAG is a sole training institute for soft technology under the MOIT.

It is recommended to establish a human resource development committee consisting of representatives of the MIDC and the PUSDIKLAT-INDAG's department in charge of SME-oriented training, under the leadership of the IDKM's department in charge of human resource development. The committee will be charged with tasks to realign the ongoing training programs for SMEs, which are currently implemented by different organizations, to develop a long-term plan and an annual implementation plan on the basis of needs assessment, and to implement and manage training programs accordingly.

The committee will be in charge of, for the time being, initiation and implementation of a training program for manufacturing SMEs to teach management and production control technologies, as proposed in A.1. The preparation of the program has been started as a TOT under this Study. TOT was implemented under the support of the study team and marks the first joint program of the IDKM and the PUSDIKLAT-INDAG.

The committee is expected to become the nucleus to promote the establishment of the "SME Human Resource Development Center" which is proposed in the "Policy Recommendation for SME Promotion in Indonesia 2000, JICA". The "Policy Recommendation" from which the present study has been originated, recommends the establishment of the center as an integral part of the human resource development initiatives, and more importantly, it points out that the government's leading role in establishing the center serves to show its firm commitment to human resource development for SMEs to private sector.

Finally, as discussed in Chapter 4 of the main Report, the move toward the establishment of the SME management consultant certification system has been started in Indonesia. This serves the interest of SMEs that want to receive guidance and training from a consultant whose service quality is officially assured. The introduction of the certification system constitutes a next important step for the government's involvement in improvement of SME management and human resource development. At present, several organizations are working to start up different certification systems without much coordination or communication among them. Besides, government organizations are expected to become a certifying agency for individual consultants. It is therefore desirable to see that the proposed human resource development committee will grow to the "SME Human Resource Development Center," which will then

play a leading role in introduction of a uniform certification system for SME management consultants.

Note) Establishment of the MOIT HRD committee was announced by the decree of Director General of the IDKM in June 2004. However proposed departments 1) of the IDKM in charge of HRD for SMEs and 2) of the PUSDIKLAT-INDAG specialized in training for manufacturing SMEs have yet to be established.

5.4 Future Vision for the Support System for Human Resource Development of Manufacturing SMEs

Recommendations for MOIT's SME human resource development policies and programs are presented in 5.2. Prior to the discussion on the action plans, their common goals are presented as the "Future Vision for the Support System for Human Resource Development of Manufacturing SMEs" and activities to be conducted by the central government (MOIT) are defined. The action plans are positioned as the means to embody the future vision.

In the area of human resource development for SMEs, the MOIT has the following missions:

- Teaching, training and dissemination of management and production control technologies to corporate employees
- Teaching and dissemination of production technology to corporate employees, and skills training
- Teaching and training of international trade practice to corporate employees

In Indonesia, the Local Government Act was enacted in 1999 and decentralization has been promoted since January 2001. In establishing the future vision for human resource development and defining it as the MOIT's goal, actual moves relating to the decentralization process should be taken into account. In fact, major portions of the IDKM's SME promotion budget are diverted to rural regions. The IDKM's local offices are currently operated as DINAS under local government, which is responsible for fostering local industries, including human resource development, under the local government's budget as well as subsidy from the central government (MOIT). On the other hand, key implementation bodies for the MOIT's human resource development programs – PUSDIKLAT-INDAG, BPPIP and IETC – have their own local institutes or offices.

Support for human resource development for manufacturing SMEs will be conducted through the following four channels:

Channel 1 – Individual SME advisors and consultants
Channel 2 – Local government (DINAS)
Channel 3 – Balai Besar (technical support organization)
Channel 4 – Local institutes or offices of PUSDIKLAT-INDAG, BPPIP and IETC

(1) Management Technology

As discussed in 5.3, many manufacturing SMEs in Indonesia continue to operate using technology that has been imported years ago and obsolete equipment. To ensure that they maintain and develop production activities, "soft" technology, i.e., management and production control technology, is essential, together with production techniques (including machinery operation) and market information. Importance of soft technology can apply to all sectors, including supporting industries for assembly sectors and local industries such as food, textile and furniture. Teaching and dissemination of soft technology is the primary mission for the MOIT's human resource development program for SMEs.

In light of the progress of the decentralization process, teaching and dissemination of soft technology to SMEs should be primarily led by: 1) DINAS under local government (Channel 2); 2) local institutes of PUSDIKLAT-INDAG (BDI) (Channel 4); and 3) individual management consultants (Channel 1).

The MOIT's SME support should be centered on training programs conducted by DINAS and BDI, which take into consideration characteristics of local industries, including their actual needs and wants. On the other hand, many SMEs wish to have advice and guidance from experts within their production facilities, together with personal training. They seem to believe that field advice is a better solution for problems they are facing than external training of their employees, probably because they often require customized guidance for specific problem solving, while SME owners are concerned about possibility of losing their employees who may look for other job after training. At present, there is strong demand for competent management consultants, who include not only private consultants but extension officers as well. The MOIT is expected to secure quality of individual management consultants and provide adequate support for them.

(2) Production technology and skills

Unlike the teaching of soft technology, training and dissemination of production technology and skills to corporate employees requires physical facilities and equipment, in addition to support staff and instructors. UPT, operated under local government, can be a candidate as it has a national organization, but it does not function well due to obsolete equipment. Instead, Balai Besar under BPPIP of the MOIT (Channel 3) and its local organizations (BARSTAND) (Channel 4), which are responsible for training and dissemination of hard technology to the private sector including SMEs, are expected to lead the initiative.

As for dissemination of production technology to local industries, local government is currently playing a central role through DINAS and will continue to do so in the future.

(3) International trade practice

Training activities in the area of international trade practice are currently led by IETC through its local organizations (RETPC).

(4) Activities of the central government (MOIT)

To maintain the above-mentioned support system for SME human resource development, the central government, i.e. MOIT, should provide support in a variety of areas, which are listed below. Note that the recommendations and the action plans contained in this report define the steps to be taken in order to ensure the MOIT's future activities.

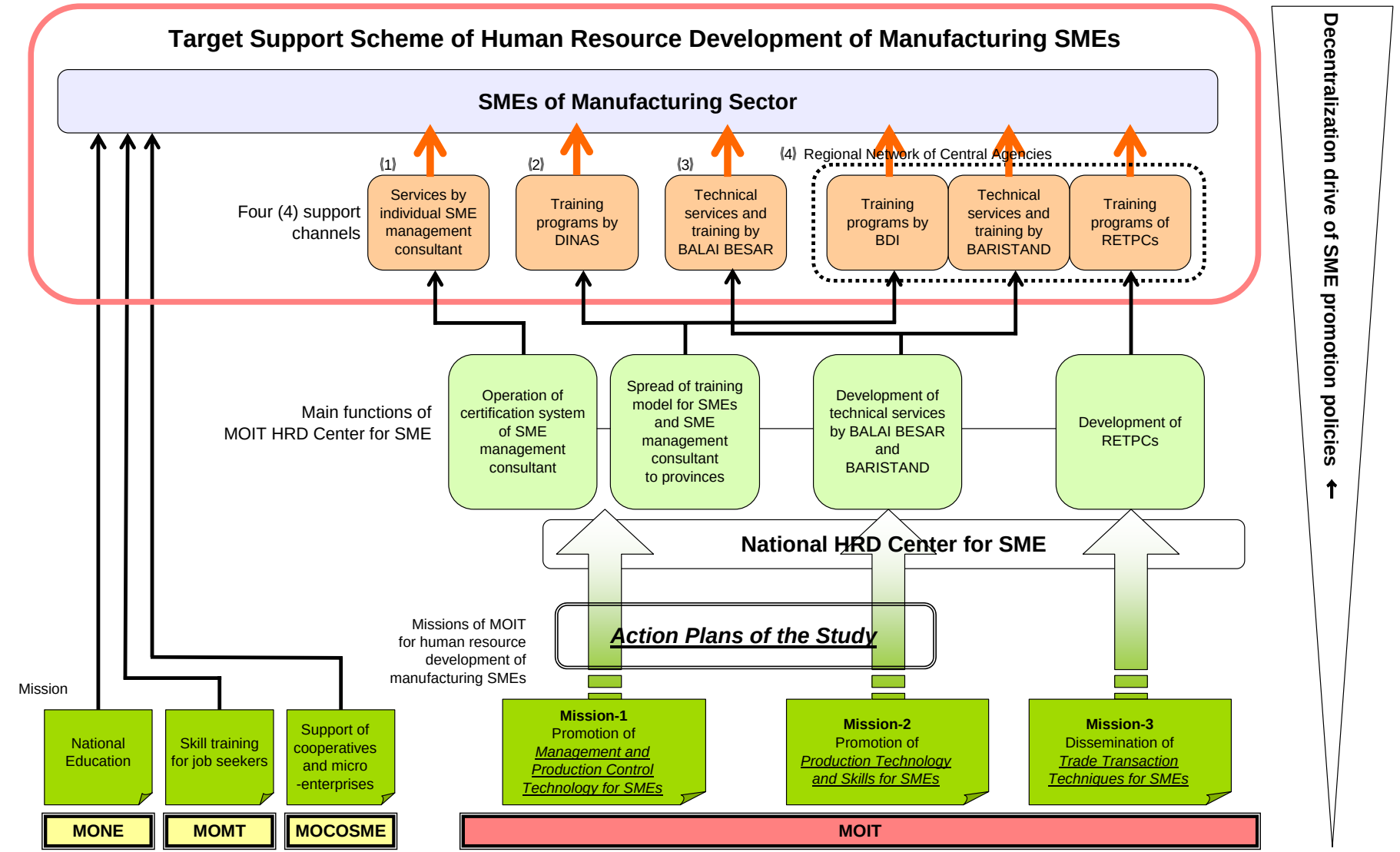
Areas of MOIT's support:

1) Support for human resource development on the basis of actual condition and needs of SMEs;
2) Establishment of a standard training program on soft technology for SMEs and training of instructors;
3) Implementation of the standard training program on soft technology for SMEs;
4) Dissemination of the standard training program on soft technology for SMEs to rural regions;
5) Certification of SME management consultants by law and administration of the certification system;
6) Implementation and promotion of training courses for SME management consultants;

7) Reinforcement of the support system for production technology and skills operated by Balai Besar and BARISTAND;
8) Promotion of local deployment of the international trade training center; and
9) Promotion of linkages among local training institutes (BDI) of PUSDIKLAT-INDAG, local organizations (BARISTAND) of BPPIP, and local organizations (RETPC) of IETC.

Fig. 5-14 shows a future image of the support system for human resource development for manufacturing SMEs, activities of the central government (MOIT) under the system, and the positioning of the action plans.

Fig. 5-14 Target Support Scheme of Human Resource Development of Manufacturing SMEs by MOIT and Action Plans of the Study



Source: JICA Study Team

5.5 Action Plans

The action plans, as proposed here, are a set of plans to embody the future image of the MOIT in relation to human resource development, as discussed in 5.4. Their frameworks are based on the following five recommendations made in 5.2, together with their rationales.

A.1 Start of a training program for basic management and production control technologies suitable for manufacturing SMEs

A.2 Reinforcement of a support system for upgrading of plastics molding, metal press, and die/mold technologies

B.1 Establishment of a department in charge of human resource development for SMEs within the IDKM

B.2 Establishment of a department specialized in training for manufacturing SMEs within the PUSDIKLAT-INDAG

B.3 Establishment of a human resource development committee led by the IDKM's new department (above) and consisting of representatives of the MIDC and the PUSDIKLAT-INDAG's department in charge of training for manufacturing SMEs (above)

The above recommendations are organized into the following three action plans.

Action Plan-1 Establishment of the MOIT Human Resource Development Committee (Recommendations B1, B2 and B3)

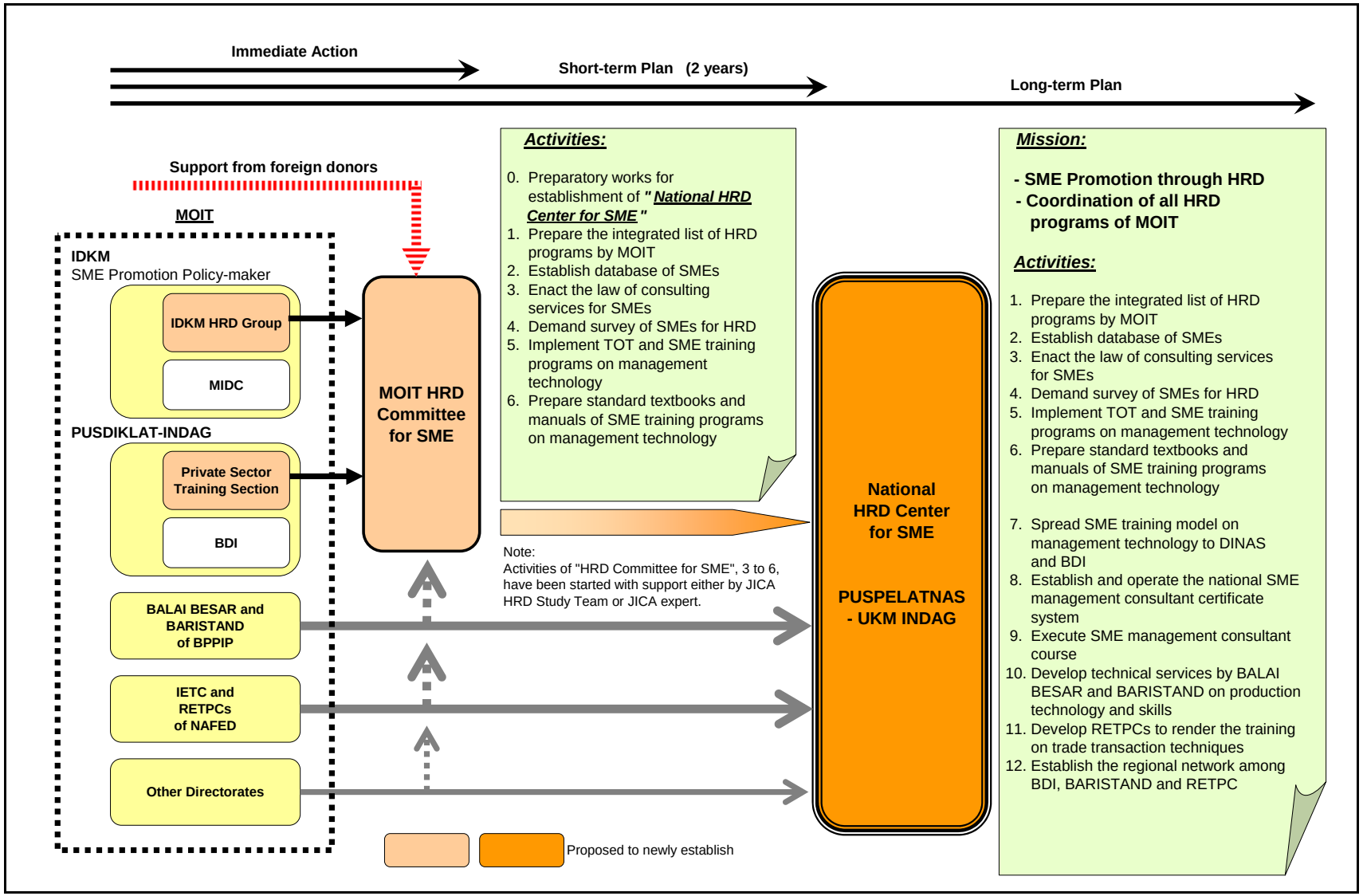
Action Plan-2 Implementation of the Training Program for Management and Production Control Technology for Manufacturing SMEs (Recommendation A1)

Action Plan-3 Reinforcement of the Support System Relating to Production Technology (Recommendation A2)

5.5.1 Action Plan-1 Establishment of the MOIT Human Resource Development Committee

Fig.5-15 illustrates Action Plan-1, both in the short- and long-terms.

Fig. 5-15 Action Plan-1、2



PUSPELATNAS: Pusat Pendidikan Pelatihan Nasional

Source: JICA Study Team

(1) Objective: To establish the National Human Resource Development Center for SME

(2) List of short-term actions and participating organizations

(2)-1 Formation of the Human Resource Development Group within IDKM

The MOIT's SME human resource development program should be led by IDKM that is responsible for policymaking in the field of SME promotion in order to establish human resource development policies, annual implementation plans, and long-term plans that should be consistent with SME promotion policy. At present, the program is being implemented by the MOIT's divisions (including IDKM) and agencies, which plan and implement different training programs on their own. IDKM does not have a division specialized in the planning and implementation of SME training programs.

While the establishment of such division is desirable, it may take time to do so under the budget constraint. It is therefore recommended to organize the Human Resource Development Group as transitional measures. More precisely, the group will be composed of IDKM's staff who has been appointed as counterpart for JICA's HRD expert who is currently assigned to IDKM. They will be appointed to members of the proposed group and will operate under the Secretariat.

List of activities

a) Compilation of a comprehensive list of human resource development programs

A list of human resource development programs conducted by the MOIT's divisions and agencies will be compiled, containing detailed program information, including titles of training courses, eligibility, number of participants, duration, budget, and instructors. At the same time, a formal system to collect and update information from relevant divisions and agencies on a periodical basis will be established for the purpose of understanding the ongoing human resource development programs in general perspective and sharing major issues and areas of improvement among the different programs.

b) Development of a SME database

A project should be started to develop a database of SMEs that should be covered by the MOIT's human resource development programs. The planning and implementation of SME promotion policies, including human resource development programs, should be

always based on latest data on SMEs throughout the country. To the study team's knowledge, various directorates of IDKM maintain corporate data on different sectors that they are responsible for, but their coverage, updating method and frequency are not clearly defined. The project should therefore start with integration of different databases owned by directorates.

In most countries, registration of business enterprises or establishments is made with local government according to the place of business. In theory, integration of all databases on business registration owned by local governments can create, among other things, a comprehensive database on SMEs in the entire country. In practice, however, information provided for business registration is fairly limited and often does not contain key information required for the analysis of industrial sectors and the planning of industry promotion policy. In consequence, a division or ministry in charge of industrial policy in most countries has to develop its own database for the purpose of policymaking. Such database is primarily compiled from sources such as databases of trade associations and a list of suppliers owned by leading companies in each sector. Thus, IDKM is required to maintain communication and information exchange with trade associations.

c) Legislation

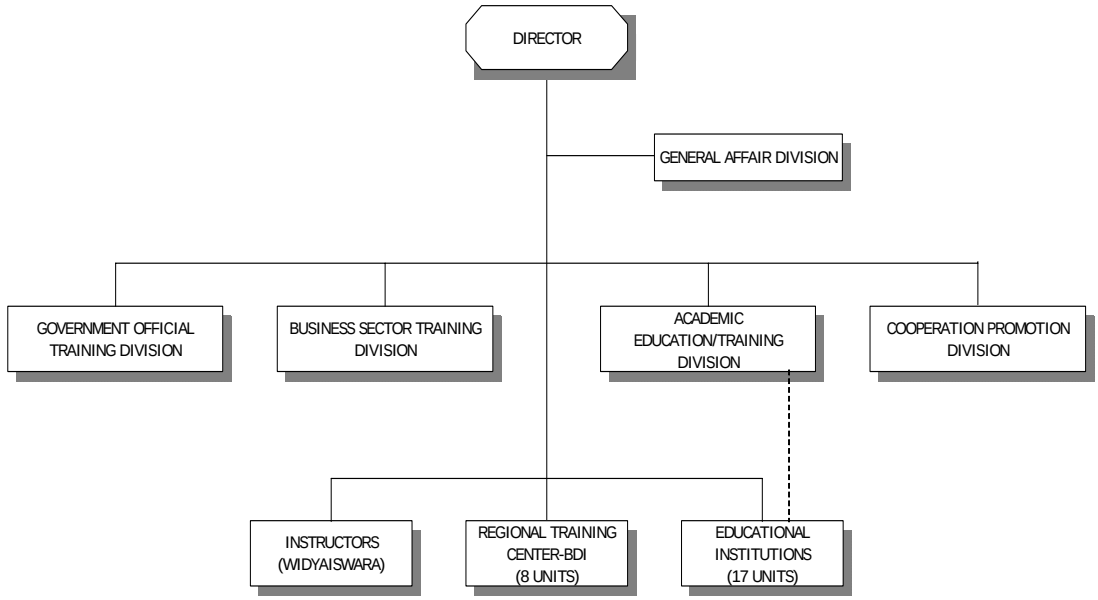
Legislation relating to SME guidance will be promoted. The MOIT has approximately 3,000 extension officers who serve as SME consultants throughout the country. However, their professional background varies greatly and no clear standard has been established to review and evaluate knowledge and skills required for SME consultation service. As a result, there is an apparent lack of incentive for extension officers to improve their skills, while reputation among SMEs is adversely affected. As extension officers, together with private consultants, are expected to play a leading role in SME guidance, it is crucial to establish professional standards, by law, for SME consultants, including qualifications, training requirements and scope of service.

(2)-2 Establishment of Private Sector Training Division at PUSDIKLAT-INDAG

PUSDIKLAT-INDAG, created by a merger between PUSDIKLAT and PUSBINLAT, has an organization that reflects those of the merged organizations. Other than school education, it has training programs for employees of government, state-owned companies, and private enterprises, but those for the private sector are not independent in terms of both program structure and organization to operate individual programs. In this conjunction,

organizational reforms are already discussed, and a new organization for PUSDIKLAT-INDAG is proposed as part of a reform plan for the MOIT's HR training institutes, which was submitted by the University of Indonesia in December 2003, as shown in Fig. 5-16. However, the proposed organization has only "Business Sector Training Division" responsible for both state-owned companies and private sector.

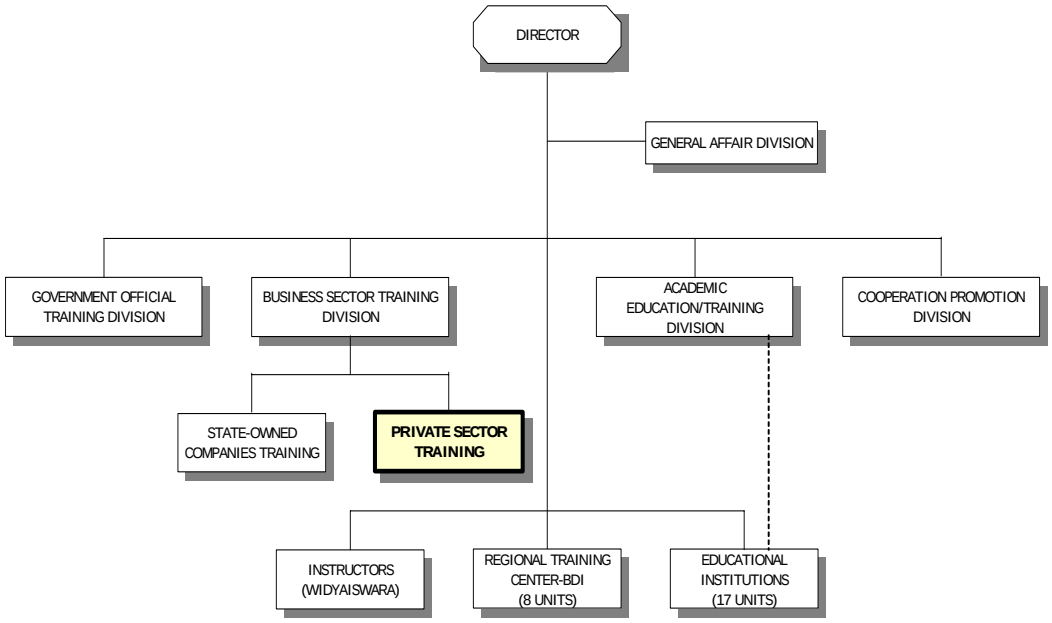
Fig. 5-16 Reform Plan of PUSDIKLAT-INDAG Organization by the University of Indonesia



Source: University of Indonesia

Importance of establishing a division specialized in training for private sector, especially SMEs, is discussed in 5.3 as a rationale for recommendation. Fig. 5-17 illustrates a new organization, which is based on that proposed by the University of Indonesia, with the establishment of Private Sector Training Division.

Fig. 5-17 Proposed Organization Chart of PUSDIKLAT-INDAG



Source：JICA Study Team

(2)-3 Establishment of MOIT Human Resource Development Committee

IDKM is responsible for policymaking in the field of SME promotion and should play a central role in human resource development. PUSDIKLAT-INDAG is an organization specialized in human resource development relating to management technology and has expertise and experience in designing and implementation of training programs, with required facilities and equipment. Also, it has been confirmed in the course of the model trainings under the present Study that it has potential instructors of management and production control technologies for SMEs. On the other hand, MIDC in Bandung is a metal engineering center conducting research and development and training, focusing on foundry, and it has been transferred from BPPIP to IDKM to make it as a core organization to support SMEs, especially supporting industries, in terms of production technology and skills.

After IDKM's Human Resource Development Group has been appointed and PUSDIKLAT-INDAG's Private Sector Training Division has been established, the MOIT Human Resource Development Committee including the MIDC will be established. IDKM will serve as leader because of its policymaking function.

While the MOIT Human Resource Development Committee will take over activities of IDKM's Human Resource Development Group, it will also be responsible for the following activities:

a) Survey of SMEs relating to human resource development needs;
b) Continuation of TOT and SME training programs which have been conducted under the present Study (see Action Plan 2)

TOT and SME model trainings were conducted jointly by IDKM, PUSDIKLAT-INDAG and JICA, and can be positioned as the first programs led by the MOIT Human Resource Development Committee;

c) Compilation of standard textbooks for training programs;
d) Development of training program manuals;
e) Promotion of the establishment of a certification system for SME management consultants; and
f) Promotion of the establishment of the National Human Resource Development Center for SMEs.

Note that the MOIT Human Resource Development Committee will serve as the parent body of the proposed National Human Resource Development Center for SME. It is also significant in that it is an interdepartmental organization founded by multiple divisions.

Note) Establishment of the MOIT HRD committee was announced by the decree of Director General of the IDKM in June 2004. However proposed departments 1) of the IDKM in charge of HRD for SMEs and 2) of the PUSDIKLAT-INDAG specialized in training for manufacturing SMEs have yet to be established.

(3) List of long-term actions and participating organizations

(3)-1 Establishment of the National Human Resource Development Center for SME

To ensure that the central government's SME human resource development activities are carried out in an integrated manner and consistently with ongoing SME promotion policies, the National Human Resource Development Center for SME will be established by

incorporating the MOIT's internal organizations relating to human resource development, under the leadership of IDKM that is the policymaking division.

As pointed out earlier, MOIT conducts several human resource development programs that are carried out by different divisions according to their own initiatives. The National Human Resource Development Center for SME needs to be participated by organizations other than members of the MOIT Human Resource Development Committee, especially BPPIP (production technology) and IETC (international trade practice). Also, the establishment of National Human Resource Development Center for SME can help advertise a strong commitment of the MOIT to human resource development to the public.

A major issue facing the National Human Resource Development Center for SME is whether: (1) it will truly integrate participating divisions by separating them from the present organization; or (2) it will serve as a coordinating organization for representatives of participating divisions, which will thus remain within the present structure. While it should be carefully considered, a primary objective is to ensure coordinated implementation of different training programs conducted by different divisions under an integrated, long-term plan, while building a system to allow various divisions to share expertise and information and work together to solve a problem that is encountered in program implementation.

Whichever function the new center will assume, i.e., integrated organization or coordinating one, its effective performance will depend upon the power to control the budget of all human resource development programs in an integrated manner.

Mission:

Promotion of SMEs through support for human resource development

List of activities

Based on the activity list for the central government (MOIT) under the future support system for SME human resource development, as discussed in 5.4, activities of the National Human Resource Development Center for SME are summarized as follows:

a) Development of a long-term plan for SME human resource development programs, which is consistent with SME promotion policy;

b) Coordination of different training programs implemented by various divisions in terms of scheme, content and program budget;
c) Periodical updating of the SME database;
d) Survey of SMEs relating to human resource development needs;
e) Periodical survey of cost and management indices relating to SMEs;
f) Development of a standard training program on soft technology for SMEs and training of instructors;
g) Implementation of the standard training program on soft technology for SMEs;
h) Dissemination of the standard training program on soft technology for SMEs to rural regions;
i) Establishment of the SME management consultant certification system by law;
j) Certification of SME management consultants and management of the certification system;
k) Implementation and dissemination of SME management consultant courses;
l) Reinforcement of Balai Besar's support system relating to production technology and skills;
m) Promotion of local deployment of the international trade training center; and
n) Promotion of linkages among local training institutes (BDI) of PUSDIKLAT-INDAG, local organizations (BARISTAND) of BPPIP, and local organizations (RETPC) of IETC.

The details of f), g) and h) are described in Action Plan 2, and those of l) in Action Plan 3. The establishment and management of the SME management consultant certification system will become one of major tasks for the National Human Resource Development Center for SME. In the next section, recommendations are made for system implementation and management.

(3)-2 Establishment and management of the SME management consultant certification system

Support for training and dissemination of management and production control technologies, which are highly demanded by manufacturing SMEs, will primarily consist of two elements: training programs offered by public and private training institutes; and field advice and guidance by individual management consultants.

The latter is already being carried out under the BDS that is promoted by MOIT and MOCSME. While MOIT is expected to make its extension officers fulfill the role of the management consultant, they cannot fully meet demand in the private sector due to the reason associated with the development history of the extension officers system. Private management consultants, available in a certain number, largely provide service for large enterprises, and their service is not affordable for most SMEs with financial constraint.

As outlined in Chapter 4 of the main Report, the establishment of a national professional certification system is already discussed by various government agencies and trade associations, together with activities to promote it. However, all the activities emphasize on certification of professional skills, and certification of consultants is primarily discussed in the field of architecture and civil engineering. As certification of the SME management consultant has still to be on the table, several certifications may emerge to cause deterioration of quality and public confidence in the profession, if no effort is made to establish a unified certification system.

Clearly, the central government, i.e., the MOIT, is expected to certify the management consultant and its service quality, while providing a level playing field for individual consultants. The National Human Resource Development Center for SME should show leadership in adopting a uniform standard for the SME management consultant by mobilizing all stakeholders in the public and private sectors and taking into account various activities that are already underway to promote the certification system.

The center will be responsible for management of the certification system. While the actual training of SME management consultants will be undertaken by private organizations, the center is required to play a central role in the following areas:

a) Development and implementation of a standard training scheme and curriculum;
b) Establishment of a certification standard; and
c) Publication and promotion of the standard training scheme and curriculum, and the certification standard.

(4) Implementation Schedule

Implementation schedule of Action Plan-1 is proposed as shown in the Fig.5-18. MOIT HRD Committee should be set up as soon as possible. Targeting the establishment of

"National HRD Center for SME" in two years, the Committee proceeds with the preparatory activities.

Fig. 5-18 Implementation Schedule for Action Plan-1

		Action Plan-1	1st Year	2nd Year	3rd Year	4th Year	5th Year	onward
Short-term	1	Formation of the HRD Group within IDKM						
	2	Establishment of Private Sector Training Division at PUSDIKLAT-INDAG						
	3	Establishment of MOIT HRD Committee						
Long-term	1	Establishment of the National HRD Center for SME						
	2	Establishment and management of the SME management consultant certification system						

Source：JICA Study Team

5.5.2 Action Plan-2 Implementation of the Training Program for Management and Production Control Technology for Manufacturing SMEs

(1) Objective: Implementation of training for management and production control technology for manufacturing SMEs and dissemination to rural regions

(2) List of short-term actions and participating organizations

(2)-1 Continuation of the training program for trainers (TOT) on management and production control technology

At present, training courses in the field of management and production control technology are in short supply and fail to meet strong demand from manufacturing SMEs. To support the MOIT's training program, the TOT (training of trainers) program will be implemented. Under the present Study, a model TOT program on management and production control technology has been carried out for IDKM's extension officers and PUSDIKLAT-INDAG's instructors. (See a report on the model TOT program in Annex 2.)

a) Implementation body

Participation of IDKM and PUSDIKLAT-INDAG is essential, and the implementation body will be the MOIT Human Resource Development Committee, as described in Action Plan-1.

b) Eligibility for TOT

Trainees for the TOT program will be in principle selected from extension officers of IDKM (including DINAS) and instructors of PUSDIKLAT-INDAG. As all of them have experience in teaching and/or providing guidance at a certain level, selection criteria should emphasize the field of specialization, work experience in the manufacturing sector, and the level of interest in TOT.

c) Instructors

Instructors will be recruited from MOIT, including trainees of the model TOT program (especially those selected as instructors for the SME model training program), private training institutes and companies. In the future, participants in the TOT program, who have good grades and are highly motivated, will be hired as instructors for the SME training program, as discussed in (2)-2. Then, those who have had experience in the SME program will be appointed to TOT instructors.

The TOT program is viewed as the first stage of the nationwide training program to be carried out by the National Human Resource Development Center for SME. The appointment of foreign instructors in the short- and long-run should be considered in order to learn from the experiences in other countries.

d) Contents of the training program

Textbooks used for the model TOT program will be used with some modifications and updating. In the course of the implementation, business administration, marketing, personnel affairs, and finance/accounting should be added. Most trainees do not have sufficient field experience. In addition to classroom lectures, field tours to visit factories are indispensable for the curriculum.

e) Budget

See (2)-2e.

(2)-2 Continuation of the SME training program on management and production control technology

In combination with the TOT program, a training program on management and production control technology for manufacturing SMEs will be launched. A model program has been conducted for three weeks during the present Study, and instructors have been selected from participants in the model TOT program. (See a report on the model SME training program in Annex 3.)

a) Implementation body

The SME training program will be implemented in combination with the TOT program in (2)-1. The MOIT Human Resource Development Committee should act as the implementation body for the program.

b) Eligibility

The SME training program is intended for factory managers and foremen of SMEs in the manufacturing sector. It should not be limited to supporting industries, but SMEs in all manufacturing industries. In the initial stage, the program will be implemented for SMEs in industrial areas of Jakarta and its vicinities. As the training scheme is established and a core cadre of instructors is trained, the program will extend to SMEs in other regions.

c) Instructors

Instructors will be selected from TOT instructors as well as TOT participants with a good record and a high level of motivation. In addition, outside instructors will be invited from private training institutes and companies. As in the case of the TOT program, the recruitment of foreign experts should be studied.

d) Contents of the training program

The SME training program will focus on basic management and production control technology for manufacturing companies. It will be based on the model program and will consist of lectures and factory visits. Six textbooks used in the model program will be used with some modifications and updating. They will become standard textbooks.

In preparation for the program, a database on manufacturing SMEs should be built and needs surveys should be conducted. These are key tasks for the MOIT Human Resource Development Committee, which will be the program implementation body. The training

program will be upgraded on a continuous basis on the basis of the results of the needs surveys as well as those of questionnaire surveys of participants at the end of each course.

e) Budget

Assuming that the model TOT program (3 weeks) and the model SME training program (3 weeks), as conducted under the present Study, constitute one unit for the proposed programs, three units are carried out per year. The annual program budget is estimated as follows. In principle the participants will be charged.

450,000,000 Rps. x 3 = 1,350,000,000 Rps. / Year

(2)-3 Preparation of local deployment of the training scheme

The MOIT Human Resource Development Committee will, through continuous implementation of the TOT and SME programs, train a core cadre of instructors, produce standard textbooks, and compile training manuals. These tasks will constitute a key preparation for local deployment of the training scheme.

(3) List of long-term actions and participating organizations

(3)-1 Local deployment of the TOT and SME training schemes

This is designed to establish local government (DINAS) and local institutes of PUSDIKLAT-INDAG (BDI) as key organizations to provide training and guidance for SMEs in the field of management and production control technology.

As the MOIT Human Resource Development Committee implements the TOT and SME training programs, local deployment of the training scheme will become ready. The establishment of the National Human Resource Development Center for SME is proposed as a long-term plan in Action Plan 1. Local deployment of the TOT and SME training schemes in the field of management and production control technology should preferably be carried out jointly by the National Human Resource Development Center for SME, DINAS and BDI. Nevertheless, it can proceed without waiting for the establishment of the National Human Resource Development Center for SME, for extension officers of local government (DINAS) and BDI's instructors will be able to participate in the TOT program conducted by the MOIT Human Resource Development Committee.

Local deployment is initiated by the National Human Resource Development Center for SME that send instructors having experience in the TOT and SME training programs to

local governments and BDI. The instructors will conduct TOT for extension officers (DINAS) and instructors (BDI), while providing support for the SME training program to be conducted in the region. Note that it is imperative to modify the standard curriculum and textbooks to take into account each region's (area's) industrial base (metal, food processing, textile, leather, etc.) and meet the needs of local industries.

(3)-2 Implementation of the training course for SME management consultants

Parallel to the TOT and SME training programs conducted by the MOIT Human Resource Development Committee and the National Human Resource Development Center for SME, the establishment of the SME management consultant certification system will proceed under the leadership of MOIT. As pointed out earlier, it is desirable that, once the certification system is formally launched, the actual training of SME management consultants is left to the hands of private organizations. The National Human Resource Development Center for SME's responsibility should be limited to the development of standard training course and curriculum. The center will then publish standards for training course design and implementation to encourage other organizations to plan and conduct the training course on their own, while offering a standard training course for persons who want to obtain certification.

In fact, as the SME management consultant certification system is established, the TOT program operated by the National Human Resource Development Center for SME will serve as a training course for SME management consultants. As a result, the TOT program will have participation from both persons who intend to become instructors and those who apply for the SME management consultant certification examination from the government or private sector.

Note) Provisional certification of SME management consultants

PUSDIKLAT-INDAC's instructors and IDKM's extension officers, who receive the TOT by the MOIT Human Resource Development Committee, are expected to be qualified as the future SME management consultant.

Until the SME management consultant certification system is established, therefore, provisional certification by the MOIT is considered to serve as an effective transition to the formal system. Once the certification system is inaugurated, persons who have a

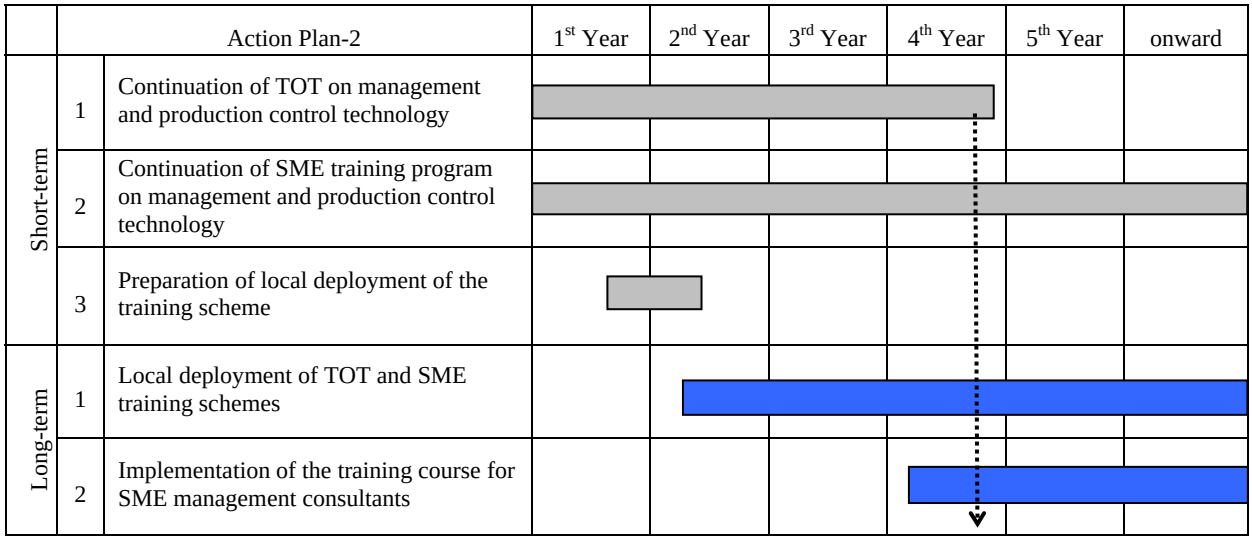
provisional certificate will be certified, subject to the review process. Eligibility for the provisional certification extends as follows:

- A person who has served, for a specific number of times, as an instructor for the TOT program conducted by the MOIT Human Resource Development Committee
- A person who has served as an instructor for the TOT program, as invited from outside, such as an instructor of a private training institute, and who has met specific criteria as the TOT instructor
- A person who has completed the TOT program and has served as an instructor for the SME training program for a specific number of times

(4) Implementation Schedule

Implementation schedule of Action Plan-2 is proposed as shown in the Fig. 5-19. The TOT and SME training programs as joint implementation of IDKM and PUSDIKLAT-INDAG can be started even before the set-up of the MOIT HRD Committee. Full-scale deployment of the TOT and SME training model to the regional level will be done by the "National HRD Center for SME". However it can be started during the second year by the MOIT HRD Committee. After the establishment of the national certification system of the SME management consultant, TOT will be continued as a management consultant course for those who apply for the certificate of the consultant.

Fig. 5-19 Implementation Schedule for Action Plan-2



Source: JICA Study Team

5.5.3 Action Plan-3 Reinforcement of the Support System in the Area of Production Technology

There is an apparent lack of a public support system for the improvement of plastics and press working technologies that are key engineering technologies for supporting industries in the country. This action plan proposes, prior to program implementation, detailed surveys of the current state of technical support organizations throughout the country as well as of supporting industries. Then, the resources network will be established and the infrastructure for actual training will be reinforced in terms of both hardware and software.

(1) Goal

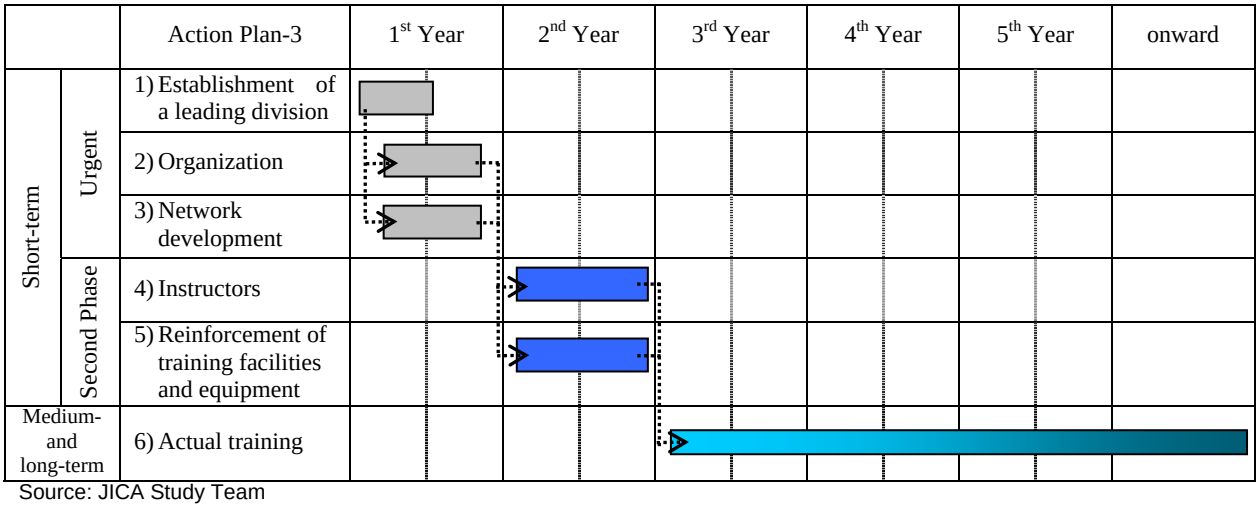
To improve competitiveness of the materials processing industry by reinforcing the technical support system in the areas of plastics injection, metal press working, and die/mold making, thereby to enhance and improve technical support and skills training. In order to achieve the goal, the following activities will be conducted:

1) Establishment of a division specialized in promotion of plastics and press working technologies;
2) Organization of interested companies and related organizations;
3) Development of the resources network;
4) Training of instructors;
5) Reinforcement of training facilities and equipment; and
6) Implementation of training programs for improvement of techniques and skills.

(2) Implementation Schedule

In consideration of the level of urgency for project implementation, the need for detailed study and design, and other factors, a preliminary schedule has been developed as follows. Needless to say, individual projects are to be started in a coordinated linkage to others.

Fig. 5-20 Implementation Schedule for Action Plan-3



Source: JICA Study Team

(3) Target output for each activity

1) Establishment of a division specialized in promotion of plastics and press working technologies (IDKM as responsible body and Balai Besar as implementation body)

- To establish a division responsible for management of a resources network for plastics molding and press work training.
- To commission the responsibility to the MOIT Human Resource Development Committee for the time being and to establish the Special Subcommittee on Promotion of Training for Technology Upgrading (tentatively named) to assume responsibility for actual management.
- To utilize local resources effectively by entrusting analysis and use of obtained data to the organization that actually implements training.

2) Organizations of interest companies and related associations/organizations (IDKM as promoting body)

- To promote the organization of a trade association representing press working companies in order to collect latest technology information through interaction with foreign organizations (e.g., societies), in place of efforts that are currently being taken by individual companies.
- To promote the establishment of a tool and die industry association by encouraging participation of related industries and companies, and polytechnic schools (especially, POLMAN ASTRA, POLMAN BANDUNG, and POLMAN ATMI have good track records in the area of manufacture of components for consumer products and are

indispensable), MIDC, Balai Besar, and ITB, with a major mission to improve die and mold design and making technologies.

- To promote the exchange of technology with industrialized countries, collection of technical information, and engineering and consulting services through the trade association and related organizations.
- To study and evaluate possibility of promoting JIG, including promotion of press molding technology (at present, MIDC, POLMAN (ASTRA, BANDUNG and ATMI) and YPMG are considering promotion of JIG making technology).
- To promote alliance with existing trade associations (e.g., GIAMM and GAIKINDO) for the purpose of identifying and assessing the needs for training in related industries.

3) Development of the resources network (MOIT HRD Committee and National HRD Center for SME as the promotion body; see Fig.5-21)

- To maximize efficiency of program supply (through programs) by establishing or maintaining linkage with skills training programs in the field of plastics and press working technology, which are already underway (including those of small scale and/or at basic level).
- To maximize supply capacity and its variety by mobilizing existing programs and organizations to meet the diverse needs of industries for improvement of production techniques and skills.
- To build an information network that can collect and provide information on the demand side so as to allow effective use of training organizations that are limited in number, while ensuring the development of training programs that meet the actual needs of industries.

4) Training of instructors (Balai Besar and MIDC)

To carry out training for a target number of workers, the increase in the number of instructors and the improvement of their skill levels are required.

- To increase the number of instructors:
  - To hire part-time instructors from assemblers and related organizations.
  - To secure part-time instructors and technical advisors through alliance with the three polytechnic schools (POLMAN ASTRA, BANDUNG and ATMI).
- To improve skill levels of instructors:
  - To send instructors to polytechnic schools and assemblers for special training or to receive advisors from them.

– To implement the TOT program by foreign advisors (under a formal request to a foreign technical support organization).
– To hire foreign experts as resident advisors.

5) Reinforcement of training facilities and equipment (Balai Besar and MIDC as implementation bodies, and National HRD Center for SME as the support and promotion organization)

- Machinery requirements vary with training programs and dies/molds to be used. After a short list of candidate trainees has been made, a training program will be designed and a facility and equipment will be selected[3].
- The same will apply to plastics injection4.

6) Implementation of training programs (implementation bodies: Balai Besar and MIDC)

- Technology and skill levels eligible for support

  From the viewpoint of improving competitiveness of supporting industries and expanding the potential market, the training programs should focus on basic and intermediate levels of technology and skills. The basic level will be added to embrace a wider range of workers. Also, maintenance courses should be added. Target levels of technology and skill as well as promotional targets are defined as follows.

  i) Reinforcement of supply capacity of supporting industries: Skill improvement training for basic class workers
     – Improvement of the ability of novice workers engaged in plastics injection, press work or die making to adapt themselves to the advancement of technology and skill requirements
     – Support for the start of the learning process relating to plastics injection, press work, and peripheral technology and skills

[3] Note 3 Estimated prices of presses
Prices vary according to the manufacturer, type and mechanical rigidity. Generally, a press of C frame construction type is priced at slightly below $1,000 per ton. A straight side construction type costs 3-4 times the C frame machine and ink type and high speed precision machines around 5 times. Peripheral equipment required for progressive feeding costs around 50% of the press itself. A robot line costs more or less the same as the press.

[4] Note 4 Estimated equipment costs
1. Hydraulic press (80 ton class): Approx. $80,000 (electric machine – 10% higher)
2. Auxiliary equipment: Approx. $23,000 (materials dryer, die temperature controller, etc.)
3. Crane for die setting (chain block): Approx. $2,700 – 3,500
4. Items required for lecture (component models, course materials, etc.): Approx. $45,000
5. Dies for training: Approx.$13,000

- Support for promotion of workers' awareness, the establishment of standard knowledge and practice including quantification, and support for application of knowledge to practical operation
- Support for die and mold design techniques and know-how that cannot be documented as standard operation.

ii) To secure share of local parts and components in the global market: skill improvement training for intermediate-level workers
- Adaptability to continued pursuance of high precision and production economy
- Process design support for advanced production
- Support for development capability meeting assemblers' requirements (applying to 3D)

iii) Field guidance for supporting industries
- Periodical visit to individual companies for field training for die maintenance and inspection

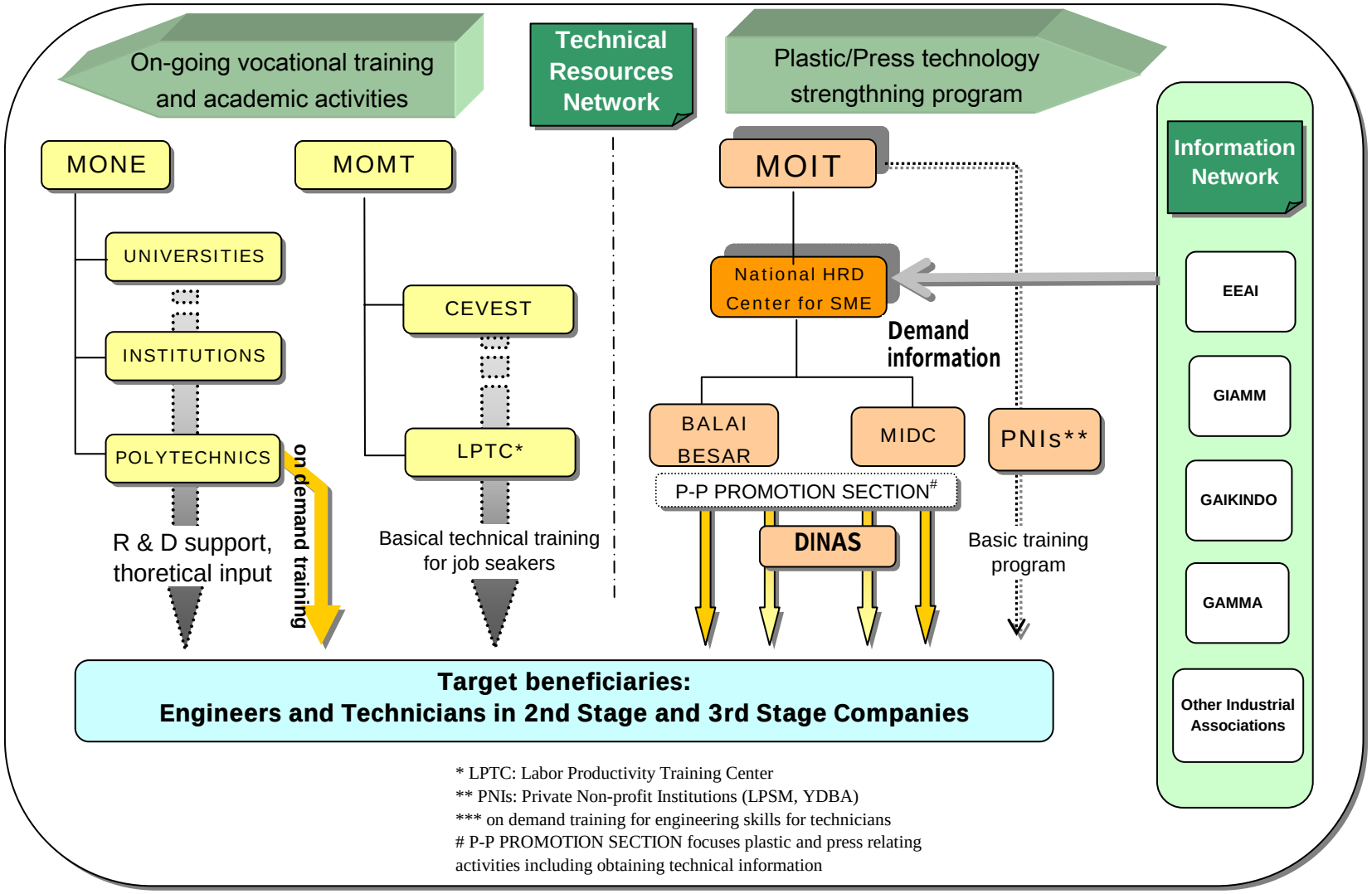
- Target areas

As transportation equipment (mainly automobile) and household appliance industries – leading sectors of the country's manufacturing industry – are concentrated in JABOTABEK and Bandung regions, key facilities for training and support will be established within these regions in consideration of accessibility to potential users.

While information on the technology and skill needs will be obtained from trade associations to use as a basis of developing a curriculum for training programs, trainees will be recruited through the associations. Training programs, although newly designed, will use existing facilities of Balai Besar, MIDC and other organizations under the MOIT as far as possible, by upgrading or adding equipment as required.

It should be noted, however, that Balai Besar (offering training courses on plastics molding) is located in Yogyakarta, far from JABOTABEK, and is thus not convenient for most companies to use frequently. It is therefore recommended to search for availability of more accessible facilities, such as B4T in Bandung.

Fig. 5-21 Concept of the Resources Network



Source: JICA Study Team