CHAPTER 7

COMPANY DIAGNOSIS AND GUIDANCE

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7.1 Visit Surveys of 70 Companies

7.1.1 Outline of Visited Companies

The Study Team, upon holding ample preliminary discussions with the Economic and Trade Committee, decided on a total of 70 companies in primary selection and carried out visit surveys on these during the first site survey period.

It was agreed between the Study Team and the Economic and Trade Committee to select model companies from the primary selection companies.

Moreover, in accordance with the proposal of the Study Team, another 30 companies were added as secondary selection companies.

7.1.2 Implementation Procedure of Visit Surveys

Concerning the visit surveys of primary selection companies, each Study Team member formed a visit team and led visit surveys according to each industrial sector.

Concerning visit surveys of secondary selection companies, in order to overcome limitations in the Study schedule, implementation was consigned to a local consultant (Team Z in Table 7-1-1).

Visits were carried out as shown in Table 7-1-1.

Table 7-1-1 List of Companies Visited

Team Symbol	Major Sectors Handled	Team Members (Note 1)	Number of Companies Visited	Visit Period
A	General machinery	Study Team members (1 member each) C/P (1 member each) Interpreter (1 member each) L/C (1 member each) Other (Note 2)	11	10/23 - 11/08/2000
J	Automobile parts		11	10/23 - 11/08/2000
E	Electronics/Information		10	10/23 - 11/08/2000
K	Environmental protection		11	10/23 - 11/08/2000
H	Other 1		10	10/23 - 11/08/2000
N	Other 2	Study Team member (1 member each) L/C interpreter (1 member each)	6	11/03 - 11/08/2000
W	Other 3		11	11/03 - 11/08/2000
Z	Other 4	L/C (2 members each)	30	11/21 - 11/30/2000
Total	–	–	100	10/23 - 11/30/2000

Note 1) Team members show composition as a rule. C/P (counterpart), L/C (local consultant)
2) The Study Team member in charge of policy and staff of the Science and Technology Committee took part as necessary.

7.1.3 Survey Procedure

The surveys were carried out according to the following procedure:

(1) Interviews with management
(2) Supplementing of questionnaire entries
(3) Plant observation tour
(4) Q & A and transmittal of comments

7.1.4 Survey Contents

Surveys were intended to gauge current conditions of small and medium enterprises in Shenyang City centering around the four target sectors of the Study, i.e. general machinery, automobile parts, electronics and information, and environmental protection).

Therefore, survey contents are compiled into the following items:

(1) Actual state of company (products, sales routes, productivity, finances, management setup, etc.)
(2) Improvement issues
(3) External environment (problems that cannot be solved through company efforts alone)
(4) Administrative support desired by the company
(5) Quality of management (holding of vision, adaptability to market economy, aggressiveness, planning ability, leadership, etc.)

7.1.5 Contents of Guidance

(1) Guidance for C/P

Know-how concerning company survey procedure, method of questioning at companies, and plant observation tours was passed on via OJT (on-the-job training). Since the C/P has little experience of conducting detailed observation of plants in particular, it is thought that this was very beneficial experience. This is one form of transfer of technology.

In order to make the C/P aware of this and to turn this action into an opportunity for growth, the C/P were asked to fill out a daily report of each visit survey and present this to the Study Team. Format prepared by the Study Team was used for the daily reports. The main pints of entries are as follows:

1) Contents of diagnosis and survey conducted in each day
2) Points learned in the diagnosis work
3) Items wished for in diagnosis work
4) Impressions felt that day

Apart from a few exceptions, all the C/P prepared daily reports.

(2) Guidance to Companies

In view of the limited survey time and objective of the surveys, it was not possible to conduct full-scale diagnosis and guidance, however, comments and advice for improvement were given from the following viewpoints as far as possible.

1) Improvement items in compliance with each company
2) Low-cost improvements
3) Immediately effective countermeasures

(3) Effect of L/C Accompanying

The L/C completed almost all the work which was agreed in the employment contract. In particular, the Study Team obtained useful opinions concerning assessment and identification of problems in each company concerning uniquely Chinese legislation, business customs and local characteristics in the areas of finance, economy, industry, small and medium enterprises and infrastructure, etc.

The L/C filled in and presented reports (daily work reports) according to the format prepared by the Study Team. It was felt that the L/C, similar to the C/P, learned a lot of firsthand knowledge concerning site diagnosis and guidance by taking part in the surveys.

It can be said that it was because of accompanying the Study Team that survey of the additional 30 companies following the initial 71 could be completed by the L/C alone.

7.1.6 Outline of Survey Findings

(1) Survey Findings by Company

Table 7-1-2 compiles the survey findings of each company. Assessment was carried out according to the following criteria.

1) Separate assessment

5: Satisfactory level (level of excellence of small and medium enterprises in Japan, Europe and America, also having competitive ability)

4: Almost satisfactory level (level of excellence of small and medium enterprises in Japan, Europe and America, also capable of autonomy)

3: Ordinary level (conditions and functions necessary for a company are in place, autonomy is also possible with effort)

2: Slightly inferior level (some items possessed by the company are inferior, improvement is required)

1: Inferior (improvement and reform are required, and closure could be unavoidable in some cases)

2) Overall assessment

A: Excellent B: Ordinary C: Inferior

Table 7-1-2 Visit Survey Findings by Company

Company Code	Type of Company	Number of Employees	Annual Sales Turnover (1000 Yuan)	Main Products	Separate Assessment Problems							Requiring Countermeasures		Overall Assessment
					Business management	Technical capability	Business planning ability	Production capacity	Human resources	Financial capacity	Average	Company Improvement Themes	External Environment Problems	
A-01	State enterprise	457	8,716	Vacuum pumps	3.8	3.3	2.8	2.7	3.0	2.0	2.9	Improvement of pass rates and productivity	Preferential tax measures, non-response to request for support	B
A-02	Collective	230	11,550	Motors	3.6	-	-	-	-	-		Assessment not possible because plant is being moved	–	Impossible
A-03	State enterprise	463	2,380	Hydraulic equipment	1.8	2.1	1.8	2.2	1.8	1.3	1.8	Improvement of sales planning capacity	Status as state enterprise stops any progress	C
A-04	State enterprise	849	21,922	Steel balls	2.6	2.9	2.0	2.7	2.0	2.3	2.6	Expansion of sales routes (product lines limited to large diameter steel balls)	Preferential tax measures, convenience of human resources training system	B
A-05	Collective	281	2,830	Pressure reducing valves	2.2	1.9	1.8	2.0	1.8	1.8	2.0	Improvement of pass rates	There are no preferential measures for small and medium state enterprises.	B
A-06	Collective	394	4,894	Fused aluminum	2.4	-	-	-	-	-		Escape from provincial sales, expansion of processing targets	Preferential tax measures, explanation of promotion measures for small and medium enterprises is required.	Impossible
A-07	Collective	270	5,000	Belt conveyors	3.6	2.7	2.8	2.3	2.6	2.0	2.7	Improvement of productivity	Preferential tax measures, enhancement of business and technical support systems	B
A-08	State enterprise	334	2,541	Clutches, friction pads for machine tools	2.0	1.9	1.6	2.0	1.8	1.3	1.8	Improvement of production technology capability	Understanding of financial institutions cannot be obtained.	C
A-09	Collective	344	4,660	Abrasive cloth, abrasive paper	1.4	1.6	1.8	2.1	2.0	1.5	1.8	Reduction of manufacturing cost	Provision of sales information, new materials and technical information	C
A-10	State enterprise	510	13,475	Stop valves	4.0	3.3	3.0	2.9	2.2	2.0	3.0	Improvement of pass rates and productivity	Deregulation, administrative interference	A

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					Business management	Technical capability	Business planning ability	Production capacity	Human resources	Financial capacity	Average	Company Improvement Themes	External Environment Problems	
A-11	Collective	217	15,260	Fire engines with ladders	3.0	2.7	2.2	2.7	2.2	2.5	2.6	Incompatibility of products with market needs	Lowering of value added tax rate	B
J-01	Private enterprise	258	27,510	H/A mufflers	2.4	2.0	2.8	2.7	1.2	2.7	2.3	Human resources development, improvement of technical capacity	Revision of tax system	C
J-02	Private enterprise	259	14,414	Door locks	2.8	1.9	2.2	2.7	2.2	1.0	2.1	Improvement of products and production technology	Survival hangs on WTO participation	C
J-03	Private enterprise	413	8,886	Brakes	3.0	1.9	2.6	2.6	1.6	1.0	2.1	Human resources development, improvement of technical capacity	Business instability following plant relocation	C
J-04	State enterprise	2,607	101,271	Gearboxes	2.4	3.4	2.8	3.1	2.8	3.0	2.9	Filtering of business ideals and policy	Great unease following entry to WTO	B
J-05	Private enterprise	200	18,148	Resin floorboards	3.0	3.1	3.8	3.7	2.6	2.0	3.0	Improvement of distinguishing resin technology	Relaxing of loan procedures	B
J-06	State enterprise	681	43,573	Switches	4.4	4.3	4.4	3.9	4.0	3.5	4.0	Escape from state enterprise thinking	Fatigue under the protection policy of Shanghai City	A
J-07	Private enterprise	431	9,570	Lights	3.0	2.0	2.8	2.6	2.4	2.3	2.5	Display of leadership	Increased pressure from outside market makers	C
J-08	Collective	63	6,074	Rear axles	3.4	2.8	3.6	3.7	2.8	2.8	3.2	Numerous improvement issues starting from scratch after plant relocation	Major fund raising is a problem.	B
J-09	Private enterprise	433	21,472	Hot air blowers	3.6	3.7	3.8	3.5	3.8	3.2	3.6	Basis for quality manufacture is weak.	Questions exist regarding the protective policy of Shanghai City.	B
J-10	Private enterprise	420	2,800	Filters	4.2	2.9	2.6	3.4	3.0	3.7	3.3	Just embarked on own product development	Building of product competitive environment	B
J-11	Collective	927	26,187	Frames	2.2	2.2	1.7	2.2	2.4	2.0	2.7	Thorough target management of each member.	City government requires collateral.	C

Company Code	Type of Company	Number of Employees	Annual Sales Turnover (1000 Yuan)	Main Products	Separate Assessment Problems							Requiring Countermeasures		Overall Assessment
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E-01	State enterprise	636	3,373	Printers	3.0	2.9	3.0	3.0	1.4	1.3	2.4	Products, sales strategy, fund raising, business makeup	Loss of sales routes due to administrative intervention, bearing of retiree allowances	B
E-02	State enterprise	466	1,744	PC/PCB	3.4	2.4	2.2	3.2	1.8	1.3	2.4	Product development capacity, business makeup, fund raising	Outflow of patents due to administrative intervention, strong group control	B
E-03	State enterprise	332	4,014	Car radio cassette players	3.4	2.4	3.2	2.8	1.4	1.0	2.4	Financial control capacity, production planning	Retirees allowance burden, strong collective control	B
E-04	Collective	160	1,800	Rubber belt switches	3.4	2.1	2.2	2.6	1.4	1.2	2.1	Products and sales strategy, quality control	Customers have fallen away and business has deteriorated because of the effects of administration.	B
E-05	Private enterprise	247	789	Electrolytic capacitors	2.8	2.1	2.8	2.1	1.0	1.2	2.0	Equipment maintenance control, sales promotion, quality control	Retirees allowance burden, high tariffs on imported raw materials, weakening because of administrative orders	B
E-06	Private enterprise	1,100	256,000	PC displays	4.0	2.9	4.0	3.3	2.8	3.5	3.4	New product development, improvement of productivity	Discrimination in methods of assessing property collateral when applying for bank loans	A
E-07	Collective	295	142	Electric heaters	4.2	2.4	4.0	3.1	2.2	1.7	2.9	New product planning, production control	Retirees allowance burden, tax on arrears	B
E-08	State enterprise	95	914	DC motors	3.4	2.1	3.0	3.3	1.8	1.0	2.5	Cost control, sales strategy, management setup	Customers have fallen away and business has deteriorated because of the effects of administration; retirees allowance burden	B
E-09	Private enterprise	55	11,120	Cardiac monitor systems	4.6	4.0	3.8	3.4	3.4	4.2	3.9	New product development, improvement of productivity	Irrationality of the loan system (real estate collateral), ignoring of the collateral value of patents	A

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					Business management	Technical capability	Business planning ability	Production capacity	Human resources	Financial capacity	Average	Company Improvement Themes	External Environment Problems	
E-10	Private enterprise	30	756	Electric control systems	2.6	1.0	2.6	2.1	1.4	1.3	1.8	Business management, project strategy	Relationship with regional administration, free loading on preferential tax measures for school corporate groups	C
K-01	State enterprise	356	21,000	Chains	3.6	3.1	3.4	3.3	.32	2.5	3.2	Exodus of human resources	Intensification of price competition	B
K-02	Foreign affiliate	390	141,644	Distribution panels	4.6	4.0	4.0	4.0	3.8	4.3	4.1	Fluidity of young workers	Limitation on bank loans	A
K-03	Foreign affiliate	103	3,110	Gypsum board	1.8	2.4	2.2	2.8	2.0	2.0	2.2	Remnants of planned production still linger.	Intensification of price competition	C
K-04	Private enterprise	20	0	Starch containers	4.6	4.1	3.6	3.7	3.6	3.7	3.9	Planning for launch of new plant	Bank loan restrictions	B
K-05	State enterprise	30	14,000	PCB burning	4.0	3.7	3.2	3.7	2.6	4.2	3.6	Reform in thinking as a company	Target objects after PCB	B
K-06	Foreign affiliate	128	39,240	Sewage treatment equipment	4.4	3.9	3.6	3.6	3.2	3.8	3.8	Development of main products	Local protection of customer orders	B
K-07	State enterprise	70	3,168	Pumps	3.0	3.4	2.6	2.8	2.2	2.3	2.7	Planned economy thinking still remains	Long-term bank loans are difficult	B
K-08	State enterprise	50	3,200	Analysis equipment	3.0	3.1	3.0	3.2	2.6	2.7	2.9	Interest concerning patents	General corporation is in debt	B
K-09	Private enterprise	88	5,566	Dewatering and desiccating equipment	3.8	4.1	3.8	3.3	3.8	3.8	3.8	Plant improvement	Intensification of competition with imports	B
K-10	Collective	41	1,234	Boiler accessories	3.6	2.4	2.6	2.9	2.2	3.2	2.8	3S and/or 5S	Payment of customers (major companies)	B
K-11	Collective	120	10,000	Gas rings	3.0	2.1	2.8	3.0	2.6	3.7	2.9	Improvement in sales and retailing level	Utilization of human resources training agencies	B
H-01	Private enterprise	66	18,296	Zinc and steel pipes	3.8	2.5	2.4	2.5	2.0	3.0	2.7	Improvement of plating technology	Relaxation of long-term interest	B

Company Code	Type of Company	Number of Employees	Annual Sales Turnover (1000 Yuan)	Main Products	Separate Assessment Problems							Requiring Countermeasures		Overall Assessment
					Business management	Technical capability	Business planning ability	Production capacity	Human resources	Financial capacity	Average	Company Improvement Themes	External Environment Problems	
H-02	Private enterprise	397	9,564	Bus seats	3.4	2.0	2.8	2.1	2.2	2.1	2.4	Improvement of production processes	Recovery of sales credit is difficult	C
H-03	State enterprise	629	202	Cutting tools	–	–	–	–	–	–	–	Assessment is impossible because operations have stopped	–	Impossible
H-04	Private enterprise	121	84,000	Zinc and steel pipes	3.5	2.2	2.2	2.8	2.0	3.0	2.7	Improvement of current quality level	Operating funds are hard to obtain because bank loans are difficult.	B
H-05	Collective	122	22,000	Forging	3.2	2.0	2.4	2.4	2.4	2.3	2.5	Realize planned renewal of facilities.	Operating funds are hard to obtain because bank loans are difficult.	B
H-06	Private enterprise	96	1,932	Forging	3.0	2.2	2.2	2.2	2.6	2.0	2.4	Thorough implementation of 5S	Deterioration of business with conventional customers	C
H-07	Private enterprise	50	3,620	Forging	3.0	2.2	2.4	2.6	2.4	2.6	2.5	Immediate commencement of new plant	Expansion of markets for automobiles, etc.	B
H-08	Private enterprise	58	3,854	Aluminum plating steel	3.2	3.0	2.4	2.2	2.0	2.0	2.5	Securing of work by small lot production	Market for aluminum plating is not yet established.	C
H-09	Private enterprise	47	7,450	Bolts	3.5	2.2	3.4	3.0	2.6	3.0	3.0	Customer development with quality level of foreign affiliates as the target	Quality of domestic steel is poor.	B
H-10	Private enterprise	62	4,788	Forging	2.2	2.2	2.2	2.3	2.0	2.0	2.2	Securing of new customers	Deterioration of business with conventional customers	C
H-11	Private enterprise	240	4,765	Cement plants	3.2	2.0	2.8	2.0	2.2	2.2	2.4	Introduction of new technology and products Improvement of in-house control levels	Technical capability of competitors is high.	C
H-12	State enterprise	170	6,033	Alumina-ceramic manufacture	3.0	1.8	2.0	2.2	2.0	2.0	2.2	Improvement of NG rates		C
W-01				High strength bolts	4	3	4	3	3	3	3	Ordering control, cost control, improvement of productivity	Modernization investment, conversion to a stock company	

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					Business management	Technical capability	Business planning ability	Production capacity	Human resources	Financial capacity	Average	Company Improvement Themes	External Environment Problems	
W-02				Food wrapping machines	4	4	4	3	4	3	3	Marketing, cost control, improvement of technical capability	Legal steps to prevent bugging	
W-03				Tough cast iron	5	4	5	3	4	3	4	Cost control, marketing	Strategic tie-ups	
W-04				Construction machinery	3	4	4	3	4	3	3	Product planning, production control	Relationship with government (procedures)	
N-01	Collective	214	704	Food machinery	3	2.5	2.8	2.5	2	3	2.6	Level of engineers is low	Transfer of technology from abroad is hoped for.	C
N-02	State enterprise	1,332	6,453	Cutting machines	3	2.7	3.2	2.9	2.8	2	2.8	Improvement of product technical performance and productivity	The company wants to introduce advanced equipment from abroad, but it has no funds.	B
N-03	Private enterprise	100	Overall market 12 billion Yuan	Northeastern communications equipment market	4.5	4.5	5		4.5	4	4.5	Development of northeast digital, etc. (mobile phone market, etc.)	Introduction of partners and venture capital is desired for construction of the southern district computer market.	A
N-04	Private enterprise	30	20,530	Cement additive	4	3.3	4	3.7	2.4	3.3	4.1	Lack of experience in capital management	Commercialization of research with universities	B
N-05	Collective	113	37,728	Truck bodies, coating	2.2	2.9	3.2	3.1	2.8	2,8	2.8	Implementation of smokeless coal project with Keio University	Competition is intense containers, heavy haulage trucks and tank lorries, etc.	B
N-06	Private enterprise	100	5,000	Old paper recycling	3	.2.8	4	3	3	4	3.3	Supply cannot meet high demand.	Recovery of old paper.	B

(2) Collation of Survey Findings by Sector

Table 7-1-3 shows the findings of visit surveys of the primary selection companies (business data of 55 companies based on company survey forms), compiled according to sector.

Table 7-1-3 Visit Survey Findings by Sector

Item (1999) \ Sector	General Machinery	Automobile Parts	Electronics and Information	Environ-mental Protection	Other
Number of companies visited	11	11	10	11	12
Number of 100% private enterprises/Ratio (%)	0/0%	7/64%	3/30%	2/18%	9/75%
Capital (range of distribution) (million Yuan)	0.5–14	0.4–112	0.1–232	0.4–55	0.5–43
Capital (average) (1000 Yuan)	4,688	16,147	53,165	13,616	11,343
Total assets (range of distribution) (million Yuan)	9–79	3–343	3–602	2–120	7–53
Total assets (average) (1000 Yuan)	32,022	69,132	127,341	29,990	24,446
Number of employees (range of distribution)	83–849	63–2607	30–1,100	20–390	12–397
Number of active employees (range of distribution)	276	334	336	127	120
Total sales turnover (range of distribution) (million Yuan)	2.4–22	2.8–101	0.1–256	0–142	0.2–84
Total sales turnover (average) (1000 Yuan)	8,476	23,774	28,065	20,630	13,875
Sales turnover compared to previous year (%)	73.0	138.0	91.6		95.6
Labor productivity (sales turnover per worker) (average) (Yuan)	30,681	71,180	83,627	162,559	73,157
Turnover of total capital (average) (frequency)	0.27	0.34	0.22	0.69	0.60
Gross profit on sales (range of distribution) (million Yuan)	-0.5–0.2	-2.8–5	-9.6–28	-3.4–24	-3–2
Gross profit on sales (average) (1000 Yuan)	-47	-2,349	2,077	2,437	-338
Gross profit compared to previous year (%)			117.7		
Gross profit margin (average) (%)	-0.6	-9.9	7.4	11.8	-18
Ordinary profit (average) (1000 Yuan)		77	2,183		-530
Ordinary profit per active employee (average) (Yuan)		231	6,505		
Average monthly salary (range of distribution) (Yuan)	228–658	332–1,000	150–1,200	300–1,250	353–950
Average monthly salary (average) (1000 Yuan)	396	607	582	709	624
Paid taxes (average) (1000 Yuan)	414	849	102	1,492	458
Number of companies/Ratio (%) with 0 paid tax	1/9%	0/0%	4/40%	4/36%	1/8%
Fixed costs (average) (1000 Yuan)	2,255	5,761	813	1,811	3,275
Plant investment (average) (1000 Yuan)	66	25,812	1,328	856	2,045
Number of companies/Ratio (%) with 0 capital investment	9/82%	2/18%	7/70%	7/64%	4/33%
Long-term borrowing (average) (million Yuan)	2,061	17,584	232	0.2	249
Short-term borrowing (average) (million Yuan)	6,228	17,897	23	3	892
Number of companies/Ratio (%) with 0 borrowing	1/9%	0/0%	1/10%	5/45%	1/17%
Site area (average) (10000 m^2)	23	29	46	33	17
Building area (average) (1000 m^2)	7	10	49	10	5

The above figures are given according to each sector, however, it is not certain that these represent small and medium enterprises in Shenyang City for the following reasons.

- The sample number of companies in each sector is extremely small compared to the total number of companies.
- There are no clear definitions concerning sector classifications.
- Some of the data from companies are inaccurate.

Current conditions concerning each item are described below according to sector.

1) Current state of privatization

The ratio of companies which started off as privately owned companies or have been 100% privatized is 0% in the general machinery sector, 18% in the environmental equipment sector, 30% in the electronics and information sector, 64% in the automobile parts sector, and 75% in other sectors.

Out of all 55 companies, 38% (21 companies) have been totally privatized.

2) Capital

Viewed in terms of the sector-separate average, the highest figure is 53,165,000 Yuan in electronics and information and the lowest is 4,688,000 Yuan in general machinery, while average capital over all 55 companies is approximately 20,000,000 Yuan. Capital is by far the highest in electronics and information, outstripping the next highest sector of automobile parts by 3.3 times.

3) Total assets

Viewed in terms of the sector-separate average, the highest figure is 127,341,000 Yuan in electronics and information and the lowest is 24,446,000 Yuan in other industries, while average self-owned capital ratio over all 55 companies is approximately 56,000,000 Yuan. Therefore, the average self-owned capital ratio over all the companies is approximately 35%. Starting from the sector with the highest self-owned capital ratio, other industries have 46.4%, environmental protection has 45.4%, electronics and information has 41.8%, automobile parts has 23.3%, and general machinery has 14.6%.

4) Number of active employees

Since data concerning number of employees include employees on standby at home and retirees receiving insurance benefits, there is some discrepancy with the number of active employees, however, totals were added based on the data presented by the companies. Average number of employees is highest in electronics and information (336), and this is followed by automobile parts (334), other industries (120) and environmental protection (127). The average number over all 55 companies is approximately 240.

5) Total sales turnover

Viewed in terms of the sector-separate average, the highest figure is 28,065,000 Yuan in electronics and information and the lowest is 8,476,000 Yuan in general machinery, while average sales turnover over all 55 companies is approximately 19,000,000 Yuan.

Moreover, in terms of comparison with the previous year, sales turnover increased in the automobile parts sector only (138%), but decreased in general machinery (73%) and other industries (96%). Since the environmental protection sector only got going in 1998 and only a few companies had sales in 1998, calculation could not be performed in this sector.

6) Turnover of total capital

Viewed in terms of average by sector, the figure in all sectors is not very good (less than 1). It is comparatively highest in environmental protection (0.69 times) followed by other industries (0.60 times), and it is worst in electronics and information (0.2 times).

7) Gross profit on sales and ratio of gross profit to sales

There are only two sectors in the black, that is environmental protection (2,437,999 Yuan) and electronics and information (2,077,000 Yuan), while the other sectors are in the red. The deficit is especially high in automobile parts at -2,349,000 Yuan. The average for all 55 companies is just in the black at approximately 350,000 Yuan.

As for ratio of gross profit to sales, this is reasonably high in the environmental protection sector (11.8%) and electronics and information (7.4%), but other industries (-18%), automobile parts (-9.9%) and general machinery (-0.6%) show a deficit.

8) Ordinary profit

Since extremely few companies have a clear idea of ordinary profit and keep data, collation is impossible. Although figures were obtained to an extent from the electronics and information and automobile parts sectors, the accuracy of these data is unclear and they are only given for reference.

9) Employee salaries (monthly)

In terms of average salary by sector, environmental protection is top (709 Yuan), followed by other industries (624 Yuan), automobile parts (607 Yuan), electronics and information (482 Yuan), and general machinery (396 Yuan). However, even in the same sector, large fluctuations exist between different companies. The highest figure among all 55 companies was 1,250 Yuan (environmental protection) and the lowest was 150 Yuan (electronics and information).

10) Paid tax

In terms of average paid tax by sector, environmental protection is top (1,492,000 Yuan) and electronics and information is bottom (102,000 Yuan), and the average among 55 companies is approximately 660 Yuan.

Moreover, 10 out of the 55 companies (18%) paid no tax. Four each of these are in the electronics and information and environmental protection sectors, and one each is in the general machinery sector and other industries.

11) Fixed costs

In terms of average fixed costs by sector, automobile parts is top (5,761,000 Yuan) and electronics and information are bottom (813,000 Yuan), and the overall average is approximately 2,800,000 Yuan.

12) Plant investment

In terms of average plant investment by sector, automobile parts are top (25,812,000 Yuan) and general machinery is bottom (66,000 Yuan), which represents a disparity of 430 times. The average of 55 companies is approximately 6,000 Yuan.

Moreover, 29 out of the 55 companies (53%) had no plant investment. Such companies are especially common in general machinery (82%), electronics and information (70%) and environmental protection (64%).

13) Long-term and short-term borrowing

Average long-term borrowing is highest in the automobile parts sector (17,584 million Yuan) and lowest in the environmental protection sector (0.2 million Yuan).

As for short-term borrowing, again this is highest in the automobile parts sector (17,897 million Yuan) and lowest in the environmental protection sector (3 million Yuan).

Long-term and short-term borrowing in the top two sectors, i.e. automobile parts and general machinery, is far higher than in the other sectors.

Also, 9 out of the 55 companies (16%) answered that they have no long-term or short-term borrowing: five of these companies are in the environmental protection sector, two are in other industries, and one each are in general machinery and electronics and information.

All companies in the automobile parts sector have loans.

14) Site area and building area

Average site area is highest in electronics and information (46 km^2), and this is followed by environmental protection (33 km^2), automobile parts (29 km^2), general machinery (23 km^2) and other industries (17 km^2). The order is the same for building area too, i.e. first is electronics and information (49 km^2), second is environmental protection and automobile parts (10 km^2 each), fourth is general machinery (7 km^2), and fifth is other industries (5 km^2). Site area is large in the electronics and information sector, but the fact that building area exceeds this indicates that buildings of two stories or more are common.

7.1.7 Analysis of Survey Findings

Out of the companies surveyed, those which can survive (overall assessment C: 3.5 or more) are 19.4%, or 12 out of 62 companies. Companies which need to make an effort (overall assessment B: 2.5-3.4) account for 43.5%, while those in danger of extinction (overall assessment A: less than 2.5) account for 37.1% (see Table 7-1-4).

As trends among all surveyed companies, items having a high ratio of A assessment (company in danger of extinction) are human resources (65.4%), financial affairs (63.5%),

technical capability (57.7%), business planning capacity (34.6%), production and sales capacity (26.9%), and business management (19.2%).

(1) Conditions by Sector (Figs 7-1-1, 3~8 and Tables 7-1-4, 7-1-6)

Overall average score was 3.26 in the environmental protection sector, 2.87 in other industries, 2.84 in automobile parts, 2.59 in electronics and information, and 2.31 in general machinery. No companies in the general machinery sector were assessed to be capable of surviving (rank C) (see Fig. 7-1-1). Concerning the reasons for this, environmental protection is a new sector and it is thought that managers are forward thinking. As for high-ranking companies in the automobile parts sector, it is thought that they benefit strongly from dealings with foreign affiliate companies and are required to reform their corporate makeup.

In the area of human resources, sectors with a high percentage of low ranking (A) companies are electronics and information (80.0%), general machinery (77.8%), other industries (52.4%), and automobile parts (see Figs 7-1-3~8).

In the area of financial capacity, sectors with a high percentage of low ranking (A) companies are general machinery (100%), electronics and information (80%), other industries (63.6%), and automobile parts (45.5%).

Concerning technical capability, sectors with a high percentage of low ranking (A) companies are electronics and information (70.0%), other industries (52.4%), automobile parts (45.5%), and general machinery (44.4%) (see Figs 7-1-3~8).

In the area of production and sales capacity, the ratio of low ranking (A) companies is 44.4% in the general machinery sector and 38.1% in other industries.

Concerning business and planning capability, the ratio of low ranking (A) companies is 66.7% in the general machinery sector and next highest in other industries.

Relatively high assessment scores were obtained in the area of business management. This is because managers of privately owned enterprises were given high scores (see Fig. 7-1-10).

To sum up, low assessment scores were obtained in the general machinery, electronics and information, and other industries sectors. Concerning the reasons for this, many companies in these sectors target only domestic or provincial markets, they lack

autonomy, and they are unable to advance corporate reform because the old corporate makeup is deeply rooted.

(2) Conditions by Type of Company (Figs 7-1-2, 9~12, Tables 7-1-5, 7-1-7)

Companies assessed to be capable of survival (i.e. given a C ranking) accounted for 66.7% of foreign affiliated companies, 25.9% of private companies, and 15% of state enterprises, while no collective enterprises were given such a ranking (see Fig. 7-1-2). Companies with the five worst assessments were also common among collective enterprises and state enterprises (see Table 7-1-5).

High percentages of state enterprises, collective enterprises and private enterprises were awarded A ranks in the areas of financial capacity, human resources and technical capacity. In the area of business planning, 41.7% of collective enterprises were given an A rank.

Only three foreign affiliated companies were targeted in the surveys, however, two of these were given C ranks in all areas apart from human resources.

Overall scores for business capacity by sector and by type of company are shown in Table 7-1-4 and Table 7-1-5 respectively.

Table 7-1-4 Overall Score for Business Capacity by Sector

	Order of Scores		Assessment Score			Total
	Best 5	Worst 5	A	B	C	
General machinery	0	4	0	4	5	9
	0.0%	44.4%	0.0%	44.4%	55.6%	100%
Automobile parts	1	0	2	5	4	11
	9.1%	0.0%	18.2%	45.5%	36.4%	100%
Electronics and information	1	1	1	2	7	10
	10.0%	10.0%	10.0%	20.0%	70.0%	100%
Environmental protection	3	0	5	5	1	11
	30.0%	0.0%	45.5%	45.5%	9.1%	100%
Other	0	0	4	11	6	21
	0.0%	0.0%	19.0%	52.4%	28.6%	100%
All companies visited	5	5	12	27	23	62
			19.4%	43.5%	37.1%	100%

A: 3.5 or more B: 2.5-3.4 C: less than 2.5 Top lines show the number of companies.

Table 7-1-5 Overall Score for Business Capacity by Type of Company

	Number of Companies	Order of Scores		Assessment Score		
		Best 5	Worst 5	A	B	C
State enterprises	20	1	3	3	7	10
		5.0%	15.0%	15.0%	35.0%	50.0%
Private enterprises	27	3	1	7	12	8
		11.1%	3.7%	25.9%	44.4%	29.6%
Collective enterprises	12	0	1	0	8	4
		0.0%	8.3%	0.0%	66.7%	33.3%
Foreign affiliates	3	1	0	2	0	1
		33.3%	0.0%	66.7%	0.0%	33.3%
Total	62	5	5	12	27	23

A: 3.5 or more B: 2.5-3.4 C: less than 2.5 Top lines show the number of companies.

Business capacity by sector and by type of company is shown in Fig. 7-1-1 and Fig. 7-1-2 respectively.

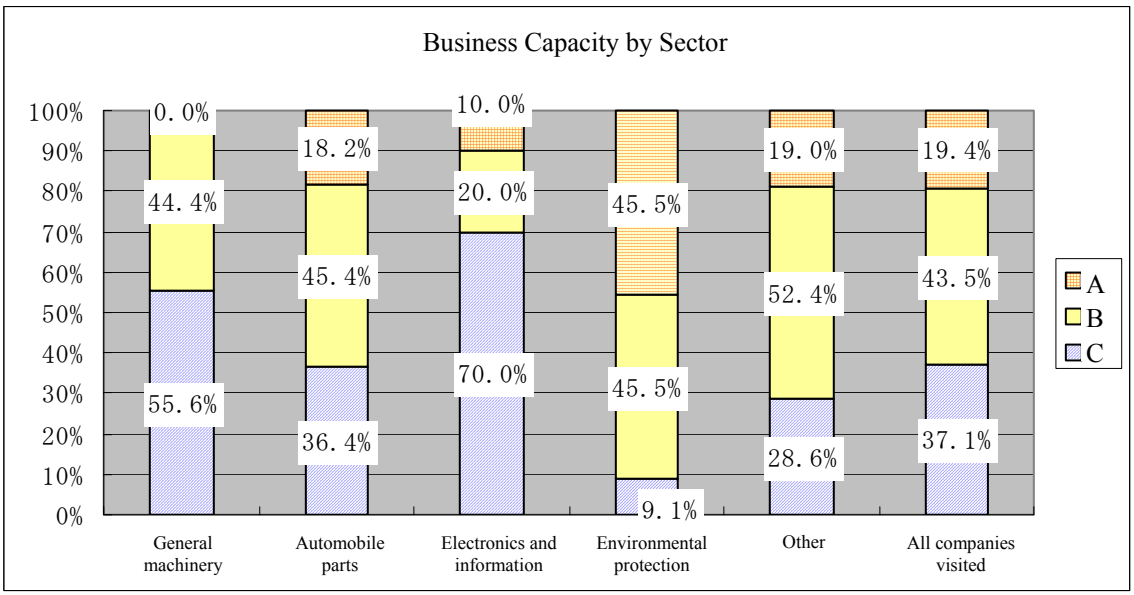

Fig. 7-1-1 Comparison of Business Capacity by Sector

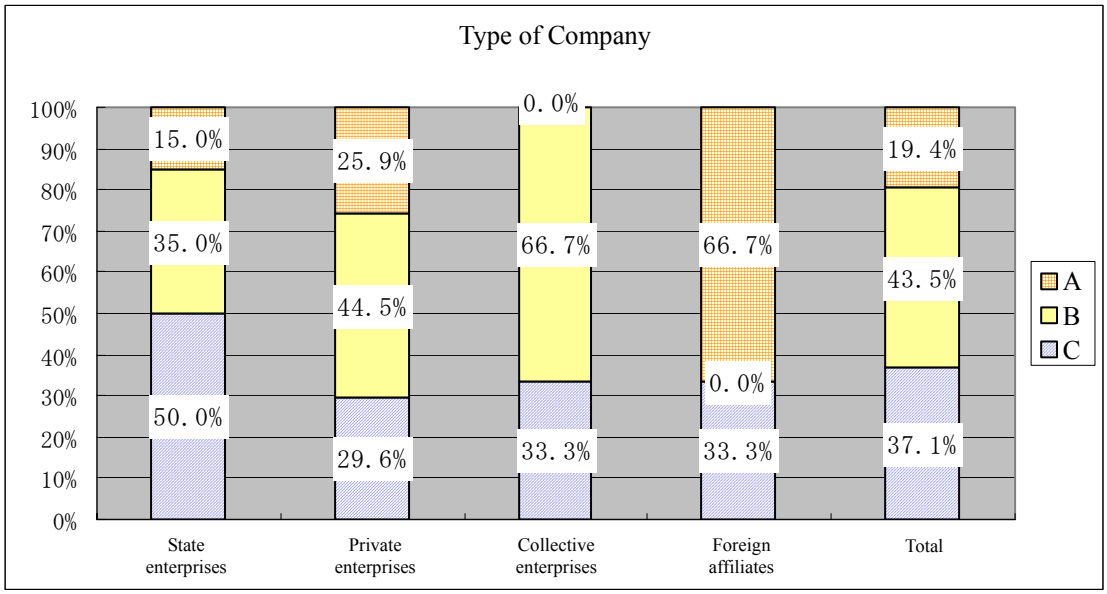

Fig. 7-1-2 Comparison of Business Capacity by Type of Company

Assessment of all surveyed companies according to each assessment item is shown in Fig. 7-1-3; and assessment of each sector according to each assessment item is shown in Figs 7-1-4, 7-1-5, 7-1-6, 7-1-7 and 7-1-8.

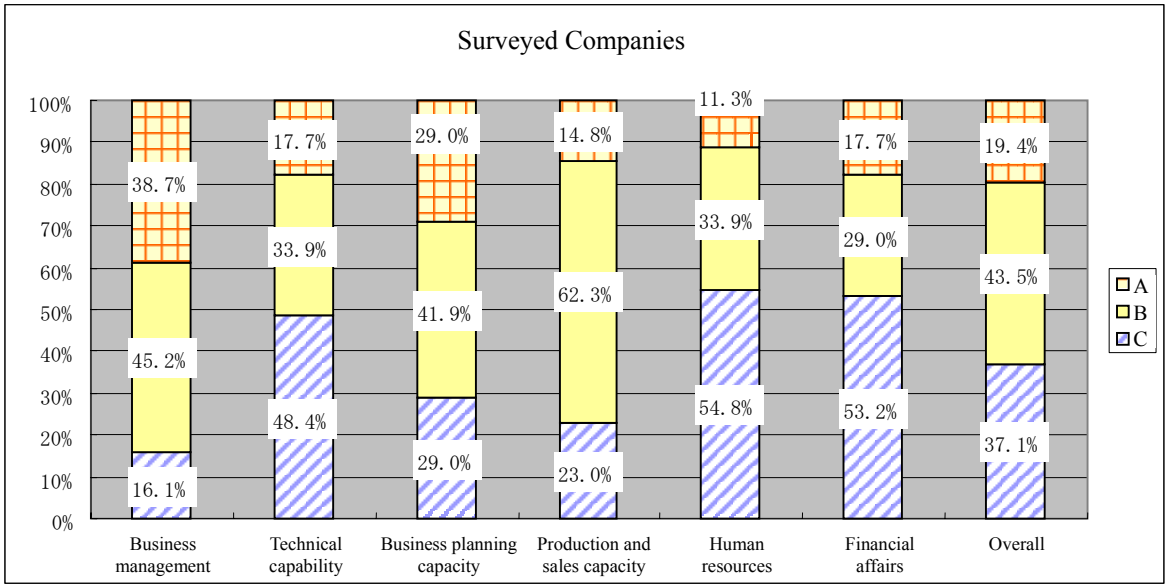

Fig. 7-1-3 Assessment by Item of All Surveyed Companies

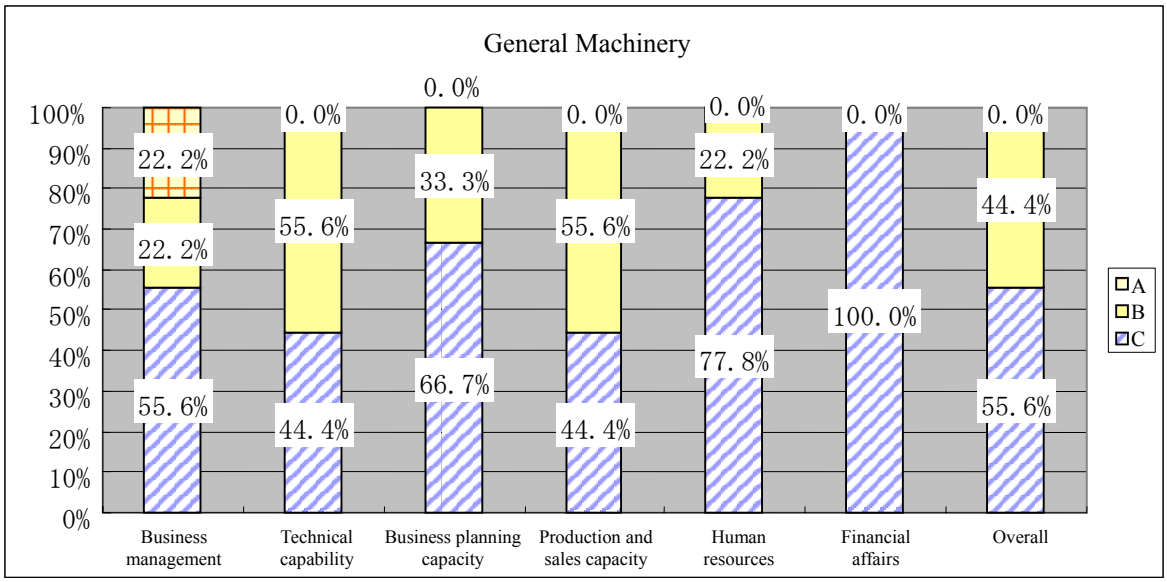

Fig. 7-1-4 Assessment by Item of the General Machinery Sector

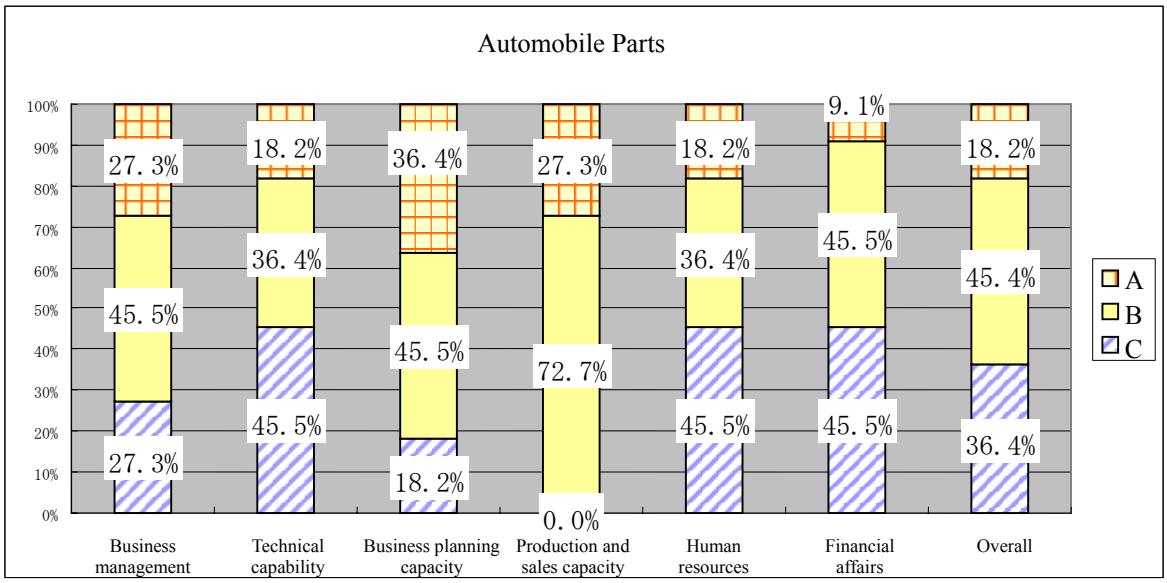

Fig. 7-1-5 Assessment by Item of the Automobile Parts Sector

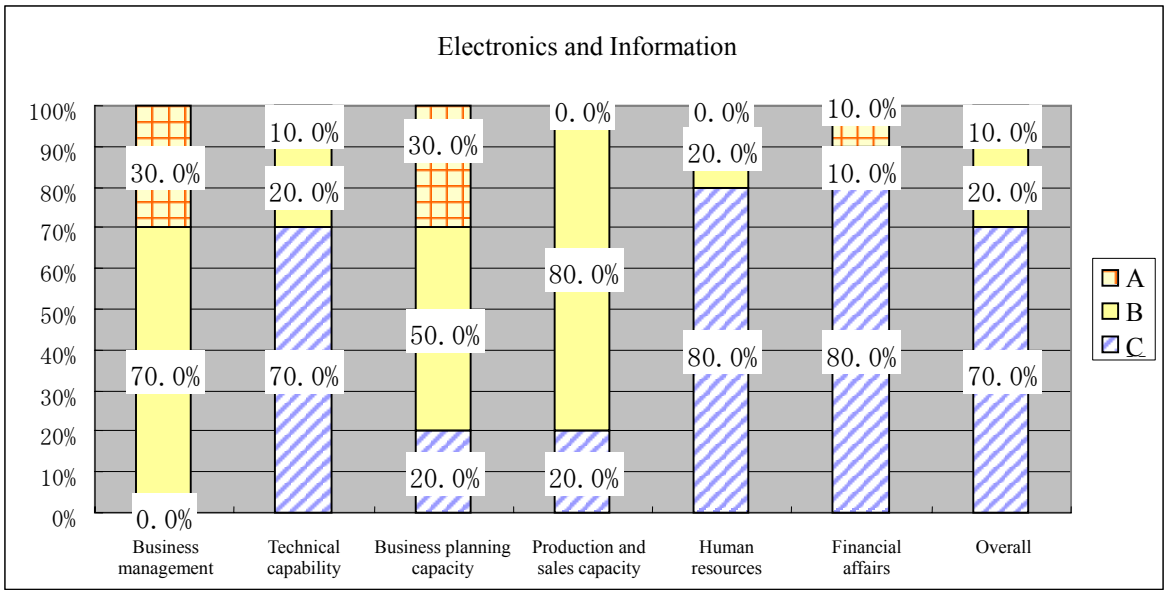

Fig. 7-1-6 Assessment by Item of the Electronics and Information Sector

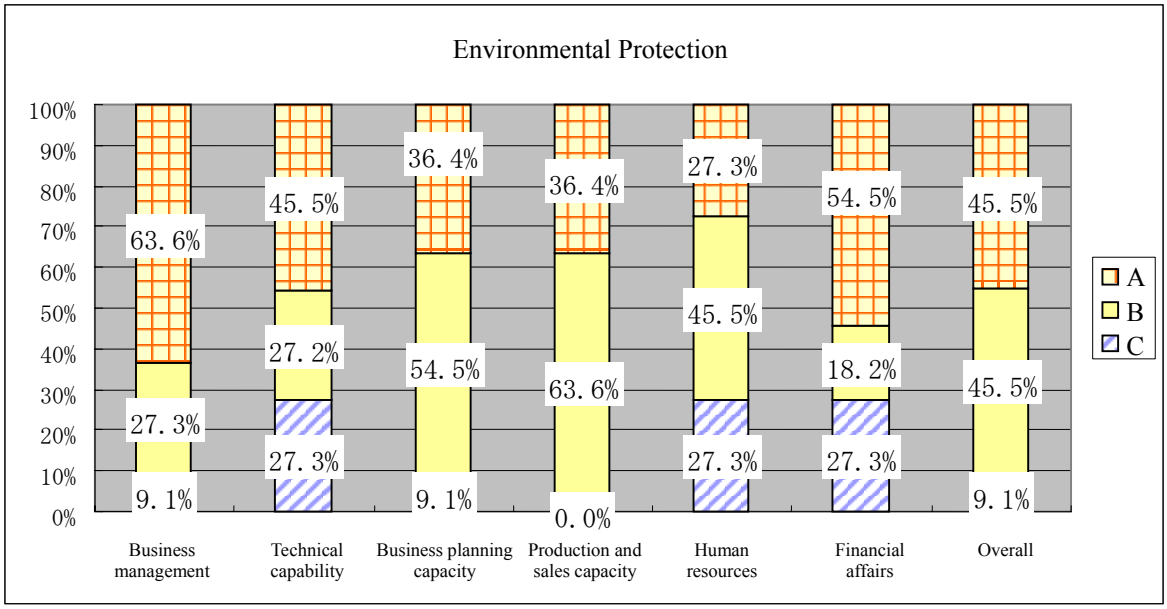

Fig. 7-1-7 Assessment by Item of the Environmental Protection Sector

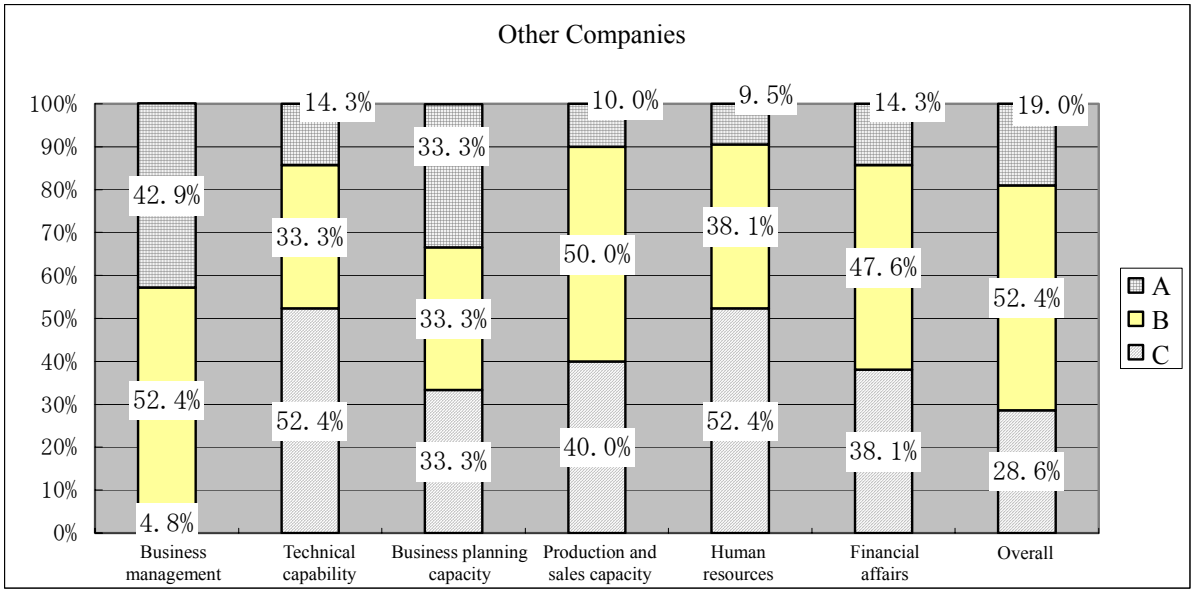

Fig. 7-1-8 Assessment by Item of Other Companies

The numbers of companies awarded each score under each assessment item are shown according to sector in Table 7-1-6.

Table 7-1-6 Assessment Items by Sector

	Assessment Score Level	Assessment Item						
		Business management	Technical capability	Business planning capacity	Production and sales capacity	Human resources	Financial affairs	Overall
All surveyed companies	A	20	8	11	7	15	8	8
	B	22	16	23	31	15	13	31
	C	10	28	18	14	32	31	13
General machinery	A	2	0	0	0	0	0	0
	B	2	5	3	5	2	0	4
	C	5	4	6	4	7	9	5
Automobile parts	A	3	2	4	3	2	1	2
	B	5	4	5	8	4	5	5
	C	3	5	2	0	5	5	4
Electronics and information	A	3	1	3	0	0	1	1
	B	7	2	5	8	2	1	2
	C	0	7	2	2	8	8	7
Environmental protection	A	7	5	4	4	3	6	5
	B	3	3	6	7	5	2	5
	C	1	3	1	0	3	3	1
Other	A	3	7	2	2	3	4	6
	B	11	7	7	10	8	10	11
	C	11	7	8	11	8	6	4

A: 3.5 or more B: 2.5-3.4 C: less than 2.5

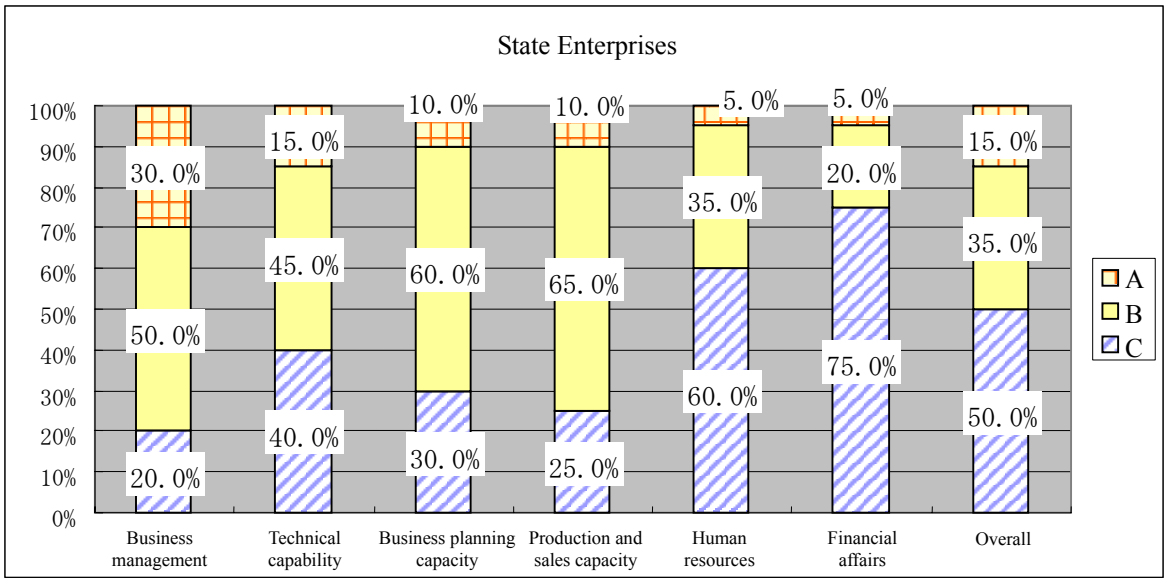

Fig. 7-1-9 Assessment of State Enterprises

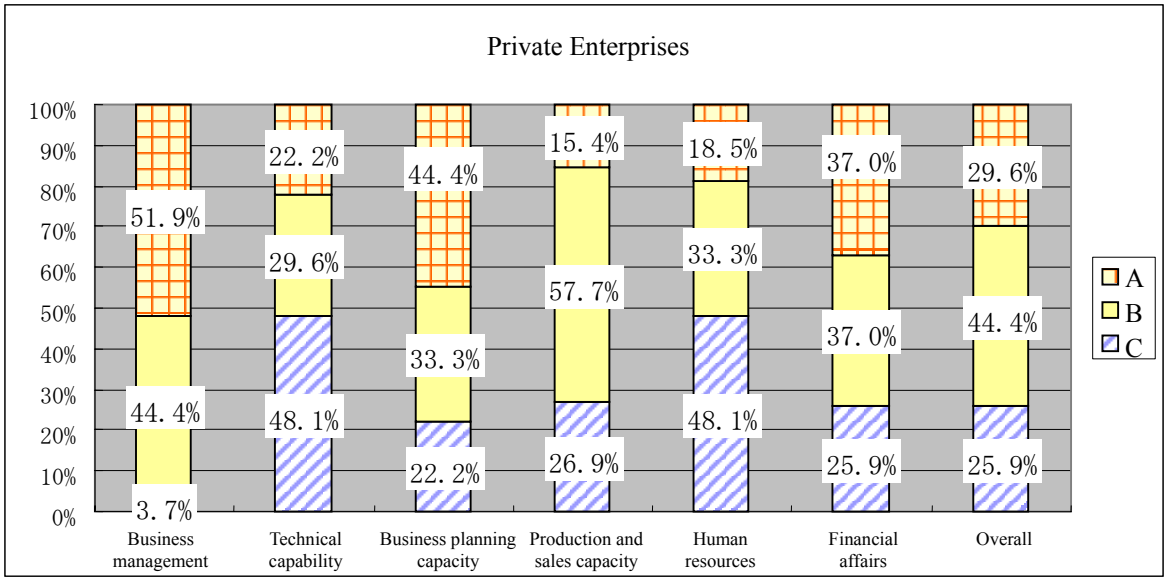

Fig. 7-1-10 Assessment of Private Enterprises

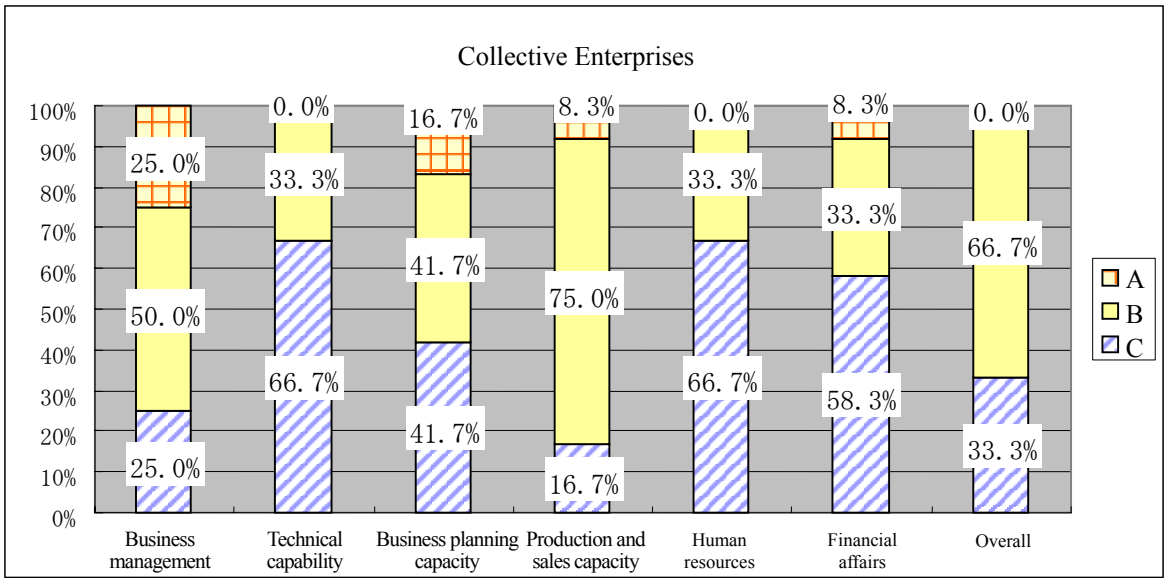

Fig. 7-1-11 Assessment of Collective Enterprises

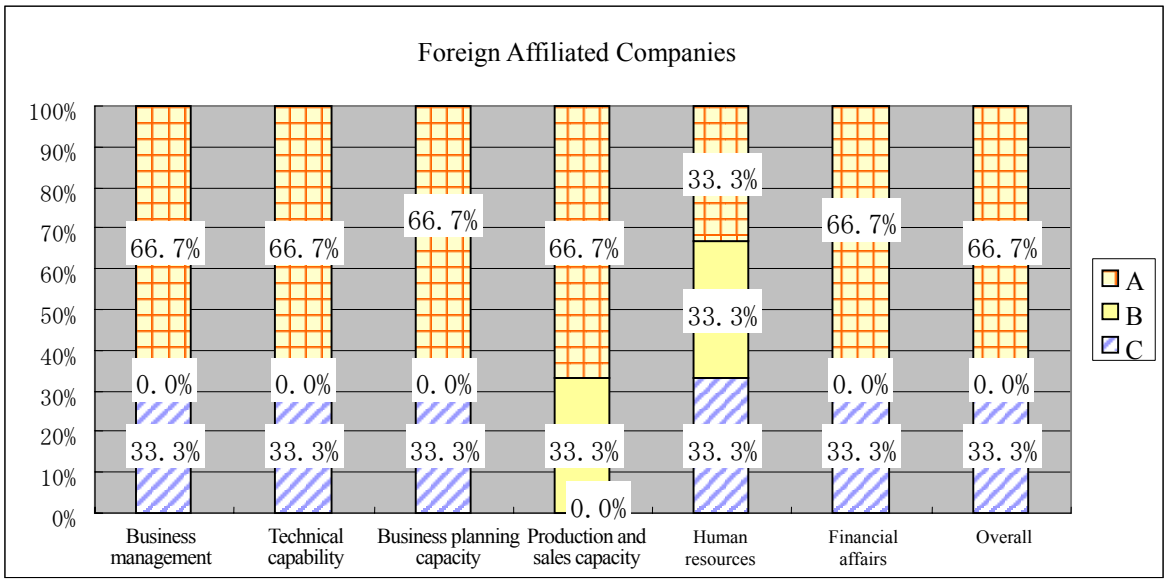

Fig. 7-1-12 Assessment of Foreign Affiliated Companies

The numbers of companies awarded each score under each assessment item are shown according to type of company in Table 7-1-7.

Table 7-1-7 Assessment Items by Type of Company

	Assessment Score Level	Assessment Item						
		Business management	Technical capability	Business planning capacity	Production and sales capacity	Human resources	Financial affairs	Overall
All surveyed companies	A	6	3	2	2	1	1	3
	B	10	9	12	13	7	4	7
	C	4	8	6	5	12	15	10
General machinery	A	14	6	12	4	5	7	7
	B	12	8	9	15	9	10	12
	C	1	13	6	7	13	10	8
Environmental protection	A	3	0	2	1	0	1	0
	B	6	4	5	9	4	4	8
	C	3	8	5	2	8	7	4
Other	A	2	2	2	1	2	2	1
	B	0	0	0	0	1	0	0
	C	1	1	1	1	1	1	2

A: 3.5 or more B: 2.5-3.4 C: less than 2.5

7.2 Diagnosis of Model Companies

7.2.1 Selection of Model Companies

Upon holding thorough consultations with the Economic and Trade Committee of Shenyang City based on the model company selection criteria given in the initiation report of the Study, it was decided to select companies which are faced with universal issues that need to be improved for the sake of small and medium enterprises development in Shenyang City.

The 10 companies indicated in Table 7-2-1 were selected as model companies upon completion of the visit surveys of the 70 companies targeted in the primary selection. Following this, representatives from each company were convened so that each Study Team member in charge could hold separate discussions and make final decisions concerning diagnosis dates and diagnosis and guidance themes.

Companies Nos. 9 and 10 in the table do not belong to the four specified sectors, however, they were selected at the special request of the Economic and Trade Committee of Shenyang City.

Table 7-2-1 Model Companies

No.	Sector	Ownership of Enterprise	Main Products	Diagnosis and Guidance Themes
1	General machinery	State-owned	Vacuum pumps	Reduction of reject rates, improvement of productivity
2	General machinery	State-owned	Stop valves	Examination of subcontracting, improvement of productivity
3	Automobile parts	Private	Resin floorboards	Quality and technology levels, improvement of resin quality
4	Automobile parts	Private	H/A heaters	Competitive quality production
5	Electronics and information	State-owned	DC heaters	Cost control, sales control, control setup
6	Electronics and information	Private	Cardiac monitor systems	New product development, improvement of productivity
7	Environmental protection	Private	Starch-based biodegradation containers	Preparations for commissioning of new plant
8	Environmental protection	Private	Sludge dewatering and drying machines	New product development, fabrication plant improvement
9	Other	Private	Cement plants	1) Specific methods for business plan deployment 2) Organizational reform for integration of production planning 3) Adoption of cant charts in schedule planning
10	Other	Private	Alumina and ceramic parts	1) Utilization of reject reduction measures and quality control methods

7.2.2. Model Company Diagnosis Findings

Tables 7-2-2 through 7-2-21 summarize the findings of diagnoses conducted in the primary site surveys of model companies. The diagnosis process is scheduled for completion in the secondary site surveys.

Table 7-2-2 Model Company Diagnosis Report (Overview of the Company)

Company No.1

<table>
<tr><td colspan="3">Sector: General Machinery</td><td colspan="3">Ownership: State-owned</td></tr>
<tr><td colspan="3">Visit date: 11/13/2000- 2/23/2001</td><td colspan="3">Number of visits: 7</td></tr>
<tr><td rowspan="2">Performance trends</td><td>Performance indicators</td><td>Sales:
550 million Yuan, increased by 1.5 times over 1999</td><td>Profits:
0 over three years</td><td colspan="2">Fund management:
Funds are lacking</td></tr>
<tr><td>Assessment</td><td colspan="4">(1) The company is troubled with fund management, however, as can be seen in the acquisition of ISO and desire to use this diagnosis as an opportunity for company reform, the management has sound thinking and the company is thought to have potential for development in the future.</td></tr>
<tr><td colspan="3">Management:
The president has leadership ability and visited Japan to learn about trends in vacuum equipment in September. He also has ideas for new product development such as unlubricated vacuum pump (
Prototype completed, under assessment)</td><td colspan="3">Business policy:
The company aims to raise business efficiency by concentrating on vacuum equipment.
Year 2001 is regarded as the modern management year to consolidate management.</td></tr>
<tr><td colspan="3">Strengths:
The company has various product lines in vacuum equipment. It leads the sector in vacuum pump production in terms of both quality and quantity.</td><td colspan="3">Weaknesses:
(1) There are no new designs for standard products and models are old.
(2) Equipment and processing technology are old. If funds were available, it would be necessary to introduce curve processing equipment.</td></tr>
<tr><td colspan="2">Development direction and potential</td><td colspan="4">The company has clear unique features such as a concept for the development of products which combine vacuum technology and heating technology. In September 1999, the heating unit department was declared bankruptcy, which released the company a part of debt. If the company would be provided funds and technical assistance, survival and development are possible.</td></tr>
<tr><td rowspan="2">Problems requiring countermeasures</td><td>Company responsibility problems (internal factors)</td><td colspan="4">(1) Human resources development. Due to lack of funds, they have not employed university graduates for 15 years.
(2) There is no production control system.
(3) Production technical capacity is weak.
(4) Straight-through rate is low (thinking to improve this is weak too).</td></tr>
<tr><td>External responsibility problems (external factors)</td><td colspan="4">(1) Retirees allowance burden is heavy and weighs on the company.
(2) The company cannot borrow funds from financial institutions.
Explanation of small and medium enterprises promotion policy is inadequate.</td></tr>
<tr><td colspan="3">Problems hindering company development:
(1) There is no awareness of schedule control.
(2) Thinking concerning improvement of standard time is weak.</td><td colspan="3">Conditions concerning examination of problems hindering company development:
Production plans are compiled based on contract units only. Instruction and movement of work in progress is also done in contract units.
Revisions of standard time entail revisions of equipment and processing methods only, but there is no improvement of work.</td></tr>
<tr><td colspan="2">Requested countermeasures for problems identified in the first site survey (to be verified in the second site survey)</td><td colspan="4">(1) Reduction of poor pump vacuum rates (improvement of straight-through rate)
(2) Improvement of productivity:
1) Thorough stressing of 5S
2) Reduction of temporary storage of semi-finished products
3) Reduction of waiting time for lathe processing
4) Discovery and improvement of waste through work analysis</td></tr>
</table>

Table 7-2-3 Progresses in Improvement Measures Company No.1

Issues that require countermeasures (First Site Visit)	Progress in countermeasures (Second Field Survey)	Countermeasures to be continued
Management: 1. Working hours should be defined and observed.	Opening time of working hours =time to start operation Closing time of working hours=time to stop operation Lunch break We surveyed them and confirmed that they are well observed.	Keep observing in the future
2. Administrative departments such as energy department lack in unity, which leads to poor management.	Energy management such as water and electricity are in charge of production department. Coals, oil, fuel and so on are managed by material control department.	Establishment of Management
3. There are too much half-finished goods before and after processing. Goods are circulated by the order. Work progress should be visible by the volume of half-finished goods.	Half-finished goods are limited to one day stock	Japanese-owned company (Itokin) checks performance four times a day.
4. There are half-finished goods that have not undergone vacuum pump performance test in stock for two months.	Processing and parts order are well timed. Half-finished goods for February 16: for half month	Further decrease in half-finished goods
5. Facility maintenance becomes corrective maintenance.	No measure is taken.	Compliance with in-house ISO provisions
6. Standard hours of production remain unchanged since the product launching. (We taught work analysis.)	Standard hours were decided by the administrative department in the past. It was changed and administrative department and production department have come to decide them.	Revisions for all the products
Measures against defective products 1. Routes of disposing defective products should be clarified.	Defective level A and B: administrative department will dispose them after closing. C and D: production department will dispose them and take measures.	Pay attention to straight-through ratio from now on.
2. The cutting edge of copper heating pipe for heating unit is too rough.	It was not confirmed because there was no operation. Instruction was given.	Creation of the work instruction manual
3. It is hard to distinguish good products from defective products.	There were indications of defective products.	To decide how to handle defective products and put it into practice.
4. Defects found in the vacuum pump performance test should be reduced by 10 percent. (Defects would be corrected and reassembled.)	Data broken down by the defective level is being analyzed.	To identify the causes, take countermeasures and prevent recurrence
5. Facility maintenance becomes corrective maintenance.	No measure is taken.	Compliance with in-house ISO provisions
6. Standard hours of production remain unchanged since the product launching. (We taught work analysis.)	Standard hours were decided by the administrative department in the past. It was changed and administrative department and production department have come to decide them.	Continued Revisions for all the products

Second Field Survey

Findings	Countermeasures to be continued
1. Single purpose cutting edge and shared cutting edge are not managed.	To manage them along with tools throughout the plant
2. Parts are not managed.	To manage them throughout the plant

Table 7-2-4 Model Company Diagnosis Report (Overview of the Company)
Company No.2

<table>
<tr><td colspan="3">Sector: General machinery</td><td colspan="3">Ownership: State-owned</td></tr>
<tr><td colspan="3">Visit date: 11/15/2000 – 2/22/2001</td><td colspan="3">Number of visits: 7</td></tr>
<tr><td rowspan="2">Performance trends</td><td>Performance indicators</td><td>Sales:
1,500 million Yuan
This fluctuates by around 10% each year.</td><td>Profits:
1% or less of sales.</td><td colspan="2">Fund management:
The company is able to conduct plant investment and development investment.</td></tr>
<tr><td>Assessment</td><td colspan="4">The company regards plans for plant relocation to residential land, transition to a stock company at the end of the year, and this company diagnosis as good opportunities for corporate reform. The company has a positive attitude to system reform.</td></tr>
<tr><td colspan="3">Management:
The president is currently studying for an MBA and has been in office for one year.
He possesses leadership qualities but tends to go alone too much. Comments were few in the free discussion with employees.</td><td colspan="3">Business policy:
The company plans to take advantage of transition to a stock company in order to detach from traditional state enterprise control methods and improve business running efficiency.
The company will continue its reform.</td></tr>
<tr><td colspan="3">Strengths:
(1) Commodity potential of bellows valves (50% share). Also, derivative products are being developed.
(2) Allocation to military valve development costs in 1999 reached 0% of sales turnover.</td><td colspan="3">Weaknesses:
Lost wax is the sales point of this company, however, the features of precision casting are not taken advantage of, processing costs are expensive, and the casting yield is thus low.</td></tr>
<tr><td colspan="2">Development direction and potential</td><td colspan="4">The company is moving towards structural reform and there is potential for development if plant relocation goes well.</td></tr>
<tr><td rowspan="2">Problems requiring countermeasures</td><td>Company responsibility problems (internal factors)</td><td colspan="4">(1) Production control is weak.
(2) The company’s sales to the northeastern region accounts for 65%, however, the sales declined in the first quarter and the fourth quarter.
(3) Workhours are too short. (As of February 2001, the plant closed at four o’clock.)
(4) Problem findings, proposals and solutions are not functional systematically</td></tr>
<tr><td>External responsibility problems (external factors)</td><td colspan="4">(1) Intervention by administrative departments into detailed areas. (such as targeted defective ratio)
(2) Retirees allowance burden is heavy and weighs on the company.
(3)Credit sales which are difficult to be collected. Production plan for 2001: 19 million Yuan. Earnings plan: 17 million Yuan)</td></tr>
<tr><td colspan="3">Problems hindering company development (hypothetical):
The company doesn’t understand the role of a maker (process movement).</td><td colspan="3">Conditions concerning examination of problems hindering company development:
(1) There is no distinction between machine work and human work.
(2) There is no concept of waste and discovery of problems is not carried out.</td></tr>
<tr><td colspan="2">Requested countermeasures for problems identified in the first site survey (to be verified in the second site survey)</td><td colspan="4">(1) Examination of lost wax subcontracting
(2) Improvement of productivity:
1) Thorough implementation of 5S
2) Reduction in temporary holding of semi-finished products and adoption of small batch haulage
(3) Relocation plan: owning of numerous NC latches</td></tr>
</table>

Table 7-2-5 Progresses in Improvement Measures Company No.2

Issues that require countermeasures (First Field Survey)	Progress in countermeasures (Second Field Survey)	Countermeasures to be continued
Management 1. Working hours should be defined and observed.	Labor regulations are strengthened, but not complete yet.	To keep observing regulations
2. Standard hours of production remain unchanged since the product launching. (We taught work analysis.)	More than 10 kinds of safety valves underwent thorough review. (according to the work analysis of 4 representative valves) standard hours were reduced by 10 percent in average. It is scheduled to complete in April 2001.	To continue review of all products.
3. It is difficult to know progress in production. Work progress should be visible.	Daily plan display board is made.	Japanese-owned company (Itokin) check performance four times a day.
4. Precision casting coating material was placed on the floor directly. The dampen material must be dried before using.	- About 70% of the material was put off the floor. - Water pipes were repaired completely.	To make improvement with all the products.
5. Half-finished products are not stored properly. Sealing surface of the valve is in contact with the floor.	- It is yet to be improved. - Tests are conducted with two carts.	To continue improvement.
6. In-house improvement of equipment and tools	- Small reform encouraging system was launched. - In-house improvement efficiency of equipment and tools is enhanced.	To make small reform encouraging system function and develop.
7. They discuss the possibility of lost wax outsourcing.	Under consideration. They will take it into account when they produce a new mold.	To continue implementation.
8. It takes too much time to convey half-finished goods to the next process.	Tests are conducted with two carts.	It will be realized when the plant is relocated.
Countermeasures against defective products 1. Defective ratio of precision casting must be reduced by 10.5 percent.	It is being improved. Defective ratio is yet to be reduced.	To investigate real causes and continue improvement.
2 All the finished products are inspected after finishing process. (Inspectors review accuracy of vernier calipers measurement with all the products.) Quality is not made by inspection.	- Quality regulations are made. Quality training for processors are conducted. - Inspectors are transferred from quality assurance department to each jobsite. (Organization reshuffling)	To continue implementation including review of inspection works.
Work improvement 1. Precision casting molds are not organized in storage. They cannot easily pick out a mold when it is necessary.	Molds were cleaned, numbered and well organized.	To display shelf number and make a list of molds.

Second Field Survey

Findings	Countermeasures to be continued
1. Precision casting coating material was placed on the floor directly. The dampen material must be dried before using.	Every measure was completed on February 22nd. To solve similar problems.
2. Maintenance of idle equipment is poor.	Each piece of equipment was covered with vinyl sheet. Expand them to other equipment. (To keep them in good condition to use them when necessary.)
3. They use heated metal trowel for assembling wax products. Metal trowel should be replaced with solder trowel.	It will be implemented after the test.

Table 7-2-6 Model Company Diagnosis Report (Overview of the Company)

Company No.3

<table>
<tr><td colspan="3">Sector: Automobile parts</td><td colspan="3">Ownership: Private</td></tr>
<tr><td colspan="3">Visit date: 11/16/2000 – 2/20/2001</td><td colspan="3">Number of visits: 8</td></tr>
<tr><td rowspan="2">Performance trends</td><td>Performance indicators</td><td>Sales:
Following the trend of the past three years, there was a slump in 1998, but recovery took place in 1999.</td><td>Profits:
There was a slump in 1998, but recovery took place in 1999.</td><td colspan="2">Fund management:
In step with fluidity, fund management is difficult.</td></tr>
<tr><td>Assessment</td><td colspan="4">There seemed to be a gap between the contents of interviews with the president and other officials and the contents of financial affairs given on the questionnaire. In other words, company representatives painted a good picture of conditions in the interviews, however, figures show that sales have been declining each year and that ordinary profit has been in the red for the past three years.
However, they are introducing findings they got through “Research and Development Seminar” positively. The morale of the company is rising and good corporate culture is taking shape. This is one of the companies we can expect future development.</td></tr>
<tr><td colspan="3">Management:
He has a financial background, but he also has experience as resin specialist.</td><td colspan="3">Business policy:
(1) Conduct business in line with the market economy.
(2) Protect the company and employees and conduct negotiating in all directions.
(3) Put special efforts into new products development.</td></tr>
<tr><td colspan="3">Strengths:
Resin specialists of soft resin products are trained. They have taken over the company’s unique production method. They are producing products with high quality and low price.</td><td colspan="3">Weaknesses:
The company still doesn’t have its own know-how of hard resin products, but it is poised to find an answer soon.</td></tr>
<tr><td colspan="2">Development direction and potential</td><td colspan="4">(1) For the immediate future, the company will sell and export soft resin products (its strong point) all over China and to Taiwan. For this purpose, the company should bolster its sales capacity and internal controls.
(2) Next, it should devise new products and enhance its product lineup. For this reason, it needs to introduce and install human resources and test equipment for development. If the company can generate at least one new product every year, its future will be bright.</td></tr>
<tr><td rowspan="2">Problems requiring countermeasures</td><td>Company responsibility problems (internal factors)</td><td colspan="4">(1) Improvement of resin technology and development of new products in order to achieve product differentiation
(2) Preparation of technical standards and utilization on lines</td></tr>
<tr><td>External responsibility problems (external factors)</td><td colspan="4">(1) Legal preparation of the loan system for investment funds
(2) Major deregulation is desired.
(3) Major corporations are being too hard on subcontractors.</td></tr>
<tr><td colspan="3">Problems hindering company development (hypothetical):
(1) Lack of product development capacity
(2) Internal control capacity is weak.
(3) Management sense is not reformed enough.</td><td colspan="3">Conditions concerning examination of problems hindering company development:
(1) Management and executives start to reform their sense.
(2) Research on hard resin has been started in spite of their lack of technology.
(3) Modern management system is being introduced.
(4) Every possible countermeasure has been completed.</td></tr>
<tr><td colspan="2">Requested countermeasures for problems identified in the first site survey (to be verified in the second site survey)</td><td colspan="4">(1) Remodeling for maintenance of resin injection molding machine rollers
(2) Arrangement and thorough layout revision of product storage
(3) Regrinding of lathe center edges (recutting)
In addition, 10 items have been issued as homework and will be checked in the second site survey.</td></tr>
</table>

Table 7-2-7 Progresses in Improvement Measures Company No.3

Issues that require countermeasures (First Field Survey)	Progress in countermeasures (Second Field Survey)	Countermeasures to be continued
Product development 1. Comparison with competitors The position of the company's products should be confirmed. If they are inferior to competitors', they should be improved immediately.	They were not actually put together. Preparation for comparison with competitors is making progress. Before long, the position of their products and their superiority will be confirmed.	- To compare the company with competitors. - To confirm superiority. - To improve inferior points.
2. Introduction of testing device If there is an in-house product testing device which can be used anytime, it is not only convenient but also it contributes to improving products quality. They have a plan for purchase.	Until now, it has been impossible to purchase one due to continued deficit closing. There is a prospect of a black-ink balance in the future. They have a plan to invest on testing device in view.	To introduce testing device.
3. Engineer training To improve product development capacity, engineers must study resin technology such as mold design, resin production technology, resin testing methods and so on.	Some technical subjects were taught in the past, however, full-scale promotion of training program with the annual education plan will start from now.	To formulate an annual education plan and put it into practice.
Reform of employees' sense 1. Example by leadership Managers and field superintendents should set good examples for employees. To correct messy field condition, reform of their sense is necessary.	Organizing, arranging and cleaning were put into practice. "It is not only pleasant but also time saving. It saves time to look for something. The time for searching will produce no value."	-The entire plant is organized and arranged completely. -To continue organizing and arranging.
2. Education of practical issues Education for employees should be conducted to solve specific issues that are happening in reality. With the help of employees' ideas, the company would seek for product quality improvement, cost reduction and productivity improvement.	Employees were stimulated by diagnosis and instruction of the study team. The good results of practical method guidance are coming to the surface. We confirmed below-mentioned specific examples of improvement in the second site visit.	-All employees are motivated. -To continue education
3. Small group activity A group consists of 2 to 6 employees. Within the group, they discuss causes of problems and countermeasures for solutions. Through the announcement of preventive know-how, they can share the same problems.	Small group activities were performed positively. The results were demonstrated by improvement of organizing, arranging, productivity and incoming/out coming record of the warehouse.	-To continue -It is good to award them for good results.
4. Introduction of visual check To judge shapes or colors that cannot be converted to figures, boundary samples are put in the routine work process to help judgment of acceptance.	We could not see the boundary samples at the second visit, however, they were being prepared in each process.	-To continue producing boundary samples.
Sales and information 1. Expansion of information source They should not rely only on clients for information. They should have wide-ranging sources to get information immediately.	Sources cannot be disclosed, however, multidirectional information network is being organized.	To establish a network to get diversified information.
2. Client visit and after sales service Service staff are stationed at main clients. The company will increase opportunities to visit executives and make more efforts on top sales.	The president is a man of vitality. He visits many companies for sales.	To continue.
3. Advertisement of products They should advertise and publicize product types and unique manufacturing methods as selling points.	We could not see brochures for advertisement, which are being prepared.	To continue.

Issues that require countermeasures (First Field Survey)	Progress in countermeasures (Second Field Survey)	Countermeasures to be continued
Production and Equipment 1. Production (Resin products process) There is no display of production progress in the product finishing line. Actual production of each product type cannot be known to all in real time.	By accepting employees' opinion, they produced a display board which is colorful and easy to read.	Completed.
2. Equipment (Resin board process) Since the roller of the extrusion press is not maintained properly, it has rust and resin fragments.	Maintenance schedule is under preparation. The roller of the extrusion press was polished like a mirror.	To make in-house maintenance schedule and put it into practice.
3. Equipment（Resin board process） The design of the large cover for a spare roller is inappropriate. It was slipped down.	To prevent slip down of the cover, the cover was fixed with screws.	Completed.
4. Equipment（Resin board process） Wiring layout of extrusion press controller looks like spider-web. Maintenance is not easy. There is also a danger of malfunctioning.	It was corrected beautifully.	Completed.
5. Equipment（Tool plant） The edge of lathe center is damaged. Due to axis processing standard, processing accuracy cannot be assured. Regular maintenance (resharpening) is required.	It was off the lathe for resharpening.	To continue.
6. Equipment (Resin molding process) They do not polish idle equipment or apply rust prevention oil. They do not use dust protective cover or idle machinery management card for storage.	Rust prevention oil was applied. Dust protective cover and idle machinery management card were completed. Idle equipment storage system was improved and normalized.	Completed.
7. Mold（Resin molding process） There are many fins with injection molding resin products. Domestically produced molds are not accurate due to low level materials, poor three dimensional measurement accuracy and low level fine adjusting.	The molds underwent fine adjusting several times, which reduced the number of fins. There remain some fins on corners and curves.	To improve mold-adjusting technique continuously.
Production and Equipment 1. Resin products（Resin board process） Resin products are not placed properly in storage. They are in contact with heating core. Hardening, deterioration and discoloring are caused by moist and high temperature.	In the warehouse, they invested 20,000 Yuan to produce a platform for iron angle. They stopped untidy piling and sorted out products by type for piling up. Products are placed 50cm away from the heating core.	Completed.
2. Raw material（resin board process） Since the bags of raw materials for production are piled up in contact with heating core, the materials may be degraded.	-A fence, which is 30 cm away from the heating core, was built. -Palettes were made. Materials are distinguished by display.	Completed.

Second Field Survey

Findings	Countermeasures to be continued
1. Raw material mixing (Resin board process) Some kinds of raw materials cannot be visibly discerned. It is difficult to distinguish materials. Visual recognition of raw material containers is not easy. We advised them to use color tape or something to differentiate containers.	It was improved by manual numbering for the time being. They will apply color tapes to increase visual recognition.
2. Production (resin thermal attachment process) Thermal attachment process does not work easily. With this, it is difficult to seek for stable quality and improved productivity.	Standard work hours will be reduced naturally by simplifying works. Particularly at the manual work process, they will figure out new ideas such as preparing materials in small boxes and arrange them properly to make works easy.

Table 7-2-8 Model Company Diagnosis Report (Overview of the Company)

Company No.4

<table>
<tr><td colspan="3">Sector: Automobile parts</td><td colspan="2">Ownership: Private</td></tr>
<tr><td colspan="3">Visit date: 11/13/2000 – 2/23/2001</td><td colspan="2">Number of visits: 9</td></tr>
<tr><td rowspan="2">Performance trends</td><td>Performance indicators</td><td>Sales:
Sales dropped slightly in 1998 but recovered in 1999.</td><td>Profits:
Profits were 2.7 times higher than in the previous year in 1998 but 50% of the previous year in 1999. Therefore, fluctuation is great.</td><td>Fund management:
Conditions are not easy.</td></tr>
<tr><td>Assessment</td><td colspan="3">In the model company diagnosis which also included a one-day visit survey, the impression gained from interviews and survey of the plant was very different from the response concerning financial affairs given on the questionnaire. According to the comprehensive analysis of given materials (financial information, business plan, administrative data, technical data, production data), we can expect the company's future development in management and technology. They are introducing findings they got through "Research and Development Seminar" positively and their morale is rising.</td></tr>
<tr><td colspan="3">Management:
The head of the company serves concurrently as the chair of a group company. His specialty is high-grade process. He was involved in machinery industry for many years.</td><td colspan="2">Business policy:
The company aims to be the top company in China in this minor sector.
It always brings out new products.
The company aims to achieve competitive quality and cost.</td></tr>
<tr><td colspan="3">Strengths:
(1) The company's corporate philosophy complies with the market economy.
(2) The company has 56 enthusiastic engineers.
(3) There are more than 40 client companies including major enterprises.</td><td colspan="2">Weaknesses:
(1) 35% of plant equipment is deteriorated, but prospects for renewal are harsh.
(2) Technology for improving mold accuracy is low.</td></tr>
<tr><td colspan="2">Development direction and potential</td><td colspan="3">This company already possesses more than 40 stable corporate customers including some major companies, and it has sales routes all over China. After joining the WTO, there is potential for developing exports to Japan, Taiwan and other Asian countries.</td></tr>
<tr><td rowspan="2">Problems requiring countermeasures</td><td>Company responsibility problems (internal factors)</td><td colspan="3">(1) Establishment of technology for achieving product distinction with other companies (AL condensers).
(2) Improvement of production technology (improvement of mold technology)
(3) The company has no funds for plant investment.</td></tr>
<tr><td>External responsibility problems (external factors)</td><td colspan="3">(1) Development of expanded sales routes (Asia, Taiwan, Japan)
(2) The protection policy of Shanghai City is selfish and early realization is necessary.
(3) It is necessary for city administrative departments to have a continual grasp of latest conditions in small and medium enterprises and to work for the issue of appropriate measures.</td></tr>
<tr><td colspan="3">Problems hindering company development (hypothetical):
(1) Core technology research is not established
(2) The levels of product design, production design and product technology are low.
(3) Their sales knowledge is insufficient.</td><td colspan="2">Conditions concerning examination of problems hindering company development:
(1) They are making development efforts to establish unique product technology for achieving product distinction. (AL condensers)
(2) Improvement in production technology level (They have not found out solution for improvement of mold technology)
(3) Expansion of sales routes (they were not active enough to expand their market in all China and Asia after China's accession to WTO.)</td></tr>
<tr><td colspan="2">Requested countermeasures for problems identified in the first site survey (to be verified in the second site survey)</td><td colspan="3">(1) Improvement in level of cold hydraulic process cards (guidance slips equivalent to QC process charts).
(2) Carry out improvement of items pointed out in process diagnosis.
Example: Interval standardization between punched plates / Mold biting countermeasures / Correction of material feed alignment of commutator mold machines.</td></tr>
</table>

Table 7-2-9 Progresses in Improvement Measures Company No.4

Issues that require countermeasures (First Field Survey)	Progress in countermeasures (Second Field Survey)	Countermeasures to be continued
Product development 1. Product development Alminum condenser will be the mainstream in this industry from now on. Before the decline of traditional copper condenser, they should start manufacturing and sales of alminum condensers.	They are developing a new product of alminum condenser energetically. It is possible to put it on the market early next year. (We taught know-how concerning design and production of alminum condensers.	To continue developing new products.
2. Comparison with competitors The position of the company's products should be confirmed. If they are inferior to competitors', they should be improved immediately.	They are prepared to make comparison of their main product, motor for warm wind, with competitors' products. It was confirmed that rotational torque needs improvement. (We taught technology to increase output of direct current motor)	-To confirm superiority. -To improve inferior points.
3. Introduction of testing device If there is an in-house product testing device which can be used anytime, it is not only convenient but also it contributes to improving products quality. They have a strong desire for purchase.	Over the past three years, sales profit has been unstable, however, there is a prospect of turning around from now on. They are discussing an investment plan on testing device.	To introduce testing device.
4. Engineer training To enhance product development capacity, the company has two major technical challenges; 1) electronic technology for direct current motors and heat exchanger, 2) processing and welding technique for non-ferrous material including copper and alminum.	Some technical subjects were taught in the past, however, full-scale promotion of training program with the annual education plan will start from now.	To formulate an annual education plans and put it into practice.
Reform of employees' sense 1. Example by leadership Managers and field superintendents should set good examples for employees. To correct messy field condition, reform of their sense is necessary.	Organizing, arranging and cleaning were put into practice. "It is not only pleasant but also time saving. It saves time to look for something. The time for searching will produce no value."	- The entire plant is organized and arranged completely. - To continue organizing and arranging.
2. Education of practical issues Education for employees should be conducted to solve specific issues that are happening in reality. With the help of employees' ideas, the company would seek for product quality improvement, cost reduction and productivity improvement.	Employees were stimulated by diagnosis and instruction of the study team. The good results of practical method guidance are coming to the surface. We confirmed below-mentioned specific examples of improvement in the second site visit.	- All employees are motivated. - To continue education
3. Small group activity A group consists of 2 to 6 employees. Within the group, they discuss causes of problems and countermeasures for solutions. Through the announcement of preventive know-how, they can share the same problems.	Small group activities were performed positively. The results were demonstrated by improvement of organizing, arranging and productivity. Small group activity records were yet to be made.	- To continue - It is good to award them for good results.
4. Introduction of visual check To judge shapes or colors that cannot be converted to figures, boundary samples are put in the routine work process to help judgment of acceptance.	We could not see the boundary samples at the second visit, however, they were being prepared in each process.	- To continue producing boundary samples.

Issues that require countermeasures (First Field Survey)	Progress in countermeasures (Second Field Survey)	Countermeasures to be continued
Sales and information 1. Expansion of information source They should not rely only on clients for information. They should have wide-ranging sources to get information immediately.	They were organizing network to get diversified information through industrial newspapers and magazines.	To establish the network to get diversified information
2. Client visit and after sales service Service staff is stationed at main clients. The company will increase opportunities to visit executives and make more efforts on top sales.	The president is a man of vitality. He visits many companies for sales.	To continue
3. Advertisement of products They should advertise and publicize product types and unique manufacturing methods as selling points.	Brochures for advertisement were ready. They were used for sales activity.	To continue
Production and equipment 1. Production (pressing process) Since they hand-feed materials, punching positions are irregular, which leads material waste or product cracks. They should devise automatic feeder.	They have many ideas of the automatic material feeder, however, they have not made technical drawings. (We taught concept of automatic feeder)	To continue promoting
2. Production (production plan) They do not analyze the difference between production plan and actual production. At the first visit, we gave instructions regarding increase and decrease or orders, increase and decrease of stock, machine failure, attendance and absence of employees and special conditions.	Since they have no experience of analyzing the difference between plan and actual production, it seems difficult for them to carry it out. (We instructed it repeatedly.)	To continue promoting
3. Production (commutator processing) Due to commutator's continuous bending process, alignment of molding machine and material feeder was bended, which led to bending of products.	alignment of molding machine and material feeder was repaired. We made a storage in between.	Completed
4. Production (assembling of radiator) Since the process is manual adjustment to screw with feed screws after piling up radiator cores, they are uneven. We taught about cam lever jig with a picture.	They produced and used radiator core assembly jig equipped with cam lever. Pressing level is fixed. It is easy to use and efficient.	Completed
5. Production (radiator core assembly) Half-finished radiator cores are stacked directly, fin of thin core may bend with a slight shock	They changed stacking by standing radiator cores.	Completed
6. Production (radiator core inspection) By the results of radiator core leakage tests, we proposed to change current GB pressure 1 kg/1 ㎝×㎝/ 1 minute and add pressure of 0.6kg/1 ㎝×㎝/30seconds	They did not adopted the proposal immediately because it would decrease efficiency, however, we presume they will adopt it if they are convinced that it is effective for detecting water leakage.	To continue discussing
7. Production (motor axis oscillating accuracy measurement) Oscillating accuracy of electric motor axis cannot be measured precisely because both center holes are not accurate and their shapes are bad. We proposed to use chemist's mortar platform to support bearing of electric motor for measurement.	They were taking measurements with electric motor bearing supported by a chemist's mortar platform. They did not measure oscillating accuracy in the past.	Completed. To record data of oscillation from now on.
8. Production (electric motor assembly process) There is no work standard at each assembly process.	Work standard was put on each assembly process.	Completed

Issues that require countermeasures (First Field Survey)	Progress in countermeasures (Second Field Survey)	Countermeasures to be continued
9. Production (electric motor assembly process) At the electric motor assembly process and neighboring area, they have not arranged things on the working table for a long time and it is untidy. Surrounding area is also dirty. Dirt on the bottom of the parts box will spread to the work. Waste thread of working gloves are stick to the inside of the motor case.	All the processes of electric motor assembly line were lit up by fluorescent lamps. The surface of the working table was polished like a mirror. Surroundings are also organized and arranged. Countermeasures were taken with parts boxes and working gloves	Completed
10. Production (spot welding process) Since spot welder's tapping nugget path is not maintained, the edge of the nugget is deformed and worn away. Under this condition, good spot welding is impossible.	They should establish management criteria. They should decide when to resharpen or change nuggets based on the spot condition. (technical guidance)	To continue implementation
11. Production (head-end process of soldering) PH of the pretreatment liquid is not controlled. They should change the practice of replenishing pretreatment liquid based on rough estimation.	We had instructed them to conduct tests with litmus papers to determine acidity and alkalinity, but it was not conducted. (We instructed them again.)	To continue implementation
12. Production (welder maintenance) Storage and maintenance of welders are not good. With all their heaviness, their stacking has the possibility of downfall.	They have not made a register book, however, all the molds had tags with corresponding materials displayed. They were well organized.	Completed. To make register book.

Second Field Survey

Findings	Countermeasures to be continued
1.Assembly process Torque trench accuracy test (calibration) is not conducted, which causes problems.	The company is about to acquire QS9000 approval. QS9000 instructor also pointed out this point, which must be improved as soon as possible.
2.Inspection process 1) Torque measurement is not conducted. It is an important relational item. 2) Inspection of the space between a brush and a brush holder 3) The measurement of the air gap between outer diameter of the rotator and inner diameter of the core is not sufficient.	They should bring competitors' products for making comparison. Random inspection should be conducted regularly. It is important to control space, which may cause irregular rotation. It is a key point that affects rotational torque performance. They should punch motor housing and use it as jig.

Table 7-2-10 Model Company Diagnosis Report (Overview of the Company)

Company No.5

<table>
<tr><td colspan="3">Sector: Electronics and information</td><td colspan="2">Ownership: state-owned</td></tr>
<tr><td colspan="3">Visit date: 11/13/2000 – 2/23/2001</td><td colspan="2">Number of visits: 7</td></tr>
<tr><td rowspan="2">Performance trends</td><td>Performance indicators</td><td>Sales:
Rapid decline over the past four years (sales in 1999 were 27% of those in 1997).</td><td>Profits:
Ordinary profit shows continuous deficit.
Non-operating revenue is unclear.</td><td>Fund management:
There is no chance of receiving loans (bank assessment: B)</td></tr>
<tr><td>Assessment</td><td colspan="3">Sales of the company’s main product, DC motors for tractors, are declining each year. In this state, there is no chance of achieving profit-making operation.</td></tr>
<tr><td colspan="3">Management:
Financial know-how is minor and business management capability is low. The president is popular among employees and executives are on good terms with one another.
They rely only on external sources (city, foreign countries) for funds.</td><td colspan="2">Business policy:
Policy is unclear.
There is no business strategy.
There is no sales strategy.</td></tr>
<tr><td colspan="3">Strengths:
(1) Land and building space is large.
(3) Labor cost is low.
(3) The company incurs no fixed property tax.
(4) Managers have strong power of unity.</td><td colspan="2">Weaknesses:
(1) Financing and cost control are weak.
(2) Sales strategy is inadequate.
(3) Research of competitors is insufficient.
(4) Plant maintenance is insufficient.</td></tr>
<tr><td colspan="2">Development direction and potential</td><td colspan="3">Corporate development is conditional on development of new products and raising of funds.
They are proceeding with development but it cannot be promising without working capital.</td></tr>
<tr><td rowspan="2">Problems requiring countermeasures</td><td>Company responsibility problems (internal factors)</td><td colspan="3">Lack of business management in compliance with the market economy (sales, production).
Chronic deficit-making constitution (lack of manufacture cost analysis, low operating rates, etc.)</td></tr>
<tr><td>External responsibility problems (external factors)</td><td colspan="3">Over-interference by local government (continuation of former planned economy methods).
Increased burden because of payments to insurance company for assuring the welfare of retirees (legal issue).
Collateral assessment law restrictions on small and medium enterprises (legal issue).
Reduction in demand for tractors due to impoverishment of farmers over the past 10 years.</td></tr>
<tr><td colspan="3">Problems hindering company development (hypothetical):
(1) Low productivity
(2) Retirees social security burden
(3) Chronic shortage of operating funds</td><td colspan="2">Conditions concerning examination of problems hindering company development:
New product development and mass production are currently suspended due to lack of funds.
The company cannot get out of the red because retirement allowances are increasing and production (sales) is decreasing year by year. The payment of wages has been delayed for four months. In other words, productivity is declining and there is little hope of continuing operation.
.</td></tr>
<tr><td colspan="2">Requested countermeasures for problems identified in the first site survey (to be verified in the second site survey)</td><td colspan="3">(1) Implement PDCA control for production, shipping and stocks (budget vs. performance control)
(2) 3S movement
(3) Preparation of specific plans for reducing indirect staff
(4) Review of break-even points of main products
(5) Review of Chinese-style break-even calculation</td></tr>
</table>

Table 7-2-11 Progresses in Improvement Measures Company No.5

Issues that require countermeasures (First Field Survey)	Progress in countermeasures (Second Field Survey)	Countermeasures to be continued
1. They should implement PDCA control for production, shipping and stocks (budget vs. performance control)	The company lacks an independent spirit. When they make a production plan at the beginning of a year, they decide target figure according to the intention of the government（区工業局）. It is natural that they cannot achieve the target, but the government tolerates it.	To promote establishment of a system for controlling PDCA voluntarily.
2. They should promote 3S movement	-In the plant site, they built a big 3S board to make it known to all the employees. -The inside of the plant was well-cleaned. Junks and wastes that had been pointed out at the first site visit were removed.	-To continue 3S movement. -To reform sense of employees including executives. -To introduce flushing toilets as a part of working environment reform. -To dispose a private power generator which is not used and maintained by sales.
3. They should prepare specific plans for reducing indirect staff	They did not prepare any plans for reducing indirect staff. It is almost impossible to dismiss employees since it is a state-owned company. Even the layoff of indirect staff would not be beneficial because insurance premium and living allowance must be paid.	-To petition the government to allow them cut needless indirect staff for management recovery.
4. They should review break-even points of main products	Since the cost control system is incomplete and their fixed cost is not clear, it is impossible to calculate the break-even point.	-To establish an accounting system with which fixed cost and variable cost can be classified. -To analyze break-even point ratio every month.
5. They should review Chinese-style break-even calculation	The balance of income and expenses is kept by adding up non-operating revenue. The detail is not clear.	-To check business income and expenses completely for taking action to improve management.

Notes:

At the second field survey, the company sounded out on the possibility of investment from Japanese companies. To this end, they must satisfy at least two following conditions.

-Plan : They must present implementation plans which are correct and convincing.

-Product : They must propose product types which are supported by demand forecasting. (Their current main products, motors for tractors, cannot be accepted.)

We convinced them that contacting Japanese companies would take them nowhere without satisfying these conditions. It is also extremely difficult to set up a joint venture business with a Japanese company because there were too many examples of failure in the past. The only possibility for a Chinese company (manufacturer) is becoming a 100% subcontractor of a Japanese company. Especially, the employees of this company do not have technical skills. We advised them to look for a field dedicated to assembly. We hear that a foreign-affiliated subcontractor can be free of income tax for three years.

Table 7-2-12 Model Company Diagnosis Report (Overview of the Company)

Company No.6

<table>
<tr><td colspan="3">Sector: Electronics and Information</td><td colspan="3">Ownership: Private</td></tr>
<tr><td colspan="3">Visit date: 11/17/2000 – 3/1/2001</td><td colspan="3">Number of visits: 10</td></tr>
<tr><td rowspan="2">Performance trends</td><td>Performance indicators</td><td>Sales:
Steadily increasing (17% up on the previous year in 1999)</td><td>Profits:
Both operating profit and net profit are stable at 15% or more of sales turnover.</td><td colspan="2">Fund management:
Funding is insufficient because internal savings are relied on. Conditions are too harsh for receiving bank loans.</td></tr>
<tr><td>Assessment</td><td colspan="4">Since establishment, annual sales have increased at a higher rate than national GDP, and the profit margin is also high. Since market growth is assured and the company has good product capacity, it is judged that good performance will continue for at least another two years. (Impact of China’s accession to WTO is concerned.)</td></tr>
<tr><td colspan="3">Management:
The company president is young, he possesses sufficient understanding of the market economy, and he is a man of action. He possesses vision and imagination for devising new project ideas.</td><td colspan="3">Business policy:
The company has a clear policy. It intends to promote sales through promoting sales by disseminating data analysis/diagnosis centers using cardiac monitor systems (the company’s leading product) over the whole country. At the same time, it aims to secure its main source of income by collecting diagnosis service fees from members.</td></tr>
<tr><td colspan="3">Strengths:
(1) International and advanced development technology capability.
(2) Medical service products, which offer high profit margin, are its leading products.
(3) High potential for customer and market growth</td><td colspan="3">Weaknesses:
(1) Insufficient sales capacity
(2) Insufficient collateral for securing loans
(3) Inadequate human resources</td></tr>
<tr><td colspan="2">Development direction and potential</td><td colspan="4">In China, the company has few competitors and its technology is unique. Also, large demand can be anticipated in this sector in the future. Continued growth is assured for at least the coming 10 years.</td></tr>
<tr><td rowspan="2">Problems requiring countermeasures</td><td>Company responsibility problems (internal factors)</td><td colspan="4">Operating rate of production lines is low (17%).
Organized market research capacity and scientific cost comparison efforts are insufficient.
Financial and accounting control capacity is inadequate.
Ideas for accumulating funds and developing new products are currently being examined.</td></tr>
<tr><td>External responsibility problems (external factors)</td><td colspan="4">Conditions for bank loan borrowing are too harsh.
The collateral value of intangible assets (patents, etc.) is too low.
Financial systems 8especially collateral and real estate assessment) are irrational.
Collection of trade account receivable is difficult (partly).
There is no industry information network.</td></tr>
<tr><td colspan="3">Problems hindering company development (hypothetical):
(1) Lack of new product development technical capacity
(2) Complete lack of organized control systems
(3) Lack of long-term plan compilation capacity
(4) Communications with the government are not established.</td><td colspan="3">Conditions concerning examination of problems hindering company development:

Capability of the development staff is high, but they are located in Jukai city of Guangdong, which is far away from the headquarters. Therefore, organizational management is not sufficient.</td></tr>
<tr><td colspan="2">Requested countermeasures for problems identified in the first site survey (to be verified in the second site survey)</td><td colspan="4">(1) Adapter production capacity/month
(2) Product straight-through rates (by product)
(3) Decision and measurement of standard work times on process schedules
(4) Suppliers and costs of parts on parts sheets.</td></tr>
</table>

Table 7-2-13 Progresses in Improvement Measures Company No.6

Issues that require countermeasures (First Field Survey)	Progress in countermeasures (Second Field Survey)	Countermeasures to be continued
1. Production capacity of adapters / month	- According to the company's survey, they produce 360 units in a month. - 10 employees are engaged in production.	- To educate a field superintendent employed in January 2001 for the development of production capacity.
2. Straight-through rate of products (each product)	- Straight-through rate is unclear because one worker covers the entire process at the moment. - The acceptance rate of the first finished product test is as follows respectively. BP machine：80% Stand：93%	- To start collecting data of straight-through rate in preparation for the adoption of the conveyor system in the future. - To set a goal of the straight through rate at 99.7% and make efforts for its achievement.
3. Decision of standard working hours on the progress schedule and measured data	At the moment, the actual production is very small (17%) compared with the production capacity. Therefore, we cannot feel their enthusiasm for standardizing working hours.	To aware the importance of deciding working standard regardless of the production volume. To put it into practice while they have allowance in the production.
4. Supplier of each part on the parts list and unit prices	Since it concerns corporate confidence, they are discussing the issue in the company.	To discuss the purchase strategy of each part voluntarily to reduce cost.

Notes：

(1) The company asked us what they should pay attention to when they purchase hardware. We advised them as follows.
-To select something with mature technology.
-Not to present specifications with excessive quality
-To get estimations from three companies.

(2) The company asked us what are the points of software development control. We advised them that they should focus on following points as the general white color management.
-Detailed work design
- The right staff in the right place
-Checkpoints in the progress

(3) The company regards productivity improvement as an issue. However, the definition of productivity is not clear. They have no concrete data on which parameter they use to measure productivity, therefore, we could not answer the question. They should establish a system to conduct production control, quality control and cost control strictly. Following points require improvement at the production site.
-To analyze the difference between production plan and actual production.
-To collect production-related data and to conduct appropriate data management.
-The field superintendent should keep the keys (copy) of subordinates' desks.
-To promote 5S (organization, arrangement, cleaning, sanitary, discipline) movement.

Table 7-2-14 Model Company Diagnosis Report (Overview of the Company)
Company No.7

<table>
<tr><td colspan="3">Sector: Environmental protection</td><td colspan="3">Ownership: state-owned</td></tr>
<tr><td colspan="3">Visit date: 11/14/2000 – 2/22/2001</td><td colspan="3">Number of visits: 8</td></tr>
<tr><td rowspan="2">Performance trends</td><td>Performance indicators</td><td>Sales:
From 1997 there was no revenue because the company solely conducted research and development, however, some sales turnover was generated in October last year.</td><td>Profits:
There are no profits since the company has only just been established.</td><td colspan="2">Fund management:
Funds are insufficient.
A new plant started operation in May 2000 thanks to the governmental guidance and cooperation. Turning around by new products launching on this occasion is anticipated.</td></tr>
<tr><td>Assessment</td><td colspan="4">Current performance couldn't be worse. The president visited a German company this month (this company started four years ago). Verification findings were technically recognized and a cross-license contract was concluded. Since an ordinance banning the use of plastic has been established, sales of this product can be anticipated.</td></tr>
<tr><td colspan="3">Management:
Being a chemical engineer, the president is keen on development and has good diplomatic skills for negotiating with government officials, etc.</td><td colspan="3">Business policy:
In addition to simply manufacturing products, the company should proceed into major markets upon establishing a system, which incorporates technology, equipment, additives, raw materials and products.</td></tr>
<tr><td colspan="3">Strengths:
The company foresaw the national ban on vinyl and used this as a boost.
The company has been able to spend time and money on research and development.
The company is versatile.
Management can freely deal with the government and foreign countries.</td><td colspan="3">Weaknesses:
This is a so-called venture company.
Since it has not had any revenue since establishment and has relied on funding from friends to provide a large share of capital, large-scale plant investment will be difficult in future.</td></tr>
<tr><td colspan="2">Development direction and potential</td><td colspan="4">Based on the theme of preventing white pollution by plastics, the company conducted development upon foreseeing the national ban on use of plastics in throwaway tableware. The company is no about to enter the implementation stage and it envisions a broad concept which incorporates transfer of technology, manufacturing equipment, additives for degradation and starch (raw material). In other words, this concept entails final products from the company's own plant, major machine makers, and farmers who supply the raw materials.</td></tr>
<tr><td rowspan="2">Problems requiring countermeasures</td><td>Company responsibility problems
(internal factors)</td><td colspan="4">Concerning marketing, the company has absolute confidence concerning its own products, however, it needs to improve its foresight of the appearance of new competing models.
Since the new plant is the first of its kind in Asia and will attract a lot of attention when it starts operations, ample planning should be invested in preparation.
The company should pay attention to measures for advanced technology development in small and medium enterprises.</td></tr>
<tr><td>External responsibility problems
(external factors)</td><td colspan="4">There is little communication of information concerning measures for new technology developments in small and medium enterprises.
Conditions for loans from financial institutions to private enterprises are too harsh.
Concerning human resources recruitment, people are willing to enter the bureaucracy and major corporations, but small and medium enterprises in the private sector are at a disadvantage.</td></tr>
<tr><td colspan="3">Problems hindering company development (hypothetical):
Relaxation of loan conditions
Planning of preparations for launch of the new plant</td><td colspan="3">Conditions concerning examination of problems hindering company development:
Two years are required to satisfy the criteria for listing on the stock market.
Organization, etc. was rashly formulated.</td></tr>
<tr><td colspan="2">Requested countermeasures for problems identified in the first site survey (to be verified in the second site survey)</td><td colspan="4">Codification of organization and division of responsibilities
Preparation of a launch plan
Preparation of production-related standards (work procedures, work standards, etc.)</td></tr>
</table>

Table 7-2-15 Progresses in Improvement Measures Company No.7

Issues that require countermeasures (First Field Survey)	Progress in countermeasures (Second Field Survey)	Countermeasures to be continued
1. Visible organization and role sharing	- Business plan and annex developed in October 2000. - Responsibility specification, system and financial accountings system are prepared. The organization chart is prepared.	To change organization according to the actual situation.
2. Development of the startup plan	- Business review for 2000 and business plan for 2001 (basic level) - Production/sales plan for 2001 - Progress graph for production/operation plan for 2001 - Construction plan of a production plant (budget) These were well developed, however, they are not carried out as planned due to lack of funds.	To act to overcome financial difficulty.
3. Preparation of standards（working procedures, working standard and so on）	- Operating manual - Product quality test standard - Product technology standard - Transport manual, storage manual - Inspection standard for shipment are already prepared.	To improve them.

Second Field Survey

Findings	Countermeasures to be continued
1. Development of working standards	We translated a working standard used in Japan into Chinese and provided them. An operational manual they made was good, but it consists of only paragraphs. We advised them to use more charts and tables to deepen understanding. They should develop working standards that are more useful from now on.
2. Lack of information	Biodegradable plastic is developed and sold in Japan, but it is at a disadvantage compared with non-biodegradable plastic in terms of price. They can be supported by green purchasing of companies and government offices or eco-mark products system. We provided the model company with the brochures of Japanese companies. We introduced the model company's products to a Japanese company that is importing trays, Chinese noodle bowls, dishes and small bowls made from ditch reed of Company A (samples are provided to the model company) along with several exhibiters in "Eco Products 2000" held at Tokyo Big Site. One of the exhibitors made contact with the model company directly. We provided the company with materials related to exhibitors procedures for "Eco Products 2000".
3. Introduction of Japanese companies	We introduced the products to Company B. At the request of Company B, the model company sent samples for evaluation. As a result, they were told that the samples do not meet the quality level of the Japanese market. If the quality would improve, Company B would consider investing. We introduced the products to Company C. Company C requests them to send samples and materials including physical property data, patent contents and a price list. They should try to improve quality level and keep contact with these 2 companies to grasp the market demand.

Table 7-2-16 Model Company Diagnosis Report (Overview of the Company)
Company No.7

<table>
<tr><td colspan="3">Sector: Environmental protection</td><td colspan="3">Ownership: state-owned</td></tr>
<tr><td colspan="3">Visit date: 11/13/2000 – 2/23/2001</td><td colspan="3">Number of visits: 7</td></tr>
<tr><td rowspan="2">Performance trends</td><td>Performance indicators</td><td>Sales:
Fluctuating well</td><td>Profits:
Fluctuating well</td><td colspan="2">Fund management:
The company does not rely on state funding but raises funds through its own power. There is a limit to this, however.</td></tr>
<tr><td>Assessment</td><td colspan="4">Sales are steadily increasing thanks to the earnest efforts of management, however, competition is intense. Moreover, products which have been made but cannot be paid for by customers, lie idle in stocks and are wasted.</td></tr>
<tr><td colspan="4">Management:
The president was a bureaucrat until 1993 and experienced working in a number of other companies before assuming office here. He invests profits in his work rather than a home and automobiles.</td><td colspan="2">Business policy:
Preserve reputation by placing top priority on quality.</td></tr>
<tr><td colspan="4">Strengths:
The company started off as an unpaid private enterprise last year when three managers used their own funds to purchase a state enterprise.
Preparing for acquisition of ISO9001.</td><td colspan="2">Weaknesses:
Security of registered members who don’t commute to work.
Plant equipment is old.
Intensification of competition</td></tr>
<tr><td colspan="2">Development direction and potential</td><td colspan="4">In consideration of environmental protection problems which it is thought will intensify in future, the market for environmental protection equipment will grow.
Potential for growth exists, but this depends on improvements being made in the areas of human resources and funds.</td></tr>
<tr><td rowspan="2">Problems requiring countermeasures</td><td>Company responsibility problems
(internal factors)</td><td colspan="4">Awareness of municipal government measures concerning advanced technology in small and medium enterprises is insufficient.
Although room for improvement exists, the approach to this is slow, maybe because legal procedure for the acquisition of the manufacturing plant is not finished.
Staff recruitment efforts are insufficient.
The company has a desire to form a joint concern with a foreign affiliate, but its efforts to be attractive are insufficient.</td></tr>
<tr><td>External responsibility problems
(external factors)</td><td colspan="4">Communication of municipal government measures concerning advanced technology in small and medium enterprises is insufficient.
The company’s leading product was omitted as a designated model from the tender for a large-scale sewage treatment plant scheduled for construction under overseas loans.
Instead, foreign imports will be relied on.
Fund raising for development is difficult because of unwillingness to provide loans by financial institutions.</td></tr>
<tr><td colspan="4">Problems hindering company development (hypothetical):
Awareness of municipal government measures concerning advanced technology in small and medium enterprises is insufficient.
Manufacturing plant improvements are insufficient.
Staff and capital restrictions prevent realization of the hoped for joint venture.
Development of product lines which can compete with foreign products is necessary.</td><td colspan="2">Conditions concerning examination of problems hindering company development:
Acquisition of information on measures from the Production Capacity Promotion Center is insufficient.
Even if legal procedure concerning ownership of the manufacturing plant is accelerated, interest is low at the moment.
Design drawings of new products have been prepared, however, funds for manufacture of test equipment are lacking and hopes are placed on foreign capital.</td></tr>
<tr><td colspan="2">Requested countermeasures for problems identified in the first site survey (to be verified in the second site survey)</td><td colspan="4">Visit the Production Capacity Promotion Center and other municipal agencies and obtain information.
In particular, concerning advanced new technologies of small and medium enterprises, new measures have been implemented recently. Negotiations should be held to investigate whether these can be used in new model development.
Concerning manufacturing plant improvements, compile and execute specific plans.
Concerning joint venture, the company needs to examine ways of making itself more attractive.</td></tr>
</table>

Table 7-2-17 Progresses in Improvement Measures Company No.8

Issues that require countermeasures (First Field Survey)	Progress in countermeasures (Second Field Survey)	Countermeasures to be continued
1. They should visit a city organization such as Production Capacity Promotion Center for information.	They have expectations of public organization measures, however, there seems to be no effect yet. Following things are pointed out and requested. - Government policy which can be implemented by the mayor and administrative offices. - A measure with which private companies can realize the assistance from the government. - Compared with the South China, private companies are more discriminated against from state-run companies in the North China. The head of the state understands efforts of private companies, however, officials of lower parts of organizations do not understand them enough. - In February 2001, the company will have the opportunity to visit Australia for 20 days at the government expense. The head of the Shenyang City Environmental Protection Bureau will accompany the tour. The purpose is research of environmental protection, but they want to find a joint venture partner on this occasion.	To continue making efforts.
2. They should make concrete plans for production plant improvement and carry it out.	No specific progress was made. The president seems to be aware of problems in production control overall. He acquired an old state-run company and also took over plant workers without change. Therefore, they have following problems. - The bad culture of state-run companies, in other words, bad habits of laziness, passiveness, irresponsibility and low skill remain among plant workers. - Their facility is very old. They seem to be equivalent to the Japanese facility in 1950s and 1960s. Severe demands are not made on the production process at the current technology. - They do not have strict ways to inspect or check in the production process.	To make more efforts on reforming minds of plant workers. It is the president's responsibility.
3. They should come up with the ways to appeal the company for realizing a joint venture business.	No progress was made. They have the corporate brochure and products information, but they have not prepared layouts of production plant, list of equipments, technical level of employees, which had been requested at the first visit. The company failed to make a joint-venture contract with a foreign company three years ago. They say it was because they had no confidence in their own technology then. They have confidence now. We advised them to see things from a different standpoint. It is necessary to think what they would demand on a company of a developing country if they were in a foreign company's position.	To prepare data and information

Table 7-2-18 Model Company Diagnosis Report (Overview of the Company)
Company No.9

<table>
<tr><td colspan="3">Sector: Cement plant manufacture</td><td colspan="3">Ownership: private</td></tr>
<tr><td colspan="3">Visit date: 11/14/2000 – 2/23/2000</td><td colspan="3">Number of visits: 7</td></tr>
<tr><td rowspan="2">Performance trends</td><td>Performance indicators</td><td>Sales:
Sales have slumped over the past three years.</td><td>Profits:
Profits show a deficit over the past three years.</td><td colspan="2">Fund management:
Harsh conditions are continuing. According the governmental guidance, they gave up credit of 15 million Yuan.
The company is diversifying and introducing funds from other sectors.</td></tr>
<tr><td>Assessment</td><td colspan="4">The company was converted from a state enterprise to a private enterprise in 1997. However, it currently faces very hard conditions due to falling sales and declining technical capacity and product competitiveness.
The company aims to bolster its products through introducing technology from foreign companies, however, it must first become an attractive concern when viewed by overseas companies.</td></tr>
<tr><td colspan="3">Management:
The president has good leadership ability, strong drive and wide connections.
Strong willingness is offset by inexperience of corporate management.</td><td colspan="3">Business policy:
Small and medium cement makers throughout China are currently concerned with renewal of deteriorated equipment.
The company aims to bolster products through introduction of technology and formation of joint ventures.</td></tr>
<tr><td colspan="3">Strengths:
There is ample market potential for cement plant remodeling. (Productivity and thermal efficiency are low with old kiln.)
The company invited a technical advisor for new product merchandizing.</td><td colspan="3">Weaknesses:
Technical capacity is low and products lack competitiveness.
The basic requirements for in-house management are not in place.</td></tr>
<tr><td colspan="2">Development direction and potential</td><td colspan="4">The company has compiled a medium and long-term business plan, and there is a possibility of survival if this is actualized.</td></tr>
<tr><td rowspan="2">Problems requiring countermeasures</td><td>Company responsibility problems (internal factors)</td><td colspan="4">The company has no technical development capacity and no products which can respond to market needs (energy saving measures, cost).
There is no basis for sales targets and manufacturing costs. Thus, the company is unable to compile countermeasures in response to deterioration of term-end business performance.</td></tr>
<tr><td>External responsibility problems (external factors)</td><td colspan="4">Company systems based on operation under planned economy conditions are deeply ingrained.</td></tr>
<tr><td colspan="3">Problems hindering company development (hypothetical):
Control cycle (PDCA) is not practiced.
There is a plan but this lacks practical feasibility.</td><td colspan="3">Conditions concerning examination of problems hindering company development:
Targets in each department lack specific content and follow-up capacity is poor, meaning that the basics for company control are not in place.
Information sharing is not implemented throughout the organization, but information is controlled by individual managers.</td></tr>
<tr><td colspan="2">Requested countermeasures for problems identified in the first site survey (to be verified in the second site survey)</td><td colspan="4">(1) Compilation of specific plans for realizing business plans (responsible persons, targets, budget, follow-up setup)
(2) Unification of production and schedule plans and adoption of Gantt charts
(3) Improvement of the business management setup</td></tr>
</table>

Table 7-2-19 Progress in Improvement Measures Company No. 9

Issues that require countermeasures (First Field Survey)	Progress in countermeasures (Second Field Survey)	Countermeasures to be continued
1. Development of concrete measures to realize the management plan		
- They should clarify the procedures to realize the management plan and control their progress.	- Sales plan is only for one year. They have no target. - The manager and staff in charge are not clarified.	- To develop medium-term management plan (3 to 5 years) at each department in charge.
- They should set up the priority goal and target amount of orders. Models, new products and financial state should be improved. They should use computers at each department.	- They sell products at market price. - Production cost is not calculated.	- To factor in profit ratio. - To control coefficient by financial management.
-In terms of technology introduction and new models, goals, schedule and the responsible person should be clarified（including condition setting for partnership with a foreign company.）	- Introduction of production technology and invitation of advisors.	- To train employees to acquire technology.
- To achieve goals of each department, specific issues, countermeasures (lacking resource), schedule and people in charge should be decided and presented by each department. They should develop a key person of each department.	- Lack of expansion. They do not have goals, responsible people, schedule and budget.	- To expand it to other departments.
- They should decide the policy achieve goals.	- Lack of expansion - Lack of resources	- To promote it by the president's leadership.
- They should document goals and schedule of each department to ensure the follow-up of the situation. - The president should control entire company. He should always grasp the situation and take measures to achieve goals.	- The president is ambitious, but there is no capable person in the middle managerial position	- To document goals, schedule, budget and a person in charge. - To ensure follow-up.
2. Unification of production plan and schedule. Introduction of a Gantt chart.		
- Each sales person should set up targets; amount of orders, models, the number of products, the date of receiving orders expected.		- To ensure follow-up.
- Each sales person should present a daily report which shows following points; sales activities, progress in pending issues (status-negotiation stage / estimate presented / price negotiation / order confirmed / probable order date, problems against order placement, lost orders and causes, competitors situation, customer information)	- Form development	- To grasp process and stages. - To provide managers' support.
- Managers of sales people administrate daily reports of sales people and support-required measures. Reports should be put together as the sales report and sent to the president.	- Form development	- To provide managers' support.
- Preparation of sales manual	- Brochures development - Production process should be shown in charts.	- Energy flow - To improve production capacity

Issues that require countermeasures (First Field Survey)	Progress in countermeasures (Second Field Survey)	Countermeasures to be continued
3. Improvement of sales control system		
- To unify information. At the moment, they do not receive many orders. People in charge of sales, engineering, production and finance are managing themselves, but it is difficult to grasp the situation. It is important to reinforce the function of the production department to unify all the managements by organizing the management system.	- The production department staff was reinforced. The flow of works and information was integrated.	- To improve the level of the production department.
- They should change plans to the system which can be controlled easily. (Gantt chart system).	- They adopted charts but insufficient.	- Plans at the launching stage and at the completing stage. Actual results.
- They should make rational change of the standard hours（It will require reviews in relation to the wage system）	- Not launched yet.	- To revise standard hours for productivity improvement.
- They should make good use of CAD concerning parts expansion.	- They consider recruiting and training of new employees, however, it is not taking shape.	- To decide the schedule.
- They should improve the system in order to utilize the past records as data.		- To improve the difference between the standard hours and actual hours. - To enhance production technology.
- There is no department that integrates flow control from order reception to production.	- Reinforced production department (2 personnel are added) will control it.	- To follow up and to reinforce if necessary.

Second Field Survey

Findings	Countermeasures to be continued
1. Production technology Accuracy of their part processing is low, which increases man hours in the later process (board cutting, screw processing).	- It should be linked to the reduction of production cost (assembly man hours) and improvement of quality. Accuracy improvement of sheet metal parts Accuracy improvement of screw processing
2. Melting and molding of cast steel They should discuss purchase of high-frequency furnace and introduction of full mold process.	- Review of production cost - They should review product forms to discuss their introduction.

Table 7-2-20 Model Company Diagnosis Report (Overview of the Company)
Company No.10

<table>
<tr><td colspan="3">Sector: Alumina and ceramic parts</td><td colspan="3">Ownership: state-owned</td></tr>
<tr><td colspan="3">Visit date: 11/16/2000 – 2/22/2001</td><td colspan="3">Number of visits: 7</td></tr>
<tr><td rowspan="2">Performance trends</td><td>Performance indicators</td><td>Sales:
Sales have dropped and production has been suspended during the winter.
Production of some non-competitive products has been suspended.</td><td>Profits:
Profits have been falling since 1998.</td><td colspan="2">Fund management:
The company faces very harsh conditions as a result of falling profits and collective enterprise debt burden.</td></tr>
<tr><td>Assessment</td><td colspan="4">Payment of debts caused by bankruptcy of collective group companies is a major burden.
High product NG rates have a major impact on business performance.
Control of production processes is left to line staff.</td></tr>
<tr><td colspan="3">Management:
The president is from a financial background and thus has little technical know-how.</td><td colspan="3">Business policy:
The company plans to achieve revitalization through transition from a state enterprise to a private enterprise. It aims to improve control methods.</td></tr>
<tr><td colspan="3">Strengths:
Since there is little competition for alumina and ceramic parts, the company has a 60% market share.
Quality of their products is highly evaluated.</td><td colspan="3">Weaknesses:
High NG rates detract from product competitiveness.
The company’s market share is declining every year.
There is no capable middle managers.</td></tr>
<tr><td colspan="2">Development direction and potential</td><td colspan="4">Bolstering of the company constitution (reduction of NG rates, improvement of production control setup) should be realized quickly.
On the occasion of corporate lease, the strong will of the president should be used and management should be transformed to adapt the market economy.</td></tr>
<tr><td rowspan="2">Problems requiring countermeasures</td><td>Company responsibility problems (internal factors)</td><td colspan="4">NG rates and fluctuations in NG rates are high because production matters are left to line staff and there is a lack of production technology development. This leads to the continuing slump in business performance.
Data recording is insufficient and the basics of control cannot be maintained by oral instructions alone.
Their desire for technology and improvement is low.</td></tr>
<tr><td>External responsibility problems (external factors)</td><td colspan="4">The company’s financial base is weakened because of the partial bearing of debts resulting from the collapse of the collective company.</td></tr>
<tr><td colspan="3">Problems hindering company development (hypothetical):
Data records are insufficient because control is left to line staff. Control cycles are not practiced.</td><td colspan="3">Conditions concerning examination of problems hindering company development:
Problems are not rectified. There is no progress with the company.
They don’t obey the working standard which was established 20 years ago.
There are no data on NG rates in each process.
There are no equipment maintenance records and equipment controls are not practiced. This is hindering production.</td></tr>
<tr><td colspan="2">Requested countermeasures for problems identified in the first site survey (to be verified in the second site survey)</td><td colspan="4">Measures to reduce NG rates have been requested.
The average NG rate is high at 25% and fluctuations are large (5-70%). These conditions have a major impact on the company’s business performance.</td></tr>
</table>

Table 7-2-21 Progresses in Improvement Measures Company No. 10

Issues that require countermeasures (First Field Survey)	Progress in countermeasures (Second Field Survey)	Countermeasures to be continued
1. Countermeasures against defective products. Defective ratio of 99.9% alumina protecting tube：38% Defective ratio of 85.0% alumina protecting tube：24%	- The president is tackling the issue seriously, but the technical department is not capable enough.	- We instructed them to cut the defective ratio by half and shed light on issues.
- They should find out causes of defective products at each process and present countermeasures (information exchange between the engineers and the worksite). - They should review the causes of defectives by a cause and effect diagram	- They made a list of defectives of each process and their causes. - Their analysis was not sufficient with regard to raw materials, slurry storage, molding methods, and calcination process. Calcination process of alumina 99.9% protecting tube Downfall during calcination Deforming during calcination	- Cause unfolding is not sufficient. They will review defective classification and priority agenda. - To reflect priority causes to the work standard. - To develop record format
2. Defective ratio determination of each process and data collection. - They should decide collection methods of data on defectives and measurement conditions. - They should make use of tools for failure analysis - They should collect data of each process. Defective ratio, causes of defects, conditions of production, measured value	- They did not measure them because they stopped operation in winter. - They have not come up with a measuring method and format for recording. - They did not measure them because they stopped operation in winter. - The same as above	- Countermeasures by the project against defectives. (engineers and worksite) - The same as above - The same as above
3. Review of working standards	- They are using working standards of 20 years ago. - They do not observe the working standard.	- To review working standard and ensure observance by the field workers.
4. Management plan development - They should clarify specific measures and methods to realize the management plan and control its progress.	- Sales target for 3 years and profit goal - New product development - Reduction of cost and defective ratio - Introduction of new equipment Schedule, responsible person, methods and budget of an individual theme are unclear. - Financial management They are making profit except for some material cost.	- To develop a medium-term management plan (3 to 5 years) - To break down by the department in charge. - To improve the accuracy of financial management so as to control coefficient.

Second Field Survey

Findings	Countermeasures to be continued
1. Excess inventory of products - Credit sales in 2000: 3 million Yuan（sales 5.58 million）. Production plans and orders do not match due to high defective ratio. Inventory increased because they suspended shipment to the clients whose bills cannot be collected easily.	- Reduction of defectives and production control - Managing sales people training - Client information data - Responsibility of sales people to receive orders and collect bills.
2. Development of management plan	- We taught basic concept of management plan development and how to develop the management plan. - Countermeasures concerning resources are insufficient.

Fig. 7-2-1 shows Items of defect evaluation on the manufacturing process. Fig. 7-2-2 shows the flow of management plan development

【Countermeasures against defective products】

Most of defects occur at the calcination process. We think that raw materials, slurry production process, conveyance, storage and molding are related to the calcination process.

Classification of defective causes（list of process defect causes）

	Classification	Items to be evaluated
1	Irregular raw materials Bad conditions of raw materials	Evaluation of raw materials
2	Incomplete management system They do not work according to the manual	
3	Incomplete working standards	
4	Evaluation of facility required	Conveyance and storage of slurry
5	Maintenance of Facility required	Maintenance of the calcination furnace (furnace body, burner)
6	Maintenance of tools	The way of setting a production the calcination furnace Maintenance of tools Confirming methods
7	Improvement of management method Improvement of measuring method	Confirmation of a product setting condition into the calcination furnace

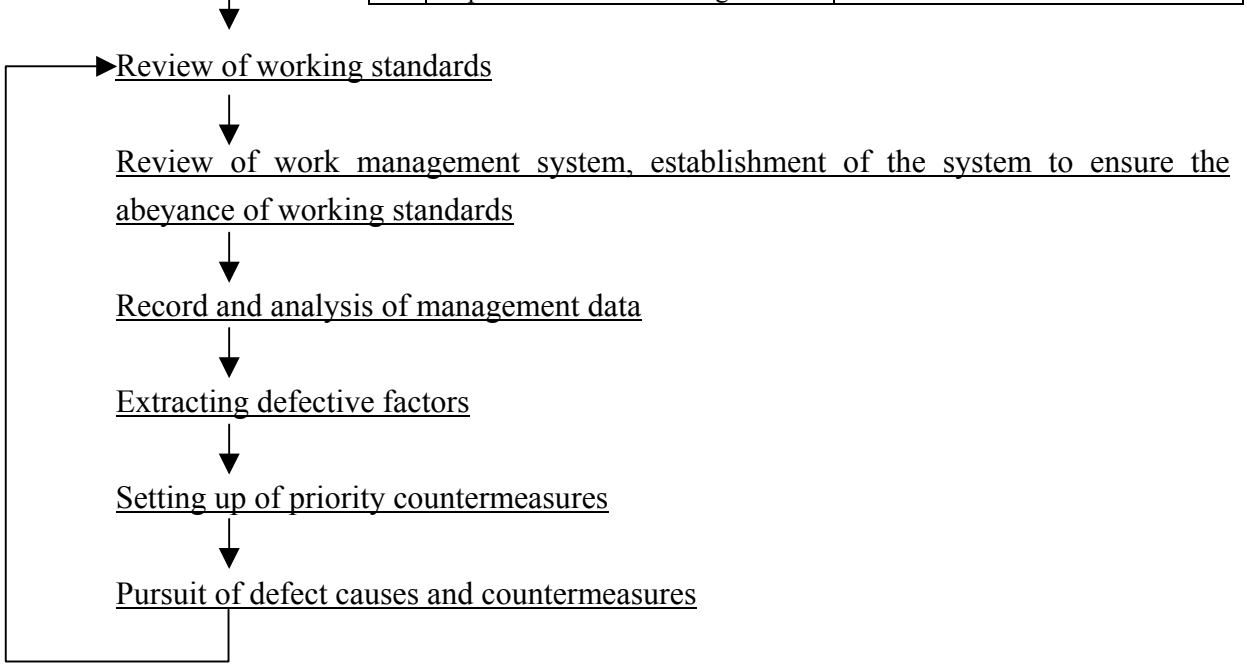

Fig. 7-2-1 Items of Defect Evaluation on the Manufacturing Process

【Based on the management leadership】

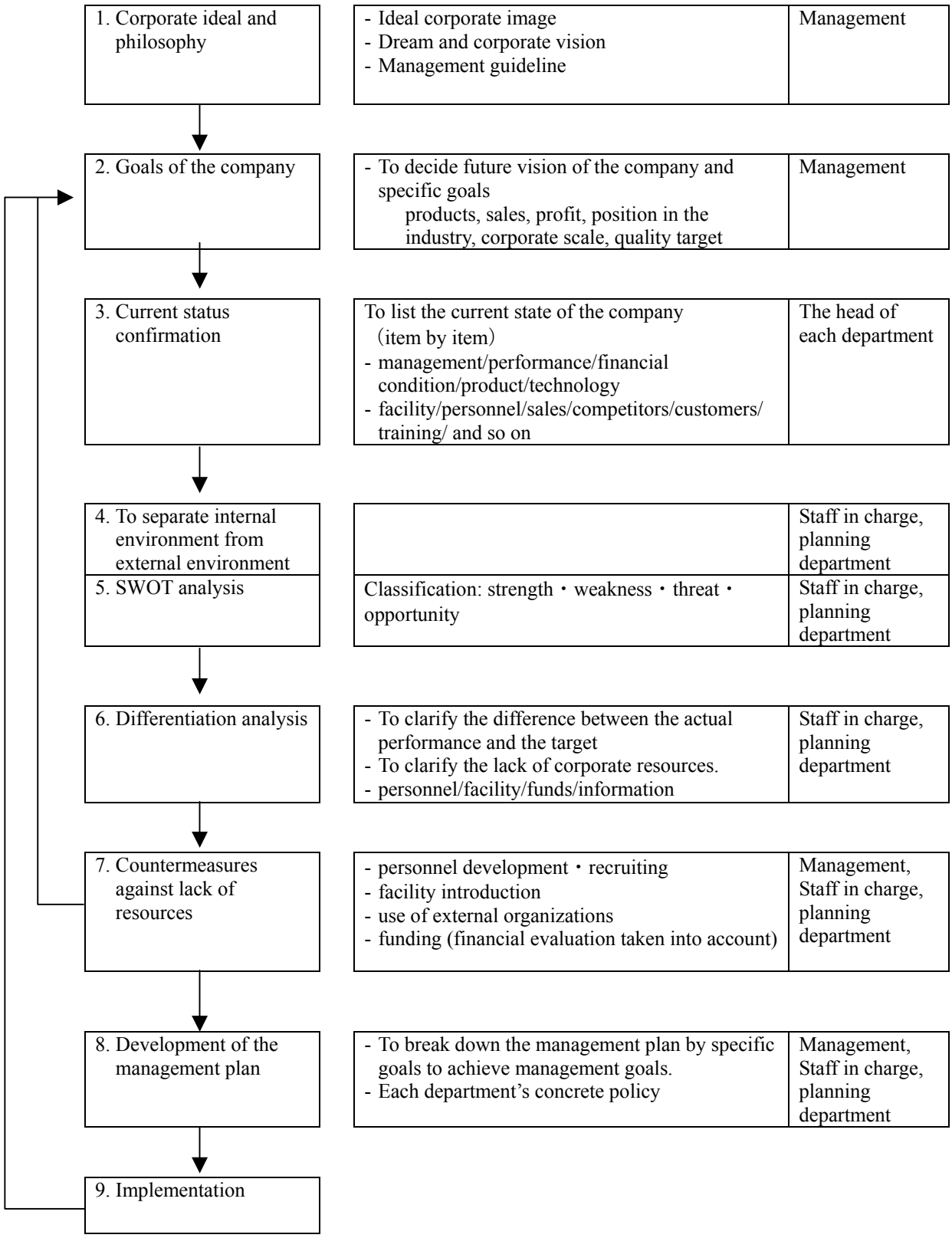

Fig. 7-2-2　Flow of Management Plan Development

7.3 Transfer of Technology

7.3.1 Purpose

The targets of transfer of technology described here are the counterparts (C/P) and local consultants (L/C) who accompanied the Study Team on the diagnosis surveys of visited companies. Two themes were aimed for in these activities, that is "vital conveyance" and "two-way communication".

The fact that compulsory presentation of daily reports ensures that C/P and L/C sustain willingness and tension regarding the diagnosis surveys has been confirmed in past projects, in which good results have been obtained from such activities. Therefore, after indicating this in the initiation report and presenting it as a proposal to the Chinese side via the steering committee, consent was obtained for implementation.

7.3.2 Methodology

The following forms were handed over to the C/P and L/C and they were asked to present the forms upon filling in the necessary items.

(1) Commentary of Format for C/P (Table 7-3-1)

1) Contents of today's diagnosis survey: How carefully has the C/P been listening to the diagnosis survey contents explained by the Study Team member? The stance of the C/P is reflected well here, although the quality of interpreting does have a major impact.

2) Contents which can be used for future reference: This refers to diagnosis survey items and contents which can be used in future. Quality and scope of the diagnosis survey are demanded.

3) Poor diagnosis survey contents: Homework for the Study Team. These points are targeted for future improvement.

4) Free opinions: Since comments are scarce because of maybe some reserve on first meetings, this item provides an opportunity for opinions to be aired.

5) Study Team member's response: Practical application of two-way communication. The Study Team member gives his response and impressions of the C/P remarks. This column encourages lively exchange.

Table 7-3-1 Format for C/P

Reference No.	Surveyed Sector:

Diagnosis survey date	Unit	Surname	Accompanying personnel (unit)
Surveyed company:		Interviewees:	
(1) Contents of today's diagnosis survey: what was diagnosis survey conducted on?			
(2) What did you learn during the diagnosis survey: contents which can be useful in future			
(3) Requests concerning the diagnosis survey: poor items, and reasons for them			
(4) Impressions of today: feel free to write anything you like.			
(5) Study Team response			

(2) Commentary of Format for L/C (Table 7-3-2)

Since the L/C are employed to support the diagnosis surveys as diagnosis survey professionals possessing know-how of local conditions, contents of the daily report were compiled accordingly.

1) Management assessment: Assess the true picture of the manager as seen by the L/C.
2) Company strengths: It was hoped that the L/C would assess the company strengths and evidence for company survival and success.
3) Company weaknesses: The L/C was asked to describe the surveyed company's weaknesses and rank whether or not these are fatal hindrances to development.
4) Other noticed points: It was hoped that the L/C could describe in detail various local conditions which cannot be comprehended by the Study Team members.
5) Sign-off by reporter: Study Team member's signature

Table 7-3-2 Format for L/C

Visited Company	Visit Date	Reporter

Opinions

Management assessment	
Company strengths	
Company weaknesses	
Other noticed points	
Sign-off of reporter	Study Team member's signature

(3) Suitability of C/P

Some of the accompanying C/P were considered to be highly reliable by the Study Team as targets for transfer of technology in all sectors, however, some others were questionable.

Table 7-3-3 Aptitude of C/P

Sector	Brief Comment
General machinery	Main activity is providing guidance to companies; main contents of daily reports are management assessment and company strengths. This approach was too biased for acquiring diagnosis techniques. Understanding of the C/P as the party accepting transfer of technology was slightly lacking.
Automobile parts	It is thought that the diagnosis surveys were an extremely beneficial experience. This person could become a well-balanced leader in future if he accumulates practical experience on automobile production lines.
Electronics and information	The C/P does not have deep specialist knowledge of business running, but he has high powers of understanding and much potential. It depends on the direction of his future training, but if he accumulates practical experience, he has the potential to become a future corporate business diagnostician.
Environmental protection	Following graduation from architectural college, this C/P experienced Environmental Protection Department work in sewerage systems and now belongs to an environmental protection law practice. He is 32, diligent and has good understanding, however, since he had only experienced bureaucratic work until now, it is thought that the diagnosis surveys were a good learning experience for him.
Other industries	This C/P has long experience of management in state enterprises. His current interest is directed towards the forging industry, but he slightly lacks understanding of promotion of small and medium enterprises.

(4) Aptitude of L/C

Consulting is a relatively new area in China, and it is not possible to find high levels and experience. The company used here was established by the Economic and Trade Committee based on the latest DFID plan. All the accompanying consultants are school graduates and have theoretical knowledge, however, they all lacked technical experience in the areas of manufacturing and product improvement which are most important for promotion of small and medium enterprises.

Table 7-3-4 Aptitude of L/C

Sector	Brief Comment
General machinery	The L/C who accompanied the Study Team for seven days lacked technical experience and made few comments. The L/C who accompanied for three days had corporate experience and offered advice on financial matters. It is thought that the site experience gained in the surveys will prove beneficial.
Automobile parts	The L/C was a university graduate who possessed great zeal and specialist know-how. However, his limited consulting experience did not always comply with the requirements of surveyed companies. That is to say, he lacks the techniques for putting his theories and know-how into practice. In order to become a more useful consultant in future, he needs to accumulate complimentary experience. It is recommended that he obtain a minimum of 10 years experience in company work. The L/C who accompanied the Team for one day was not aware of his role (because handing over of work was not conducted) and was thus unable to display his ability.
Electronics and information	The female L/C who accompanied the Team in the first part of the itinerary had 10 years of experience, of which the latest three years were in the electronics sector. Lively questioning and entry of the daily reports were good consultant activities, however, she was mainly concerned with business analysis and was lacking when it came to identification of problems and presentation of immediate countermeasures on production lines. The male L/C in the second half of the itinerary also possessed good consultant qualities. He had good understanding, analysis ability and cool judgment, however, his thinking is theory-based and takes a macro approach, and he is lacking in the areas of manufacturing and improvement work which require actual experience.
Environmental protection	Two L/C accompanied the Team. The first had two years of consulting experience and proved useful in offering advice to the interpreter and supplementing deficiencies in the surveys of finances. However, he had no experience in line work. The L/C in the second half was a machine engineer possessing experience of running his own business following employment in a railway rolling stock manufacturer. His comments and report entries were also good.
Other industries	The L/C had little line experience and a grounding in arts. He made few comments. He presented explanations of ordinary profit and lists of tax contents. A lot of effort will need to be made for this person to become capable of providing guidance of product improvement, i.e. line improvement activities, in small and medium enterprises.

7.3.3 Contents of Transfer of Technology

Within the corporate diagnosis work of the 70 visited companies, transfer of technology was completed on a total of 87 items. The following table shows the major transfer of technology items in each sector and the number of other items.

(1) Major Transfer of Technology Items in Each Sector

Table 7-3-5 Transfer of Technology in Each Sector

Sector	Main Transfer of technology Items
General machinery	(1) Cement Plant 1) Cutting dust screening, 2) FIFO, 3) equipment maintenance methods, 4) other items: 5 (2) Hydraulic machines 1) Ultra-long feed byte automatic stop, 2) shaper surface and side simultaneous processing (3) Steel Balls 1) Installation of heat treatment furnace temperature recorder, 2) improvement of variation in outside shape of steel balls (4) Second valve 1) Early discovery of valve leaks, 2) examination of byte chip breaker (5) Abrasion plates 1) Rounding of square plates, 2) improvement of press loop feed material, 3) other items: 5 (6) Sand cloth 1) Improvement of variation in belt sander sticking angle, 2) other items: 2 (7) Fire engines 1) Improvement of ladder welding inspections, 2) other items: 10
Automobile parts	(1) Siphon mechanism for corrosion prevention of mufflers (extension of service life) (2) Control of spot welder nugget diameter (improvement of spot welding quality) (3) Cracking countermeasures when pressing steel plate with no property abnormalities (Perform tissue survey and confirm marten site by microscope with magnification of at least 20 times. If cementite accounts for 30% or more of the total, plate is not suitable for deep drawing). (4) Improvement of materials removal in press work (5) Improvement in accuracy of gear shaft center hole (6) In addition, solutions were offered on 30 items at 11 companies.
Electronics and information	(1) Shenyang City Electromagnetic Machine Co. 1) PQ analysis methodology 2) Production process analysis methodology 3) Materials and parts sheets diagnosis methodology 4) Production plan compilation 5) 3S movement (2) Medical Electronics Corporation 1) Sales promotion methods and productivity diagnosis methodology 2) Business and management records diagnosis methodology 3) '3-Gen' (actual lines, actual items and actual reality) 4) Use of cause and effect diagrams
Environmental protection	(1) Standardization of heat treatment processes and receiving of orders for heat treatment work from other companies (2) Speeding up of claim reporting to management (level of interest of management in claims) (3) Customary use of 3S and 5S (4) Leading by example of top management (especially top sales succession) (5) Continuation of interest in government measures and policy (6) Preparation of operation standards, work standards and quality standards, etc. (7) Preparation of plant launch plans (new plant construction, relocation, etc.) (8) Welding rod control (9) Concerning end user surveys (10) What kind of appeal (merits) to display to prospective partners when seeking joint ventures (11) Codification and execution of organization and roles of each party (12) Other items: 10
Other industries	(1) Plating processes 1) Guidance was provided on liquid and temperature control, keeping of records and analysis and follow-up of findings 2) Fluctuations in plating quality were controlled using data. (2) Pipe making line 1) Improvement of steel quality and acceptance criteria 2) Approach to shortening roll preparation time, improvement of welding beat finishing (3) Forging and screw manufacture 1) Improvement of conveyance process 2) Housekeeping and tidying 3) Thorough control of steel types 4) Improvement of steel quality. Quality (screws) which can be sold to foreign affiliates. (4) Other 1) Guidance on importance of taking, utilizing, analyzing and storing inspection records 2) Guidance on correction of routine hand reworking and awareness of importance of straight-through rate (doubts remain concerning level of understanding) 3) Planning of measures for countering equipment deterioration 4) Effective utilization of subcontractor capacity (supplementing of weak points in own company's equipment)

7.3.4 Impressions of C/P and L/C Concerning the Company Visit Survey Work

Table 7-3-6 Impressions of C/P and L/C Concerning Survey Work

Sector	C/P and L/C Impressions
General machinery	The approach to work was serious and duties were carried out with a responsible attitude. Problems which had hitherto gone unnoticed were brought to light on production lines.
Automobile parts	(1) As the overall impression of the C/P, a serious approach was adopted with respect to the work and the experts were very knowledgeable in their respective fields of specialty. Problems were accurately identified and prompt countermeasures were proposed. The experts gave the impression of being principled and determined and well represented the type of engineers that are required in Chinese companies. Their viewpoints extended to macro affairs such as the environment and conditions surrounding companies, and their views were valuable. (Example) Joint venture is dependence on external help. Aim for self-correction. (2) Carry out product comparisons and become aware of the status of own products. (3) Raise practical problems as training themes. (4) Introduce QCV and QAV systems. (5) Improvement of productivity depends on full operation of machinery and full working of human minds. (6) Perfect control items one by one in processes which cannot achieve high quality in inspections.
Electronics and information	(1) The C/P was deeply impressed and stimulated by the work of the Study Team. He came into contact with a wide range of views concerning extremely detailed specialist areas, management attitudes and conditions and environment in China (see daily reports). (Example) The contents of JICA surveys are extremely detailed. (2) 5S is something which should be introduced in China too. (3) Learning about the know-how of Chinese managers was very enlightening. (4) The importance of cost control was well understood. (5) The C/P is very pleased that it was able to work with the JICA Study Team. (6) It is assumed that the scope of future judgment capacity was widened.
Environmental protection	(1) The JICA Study Team members are very serious in executing their work. However, it was also said that (finish) times should be adhered to. (2) Opinions are given from various perspectives and problems are quickly identified. (3) This may be down to the lack of practical experience, but company management appears to be very tough.
Other industries	(1) As the impression gained by the C/P, the diagnosis methods of JICA experts are detailed and based on various viewpoints. Also, understanding of macro issues such as the conditions and environment surrounding companies was deep. (2) In particular, the C/P was overwhelmed by the cause analysis and immediate proposal of countermeasures for technical problems on lines. Versatile experts such as these are desperately needed in China. (Contents along these lines were stated in the daily reports).

7.3.5 Impressions of the Survey Team Diagnosis Groups

By having the C/P and L/C fill in daily reports, did the meaning of the Study Team's comments pass over to the other side, and how did the other side understand and respond to these comments? Frank and accurate confirmation of the questions is required in the transfer of technology. Daily reports place a major load on the translator in the short term, but it is thought that this was a good method and should be adopted in future surveys. Having said that, better arrangements need to be made to secure better translating capability on site. For this reason, budget measures are required, however, no special steps were adopted on this occasion and differences could be seen in the understanding of each Study Team member.

Table 7-3-7 Impressions of the Study Team Groups

Sector	Impressions of the Study Team
General machinery	The C/P and L/C were slow in their responses and communications between them and the Study Team tended to be inadequate. The contents entered on the daily reports gradually became more and more complicated.
Automobile parts	(1) If filling in of daily reports had not been made compulsory, it would have been difficult to execute the diagnosis work, let alone transfer of technology. It is necessary to carefully read the daily reports, immediately correct any problem areas and link these to upcoming improvements. It would not be acceptable to show lack of interest or ignore daily reports, preparation of which had required so much effort. (2) One method of carrying out good transfer of technology is to ensure that the daily reports do not become obsolete.
Electronics and information	The daily reports were extremely effective. The C/P and L/C filled them in with the utmost care and presented them promptly. There were no complaints or questions about making daily reporting compulsory and it is hoped that they became more and more useful as time went by. This method should continue to be adopted in future.
Environmental protection	The C/P and L/C keenly filled in the daily reports. In fast cases, reports were handed in on the journey home that day, or at latest they were handed over the next morning. Contents were not very satisfactory at first, however, the desired items gradually came to be entered as each day went by.
Other industries	Doubts remain concerning the effectiveness of making daily reporting compulsory for C/P and L/C. This is an internal problem of the Study Team, however, this activity was started without exhausting discussion of the policy direction of small and medium enterprises promotion, and the understanding of each member was different because everybody wasn't clear on the status of daily reports within the transfer of technology project. Also, the Study Team budget was unclear and preliminary discussions were insufficient.

CHAPTER 8

MARKETING

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MARKETING

SMEs in Shenyang put effort into conducting retailing activities, however, they are generally not accustomed with the term marketing.

The concept of marketing refers to comparing one's own company's products and services with those of other companies, analyzing and evaluating market needs and changes from the perspective of product competitiveness and price competitiveness, and clarifying one's own status in the market. Only a small handful of the SMEs visited in the course of the Study held and implemented such thinking. With the advance of privatization and China's entry to the WTO just around the corner, it is necessary for enterprises to adopt marketing ideas and transform themselves into firmly established and competitive concerns.

It is from this viewpoint that this chapter conducts an overall examination of marketing needs as seen from the side of SMEs in Shenyang, environmental changes surrounding SMEs, and ways in which marketing needs can be resolved in terms of different factors.

Concerning the survey approach, work started with visiting SMEs in Shenyang and surveying the problems and aspirations of enterprises with respect to marketing. Next, future changes in the environment surrounding SMEs were examined from an overall viewpoint, and thought was finally given to methods in which enterprises can resolve their own needs.

The survey targeted enterprises included in each sector in the diagnosis groups (and other groups). Team members responsible for each sector also visited the companies and conducted hearings with related officials; moreover, members responsible for marketing directly visited SMEs and conducted interviews, etc.

8.1 Market Competitiveness and Changes in Market Environment in Shenyang Industry

8.1.1 Market Competitiveness of Shenyang Industry

(1) Slow Local Development

Recently in the area around Shanghai and Guangdong Province, the parts and components industry is developing on a broad base following the large-scale entry of Taiwanese and Japanese affiliated manufacturers of electronic and metal parts, etc.

Numerous automobile makers in Shenyang and Japanese affiliated companies in Dalian, etc. are also dependent on Guangdong Province. In Guangdong Province, the local parts industry has been stimulated into rapidly raising technical levels by the entry of foreign affiliated parts corporations. Attraction of foreign affiliated parts corporations and local parts enterprises to Guangdong Province and the area around Shanghai will contribute to the future development of basic industries in Shenyang.

(2) Heavy Industrial Center

Following establishment of the modern state, the central government designated Shenyang City as an important zone for economic development and many large and medium scale enterprises were improved, expanded or newly established in a program of heavy construction and investment.

Industrial sectors that underwent priority development are shown below according to decade:

1) 1950s : Aviation, machine tools, cable, large mining equipment, general machines, etc.

2) 1960s : Acceleration of construction of machines and chemical engineering, etc.
Energy and raw materials: coal, power, coke, steel refining, etc.
New construction: automobiles, tractors, etc.

3) 1970s : Three major organic compound materials, new industries such as electronics, etc.
Domestic electrical appliances, electronics, pharmaceuticals, building materials

As a result of these developments, a complete, large-scale and solid-base heavy industrial network basically led by the machine, light textiles, metallurgy, aviation, automobile, pharmaceuticals, construction materials, chemicals and electronics and information industries and consisting of all sectors and a wide variety of products, was formed.

Major machinery products that have been exported to the rest of the country or overseas from Shenyang consists of 300,000 metal cutting machines, 350,000 industrial pumps and agricultural pumps, more than 60,000 gas compressors, 200 million kVA of transformers, and more than 12 million kW of AC motors.

Plant equipment and heavy power products manufactured in Shenyang have been adopted in almost all major construction projects in China, including the Gezhouhao Dam construction works, Baoshan Steel second phase works, petrochemical machines with a capacity of hundreds of thousands of tons, and Qinshan nuclear power plant.

The machine and environmental protection industries in Shenyang consist of representative Chinese makers of machine tools, large pumps, large compressors, automation equipment, and environmental equipment, and these enterprises will play a leading role in the machine industry and environmental instruments industry in future. Moreover, numerous SMEs that manufacture valves, jigs and tools, electrical cable, vacuum pumps and various other general machines and industrial machines are located in Shenyang, although industrial activities within these companies are generally slow. Having said that, this does not alter the fact that the machine industry of Shenyang made up of major enterprises and SMEs plays a highly important role as an industrial base in China.

(3) Top Class in Software Development

Construction of Shenyang High-tech Industry Development Zone was started following granting of authorization by the People's Government of Shenyang in May 1988. In March 1991, it became a national level high-tech industrial zone after receiving authorization from the State Council and it became one of five general reform test zones in China as designated by the State Commission of Science and Technology and the State Institutional Reform Commission. Total revenue from technology industry trade in 1997 amounted to 9.5 billion Yuan, accumulated revenue reached 29.88 billion Yuan, and the annual average growth rate was 72.4%.

NEU Soft Co. (software) is a typical enterprise in this industrial development zone. It is a typical example of a company based on industrial and academic cooperation and can even be described as a private enterprise in the domain of public ownership. This company's Hunnan Soft Park is located in Hunnan Industrial Zone within Shenyang High-tech Industry Development Zone. This enterprise has six companies including Shenyang Dongda Alpine, software Co. Shenyang Dongdong Collective Group, Liaoning Dongfang IT Co. and Dalian IT Co. under its auspices and is a holding company in the high-tech and software development sectors.

A small laboratory that was started by three professors from the Computer Department of the famous Northeastern University in Shenyang using 30,000 Yuan capital and three computers, formed a joint venture with Alpine in 1993 and has rapidly developed into the

largest software company in China. Since then it has implemented an aggressive management strategy as a stock holding company, and it adopted its current organization when it introduced funds from Baogang in 1998.

Ever since it was listed on the Shanghai Stock Exchange in 1996, the subsidiary company Dongda Alpine has strengthened links with major international corporations by forming work tie-ups and joint ventures with IBM, Microsoft and Nokiah, etc. It obtained ISO 9001 certification in 1998. In addition to developing power management software, navigation systems and CT scanners, it embarked on the medical digital network 'e Hospital Network' via its subsidiary Shenyang Dongda Alpine Digital Medical Co. in 2000.

Registered capital is 60 million Yuan, total assets amount to 2.2 billion Yuan and stocks are owned by Dongda University, Shanghai Baogang Collective and employees. In 1999 Dongda Alpine recorded sales turnover of 760 million Yuan and net profits of 130 million Yuan. It has 3,100 employees, of which 2,600 are employed by Dongda Alpine alone. Approximately 85% of these employees hold either bachelor's degrees, master's degrees or doctor's degrees and are 28 years of age on average, and the company president, Mr. Liu, is also just 45. Average monthly salary is 2,400 Yuan, which is fairly lower than salaries in the same sector in Beijing and Shanghai, however, this is still far higher than the average wage level in other sectors.

Concerning high quality human resources, which are the most important element in software development, there is an abundant supply available from Northeastern University and other academic organs, and this region has a relative advantage in international terms regarding cost. Exports are currently directed mainly towards Japan, but it likely that the sector will look farther a field for new international markets in future. Software development in Shenyang is currently growing rapidly as a result of fully utilizing these merits and it will probably maintain this momentum for some time to come.

(4) Slow Development of the Electronics Parts Industry

The electronics parts industry has recently displayed rapid growth around Shanghai and in the south of Guangdong Province. Many apparel and electronic parts enterprises can be found in Zhejiang Province centering around Shanghai and Jiangsu Province. Hangzhou is also included in this economic sphere. In the south of Guangdong Province (between Shenzhen and Guangzhou), many Hong Kong and Taiwanese affiliated companies have located and this trend has led to hollowing of Hong Kong itself. In

Dongwan, which is a hinterland of Shenzhen, 50,000 Taiwanese electronics parts companies have located and most products centering on OA and IT equipment are exported to Taiwan, Japan and Hong Kong.

In Dalian and Shenyang, localization of parts has become a major problem in the IT sector (mobile phones, personal computers, domestic electrical appliances, etc.). Basic industrial sectors such as automobile parts, electronic parts, plating, precision plating, precision machine processing, precision grinding, precision pressing, dies, coating and heat treatment, etc. are still undeveloped. Compared to the assembly and electronics parts manufacturing industries, it will take time to raise the technical level in these sectors. The weakest area in Asian counties is this basic technology sector.

In the medium to long term, it can be said that Shenyang possesses the most suitable conditions for parts manufacturing in the Asian region.

(5) Top Class in Mechatronics

Shenyang is well behind Guangzhou and Shanghai in electronics-related areas, however, in the field of mechatronics, which brings together industrial machinery and electronics, it is a leading area in China. The Automation Research Institute, which is a subordinate agency of the State Science and Technology Commission, was originally established in Shenyang 10 years ago and carries out systematic research into robots and other automated machinery.

Based on the results of this research, an affiliated company, Xinsongji, manufactures various manufacturing line assembly robots. This company currently imports control motors and welding guns, however, other items are procured domestically and the research results of the automation institute are being adequately acted on. This company also manufactures seabed robots capable of surveying undersea to depths of 6,000 m, and most of these products are exported. Enterprises making these kinds of products are very rare in China, and great development is anticipated in this sector in future.

(6) Response to Environmental Problems

In 1997, the State Environmental Protection Administration approved Shenyang as a base for the national environmental protection industry and an experimental water treatment plant site. Following this, the environmental protection industry in Shenyang displayed rapid development, and Shenyang is now a leading site not only in Liaoning Province but also the whole of China. As of the end of 1999, there were 122 enterprises in this

industrial sub-sector with a total number of employees of 17,000 and total fixed assets of 2.5 billion Yuan.

Looking over the past three years, production has doubled every year and the speed of development has been far higher than in other industrial sectors.

The largest enterprise in the environmental protection sector is Tehuan Co., and the government provides financial subsidies and preferential measures to this company. Tehuan Co. constructed a water treatment model plant in 1999, and it has since been constructing the LingRong 200,000 ton sewage treatment plant and another 400,000-ton sewage plant in the north.

Following discussions between the State Development Planning Commission, banks and the State Environmental Protection Administration, the following projects are currently being implemented:

- Shenyang south sewage treatment plant (Three Rivers Three Lakes) Project (two)
- Project for localizing production of air removal systems at a Shenyang blower plant
- Project for localizing production of computer controlled EGR automobile waste gas treatment systems at Hangtianxinxin Collective
- Project for localizing production of large coal combustion boiler waste gas wet desulfurization systems by Hangtianxinxin Collective
- Project for localizing production of equipment at urban solid waste air transportation relay stations at 606 sites
- Project for industrialization of urban sanitary sewage plant equipment by Shenyang Tehuan
- Project for industrialization of hazardous waste combustion at Shenyang Environmental and Science Research Institute

Combined investment in these projects amounts to 2.11 billion Yuan. Related machinery for these projects is mainly manufactured by environmental engineering companies in Shenyang. Environmental engineering companies in Shenyang are not only involved with projects in the city, but they are actively developing new markets both in China and overseas. For example, enterprises have received orders to conduct environmental protection related projects in the Philippines, Guangzhou and Zhengzhou, etc., and they

have also received orders to implement urban wastewater treatment projects in Anyang, Taian, Changchun, Zhengzhou, Yunnan and so forth.

As engineering countermeasures in the Liaohe basin, more than 10 urban wastewater treatment plant projects are scheduled to commence in Liaoning Province in the coming years. In relation to this, the following kind of water treatment plant technology will be upgraded:

- Blower air removal systems
- Online monitoring systems
- Special equipment series
- Sanitary sewage equipment series
- Tehuan Co.'s "Shuangfu" process system
- Dongyu engineering development

Furthermore, it is likely that environmental protection-related technology and plant construction capacity that has so far been accumulated by enterprises in Shenyang will be greatly utilized in the future West Development Project. Joint projects in environmental countermeasure sectors have already been initiated in Xinjiang Uygur Autonomous Region.

It can thus be said that conditions in Shenyang are very conducive to environmental industry development.

8.1.2 Market Conditions

(1) Center of the Three Northeastern Provinces

Shenyang is located in the center of Liaoning Province, of which it is the capital city. It is the largest center of economy, culture, transportation, finance and commerce in the northeast of China, and it is an important industrial base and historical and cultural center for the country. The population of Shenyang is 6,740,000, of which 4,700,000 reside in suburban areas,.

The municipal government governs nine wards, one city and three prefectures. Specifically speaking, the municipal government manages Heping Ward, Shenhe Ward, Dadong Ward, Huanggy Ward, Tiexu Ward, Sujatun Ward, Dongling Ward,

Xinchenngzi Ward and Yuhong Ward, and it also governs Xinminxian City, Liaozhong Prefecture, Kangping Prefecture and Fakuxian Prefecture.

Shenyang is located in a very strategic position as a gateway between the three northeastern prefectures and the eastern part of Inner Mongolia and also as an important corridor to the ocean. It is situated in the hinterland of the liberated district of Liaodong Peninsula and is surrounded by the cities of Anshan (iron), Fushun (coal), Benxi (iron and coal), Chengfuxin (coal and electricity), Chengliayang (artificial textiles), Tieling (abundant food store and coal), Chengdandong (light spinning) and Yingkou (port city) within a radius of 150 km. Shenyang thus lies at the heart of the Liaoning Central Economic Zone and urban cluster.

Shenyang is situated in the center of the northeast Asian region and it is surrounded at roughly equal distances by Tokyo, Khabarovsk, Irkutsk, Ulan Bator, etc., which can all be reached in around two hours by plane. Not only is Shenyang the most important transportation hub in the northeast of China, but also it is an important connecting center to the Korean Peninsula, Mongolia and far eastern districts such as Siberia, etc. Six main railway lines intersect at Shenyang and directly link with Korea, Mongolia and Russia via domestic locations. Two national and six provincial roads stretch from Shenyang in all directions, and a newly constructed circular high speed road forms the 'One Circular Four Radial' transportation network with high speed roads leading to Dalian, Benxi, Fushun and Tieling Traveling by road, it takes two hours to reach Yingkou and four hours to reach Dalian. Taoxian International Airport in Shenyang is the largest airport in the northeast and direct services to Irkutsk, Sendai, Kansai International Airport, Seoul and Hong Kong have already been commenced.

Summing up, Shenyang is blessed with extremely good all-round conditions within the three northeast provinces in terms of population, economic base, transportation networks, location, peripheral industries, and so on.

(2) Western Development

In 1998, the Central and Western Development Ordinance was issued as a national strategy, and this focused attention on the issue of rectifying regional disparities. These developments were based on the judgment that, whereas dramatic development has been achieved in coastal areas as a result of the reform and liberation policies of the past 20 years, other regions have been left behind. As China aims to achieve balanced development in the future, development in inland regions or central and western regions

is a very important issue and can even be called the most important issue facing China in the 21st Century.

The Western Development Project that was proposed by President Jiang Zemin at the Central Economic and Economic and Trade Commission in November 1999 was refined into a priority policy of the central government at the National People's Congress in March 2000. Twelve provinces, directly managed cities and autonomous regions (Sichuan, Chongqing, Guizhou, Yunnan, Gansu, Shaanxi, Quinghai, Liaoxia, Xinjiang, Tibet, Guangxi and Inner Mongolia) have been designated as the target western districts for policy support, and the Western Development Secretariat responsible for compiling related policy has been established within the State Council. The government devoted 60% of public investment derived from long-term government loans to western regions in the previous year, and in 2000 it decided to raise the investment ratio for the western regions to 60% by adding preferential loans from overseas governments and financial institutions. At the same time, the government made the decision to commence work on 10 major projects in the western regions and to initiate preliminary surveys on a further five long-term construction projects. Of these, the Xiqidongshu Project (transportation of natural gas from the western regions to the east) entails project investment of 300 million Yuan and is the second largest project in history behind the Three Dams Project. This project aims to resolve energy shortages in coastal areas by transporting natural gas from western regions along a 4,200 km pipeline stretching from the Xinjiang Talim Basin to Shanghai.

Major Projects Related to Western Major Development

1) 10 major projects started by 2000
    a) Out of the railway line between Xi'an (Shaanxi Province) and Nanjing (Jiangsu Province), the section between Xi'an and Hefei (Anhui Province)
    b) Road construction in the western regions
    c) Overhead rail transit system in Zhongquing City
    d) Water resource centers in Sichuan Province Chaiping and Ningiahuanghesha
    e) Motor road construction in the western regions
    f) Railway between Zhongqing City and Huaihua City (Hunan Province)
    g) Airport construction in the western regions (construction of Xi'an Xianyang Airport and development of the western tributary air network)
    h) Gas pipeline between Chaidam basin Sebei, Xining and Lanzhou

i) Project to restore cultivated land in central and western regions to forest and grassland, ecological system development, and nursery enterprise

j) Infrastructure development of higher education agencies in the western regions

2) 5 major projects during the 10th five-year plan

a) North-South Water Control Project

This project aims to divert water from Chang Jiang and its tributaries, etc. to North China and northwestern districts in order to resolve the water shortages there. Investment into the East Line (Phase 1 and 2) and Central Line (Phase 1) scheduled for completion in 2010 is roughly 140 billion Yuan.

b) Xiqidongshusong Project

This project aims to resolve energy shortages in coastal areas by transporting natural gas from western regions along a 4,200 km pipeline stretching from the Xinjiang Talim Basin to Shanghai. Total investment is 300 million yen and the main pipeline is scheduled for completion in 2007.

c) Xidiandong Project

This project aims to expand the power transmission network for transmitting power from western regions such as Sichuan and Guizhou Provinces, etc. to Kanton, North China and the Chang Jiang Delta.

d) Railway construction in the western regions

Additional lines between western and eastern regions, construction of the railway network in western regions including Tibet, construction of the railway network linking with neighboring countries, and electrification of conventional lines, etc.

e) Motor road construction in the western regions

Aim for basic completion of national main roads in the western regions by 2010.

The way in which enterprises in Shenyang respond to these major developments in the western regions will have no little effect on industrial development in that city.

8.1.3 WTO Membership

China's participation in the WTO will have a major impact on the northeastern region. For this region, which is the representative food center of China, it is forecast that competition will intensify in markets for foodstuffs and cereals in particular. Moreover, looking further ahead, it is forecast that there will be massive capital entry from foreign countries.

Concerning industrial products too, there are similar concerns over intensification of competition and foreign capital participation, resulting in precarious conditions for state enterprises that still haven't implemented corporate reform or improvement of productivity.

Perpetuation of most favored nation treatment of China by the United States has already been decided, however, China is having difficulty in securing WTO participation as a developing nation, i.e. status that would allow favorable conditions to be secured. Meanwhile, obligations concerning product exports, domestic procurement of raw materials, and foreign currency balance, etc. have been relieved. Further liberation measures will be implemented with respect to joint venture enterprises. Moreover, liberation measures are being advanced in the fields of physical distribution, finance, capital market and electrical communications.

In spite of these concerns, The Chinese Government is striving to join the WTO. Based on 20 years of performance following reform and liberation, the government no doubt considers it essential to join the world standard WTO in order to achieve further development of Chinese industry in the 21st Century.

8.2 Marketing Strategy

8.2.1 Marketing Needs of Visited Enterprises

The number of companies visited in each sector was 70, but the figure rises to around 100 when the additionally visited companies are counted. However, marketing needs could only be gauged at 27 enterprises. The following table summarizes the marketing problems and hopes of each of these enterprises.

Table 8-2-1 Current Marketing Conditions and Problems

No.	Main Products	Marketing Conditions and Problems	Remarks
1	Computers	- There are few mainstay products. - Sales turnover is well down.	- Technical tie-ups with foreign capital are hoped for in new fields.
2	Motors	- Exports of motors to the Middle East and Africa are growing. - Production is currently suspended due to relocation. - Accumulated debts are large.	- None in particular
3	Automobile brakes	- If brake quality levels can be improved, markets will expand to foreign affiliated automobile makers.	- Technical guidance
4	Cast products	- Raise the level of salesmen to high school graduates or above and aim for new breakthroughs with respect to private enterprises and foreign capital. - Achievement of mass production and higher efficiency via higher sophistication of processes, for example, replacing manual processes with machines.	- Strengthening of human resources - Work tie-ups with foreign capital via export of cast products
5	Environmental protection equipment	- Marketing is weak. - It is hoped to send personnel abroad for training and thus raise marketing capacity. - The company hopes to introduce water treatment and pollution prevention technology from abroad. - Funds are insufficient. - The company wants to own a test plant.	- Introduction of technology via water treatment and pollution prevention equipment - Financial support - Acceptance of trainees
6	Food processing machines	- Diversification of own-company products	- Technology transfer, joint ventures and joint work in the area of food processing machinery
7	Pressing	- The company hopes to increase high value added products with NC. - Renewal of manufacturing equipment	- Introduction of large press and NC machine tool technology - Public relations by Internet
8	Building materials		- The company hopes to introduce sediment dense agent technology from Japan. - The company wants to be introduced to concrete-related new technology.
9	Coal de-leading products	- Because the demand for existing products is slack, the company hopes to expand into new areas.	- Accept technical guidance from Keio University in a project for de-leading of coal. - The company also hopes to receive technical guidance concerning de-leading equipment manufacture.
10	Cement machinery	- The company fails to get orders because its equipment is old.	- Preheating furnace technology - Heat resistant materials and abrasion resistant materials for cement machines - The company hopes to introduce dust removal device and other cement plant technology from Japan.

No.	Main Products	Marketing Conditions and Problems	Remarks
11	Industrial valves	- The company hopes to diversify in the area of valves	- Tie-ups with foreign capital and technology transfer in the area of valve technology
12	Medical equipment	- Diversification of equipment models	- Technology transfer in the area of medical remote diagnosis technology
13	Tools	- The company previously produced jigs and tools, but it is now undergoing restructuring. - Construction of a new plant building has been finished.	- The company is investigating new ventures using the new plant building.
14	Hydraulic valves	- Representative maker of hydraulic valves - The company has idle space in a third plant building.	- The company is investigating new ventures using the new plant building.
15	Large pumps	- This is the biggest large-scale pump maker in China. - Competitiveness of existing products is declining.	- The company hopes to conduct joint manufacture with foreign capital with a view to raising technology levels and developing new products.
16	Electrical products	- This is a maker of the electrical machine division of Dongyu Group, the largest private enterprise in Shenyang.	- The company is currently expanding work capacity in a joint venture with foreign capital.
17	Power cable	- Power cable maker - The company has idle plant space.	- The company is investigating a line of work in optical fibers using its idle plant space.
18	Vacuum pumps	- This maker of vacuum pumps is a model enterprise in the Study.	- The company is currently negotiating a tie-up with a Japanese corporation.
19	Compressors	- China's largest and oldest compressor maker - Existing technology is getting old.	- The company hopes to conduct joint manufacture with foreign capital with a view to raising technology levels and developing new products.
20	Automated equipment	- Enterprise attached to one of China's representative robot research institutes - Excellent performance in manufacture of automated machinery	- None in particular
21	Environmental equipment	- Venture company in environmental equipment - This company is also interested in dryers.	- The company hopes to secure tie-ups with foreign capital.
22	Building materials	- Maker of plaster board - Shortage of funds for plant expansion	- The company hopes to secure tie-ups with foreign capital.
23	Biodegradable plastic	- One of the model enterprises in the Study, this company has developed technology for making biodegradable plastic from starch. - This is a venture company currently preparing for mass production, however, it lacks funds.	- The company hopes to secure tie-ups with foreign capital.
24	Environmental equipment	- Environmental equipment maker of the Dongyu Group	- The company hopes to secure tie-ups with foreign capital.
25	Computer software	- This company (the largest software development enterprise in the northeast) has already located in the high-tech industry development zone. - It is negotiating with a Japanese software development enterprise about joint research.	- None in particular

No.	Main Products	Marketing Conditions and Problems	Remarks
26	Computer software	- This company is located in the Incubation Building in the high-tech industry development zone. - Since this is an incubation enterprise, its low software development costs are appealing.	- None in particular
27	Automobile assembly maker	- The company started producing four-wheel drive wagon vehicles from April 2001 in a joint enterprise with Gold Cup and GM - Procurement from Shenyang is limited to five items.	- The company hopes to raise its parts local production rate.

8.2.2 Strengthening and Improvement Measures Seen from the SMEs Side

(1) Problems and Resolutions in Market Expansion as Seen from the Company Visits

In visiting 70 SMEs in Shenyang, the diagnosis group was able to discover various problems. From these, the main 'impediments to growth' and 'potential solutions' are indicated below:

[Impediments to growth]	[Potential solutions]
Technical factors	Tie-ups with external agencies
Financial factors	Strengthening of links with overseas
Human resource factors	Self efforts by enterprises
Information factors	Anticipated improvements in terms of policy
Inadequate strategy factors	
Policy impact	

(2) Relation Between Impediments to Growth, Improvement Points and Solutions

Impediments to growth, improvements and potential concrete solutions that can be considered based on the above visited company information are shown in Table 8-2-2.

Table 8-2-2 Relation Between Impediments to Growth, Improvement Points and Solutions

Impediments to Growth	Improvement Points	Solutions
Technical factors - Product quality is not up to user needs. - Existing product technology is old and demand is on the decline. - New product development capacity is weak.	- Raising of manufacturing technology levels - Introduction of latest technology to replace the old technology - Selection between autonomous development or introduction from outside - Enhancement of new product development personnel	Tie-ups with external agencies - Conduct joint development or receive technical guidance from universities and public research agencies
Financial factors - Enterprises cannot renew plant and equipment due to lack of funds.	- Secure funds for equipment investment.	Strengthening of links with overseas - Technology transfer from overseas enterprises is hoped for. - Joint manufacture and work toe-ups with overseas enterprises are hoped for.
Human resource factors - Shortage of R & D human resources - Lack of salesmen capable of providing technological explanations	- Enhancement of research and development personnel - Improvement in quality of salesmen	Strengthening of links with overseas - Overseas training
Market strategy weakness - There are no mainstay products - There are no means of searching for partners	- Diversification of products - Strengthening of external human networks	Self effort by enterprises - Advertisement of own products by HP - Development of niche products
Impact in government areas - Government guidance is inappropriate		Anticipated improvements in terms of policy - Improvement of government leadership and promotion of deregulation

(3) Specific Examples of Solutions

Solutions for which there was particularly demand from companies are indicated below.

Desire for technology transfer from overseas companies and establishment of joint ventures

- Sediment coagulating agent
- Concrete-related new technologies
- Preheating furnace for cement machinery
- Dust collector for cement plants
- Food processing machines

- Large press machines
- Water treatment and pollution prevention machines
- NC machine tools
- Medical remote diagnosis technology
- Large pumps
- Optical fiber
- Vacuum pumps
- Large compressors
- Environmental equipment
- Industrial dryers
- Aluminum containers/aluminum plate
- Automobile parts
- Plaster board
- Control valves

Expansion of OEM exports through work tie-ups with overseas companies (example)

- Cast products

Concerning these points, it is necessary in future to advance surveys and search for countermeasures for resolving problems.

8.2.3 Strengthening and Development of Priority Industries

Industrial sectors in which Shenyang has a domestic advantage are machine tools, pumps, compressors, various plants, automated (robot) assembly machines, environmental equipment, and software development, etc. It is necessary to rebuild and strengthen these sectors as the future priority industries of Shenyang. Since automobiles and automobile parts have major influence as a general industry, it is desirable in terms of strategy that this sector be developed and strengthened too.

However, the field in which Shenyang is most adept is that of mechatronics, in which the above machines are combined with computers and are electronically controlled. This trend can already be seen in the area of automated assembly machinery. Shenyang is a center of conventional heavy industry and it is also home to a top class automation research institute. It has all the conditions needed in order to become the top mechatronics center in the country.

In the field of software development, Shenyang is already the top area in the country and it is showing signs of expanding this industrial base to other areas. Since intelligent human

resources supply center is nearby in the shape of Northeastern University, if major customers are located in Japan, Europe and America, Shenyang will be in a very favorable position in terms of cost superiority.

Shenyang is fully equipped with the conditions required for it to become a parts industry-manufacturing center. If SMEs in Shenyang can raise the level of the parts industry production base via technology transfer from Japan, etc., this will make a major contribution to the development of heavy industry in Shenyang.

8.2.4 Promotion of Tie-ups with Foreign Capital (Effective Technical and Financial Resolutions)

Establishing joint ventures by introducing top quality capital, technology and business management techniques is the most effective method for raising the level of SMEs in Shenyang to the world standard. Whether it is technical development, capital accumulation or acquisition of business management techniques, it would take anything from a few to almost 10 years to achieve any results by self-efforts.

Taking the previously mentioned solutions as seen from the side of enterprises, technology transfer from overseas enterprises, joint ventures and joint work, and overseas training, etc. are cited. The same thing can be said judging from the municipal government or state base too. This is particularly true in the case of Shenyang because it was slow to adopt modernization within China.

On the other hand, the majority of large and small enterprises wish to carry out work tie-ups, technology transfer, joint ventures and trade expansion, etc. with foreign capital, in particular Japanese companies. However, means and methods for achieving this are currently very fragile. It is clear that strengthening relations with foreign capital in some way or other will certainly be one way of boosting the machine industry in Shenyang.

With entry to the WTO around the corner, it is very important that as many SMEs in Shenyang as possible be raised up to the world standard. For example, even if joint ventures are formed with large enterprises rather than SMEs, ripple effects will still extend to SMEs in some form or other.

Table 8-2-3 shows an economic comparison of Shenyang with other major cities in China. A problem here is that usable foreign capital in Shenyang is just half of that in Dalian and one-fifth of that in Shanghai.

Table 8-2-3 Comparison of Economic Indicators Between Shenyang and Other Major Cities in China

Area	Unit	Shenyang	Dalian	Shanghai	Shenzhen
Population (yearend)	10,000 people	674.86	540.40	1,305.5	109.50
Employment structure					
Primary	%	21.80	27.60	10.5	1.70
Secondary	%	38.00	35.50	48.8	61.60
Tertiary	%	40.20	36.90	40.7	36.70
Total employees	10,000 people	379.49	247.70	788.3	272.00
Gross domestic product	100 million Yuan	938	829	3,360	1,130
Primary	%	6.90	11.50	2.30	1.40
Secondary	%	43.90	46.00	52.20	49.30
Tertiary	%	49.20	42.50	45.50	49.30
Per capita GDP	Yuan	13,922	15,340	25,737	103,196
Number of enterprises at village and town level and above	Cases	6,101	3,034	14,287	2,400
Industrial GDP					
All enterprises	100 million Yuan	1,551	1,746	5,650	1,664
Village and town level and above	100 million Yuan	739	807	4,672	1,361
Fixed asset investment	100 million Yuan	183	169	1,977	374
Wholesaling, retailing	100 million Yuan	1,226	731	3,124	507
Used foreign capital (new)					
Number of contracts	Cases	475	812	1,802	957
Contract foreign capital amount	$ 100 million	10.32	25.70	53.20	13.50
Actual investment amount	$ 100 million	10.20	13.20	48.10	16.60
Average wage	Yuan	8,036	7,855	11,425	16,457

Note : Per capita GDP is based on the yearend population. Incidentally, national per capita GDP in 1997 was 6,079 Yuan (based on average population). Data for Shenyang are from 1998.
Source : China City Statistical Yearbook 1998

8.2.5 World Strategy Based Around Asia

(1) Three Northeastern Provinces and the China Market

Shenyang is a geographical center acting as the hub of transportation in the three northeastern provinces, and based around Dongda University it is also a center of education and supply base of top quality human resources. Furthermore, it is a center of heavy industry based around machines, environmental equipment and plants, and it is also a software development base.

These industries in Shenyang occupy a major share of Chinese markets, and the status of Shenyang in Chinese markets should be more firmly established through further strengthening and expansion of these industries in future.

(2) Response to Western Major Development

Major development of the western regions has only just begun, but it is certain that great progress will be made in this development over the next few decades. Shenyang can make a great contribution to this development in the areas of mining machinery, environmental equipment and plants. Such developments have already begun and it is possible to expect much in this area in future.

(3) IT Development with Neighboring Areas

In the relatively near future, it is anticipated that a new era of liberation will commence in the Northeast Asian region consisting of Northeastern China, Inner Mongolia, the Korean Peninsula, Far Eastern Russia and also Japan. Shenyang is located at the center of these regions. If Shenyang constructs an information network between these regions, exchange will be promoted in all fields including things, people, money and culture, and Shenyang will naturally rise to the fore in such event (see Fig. 8-2-1).

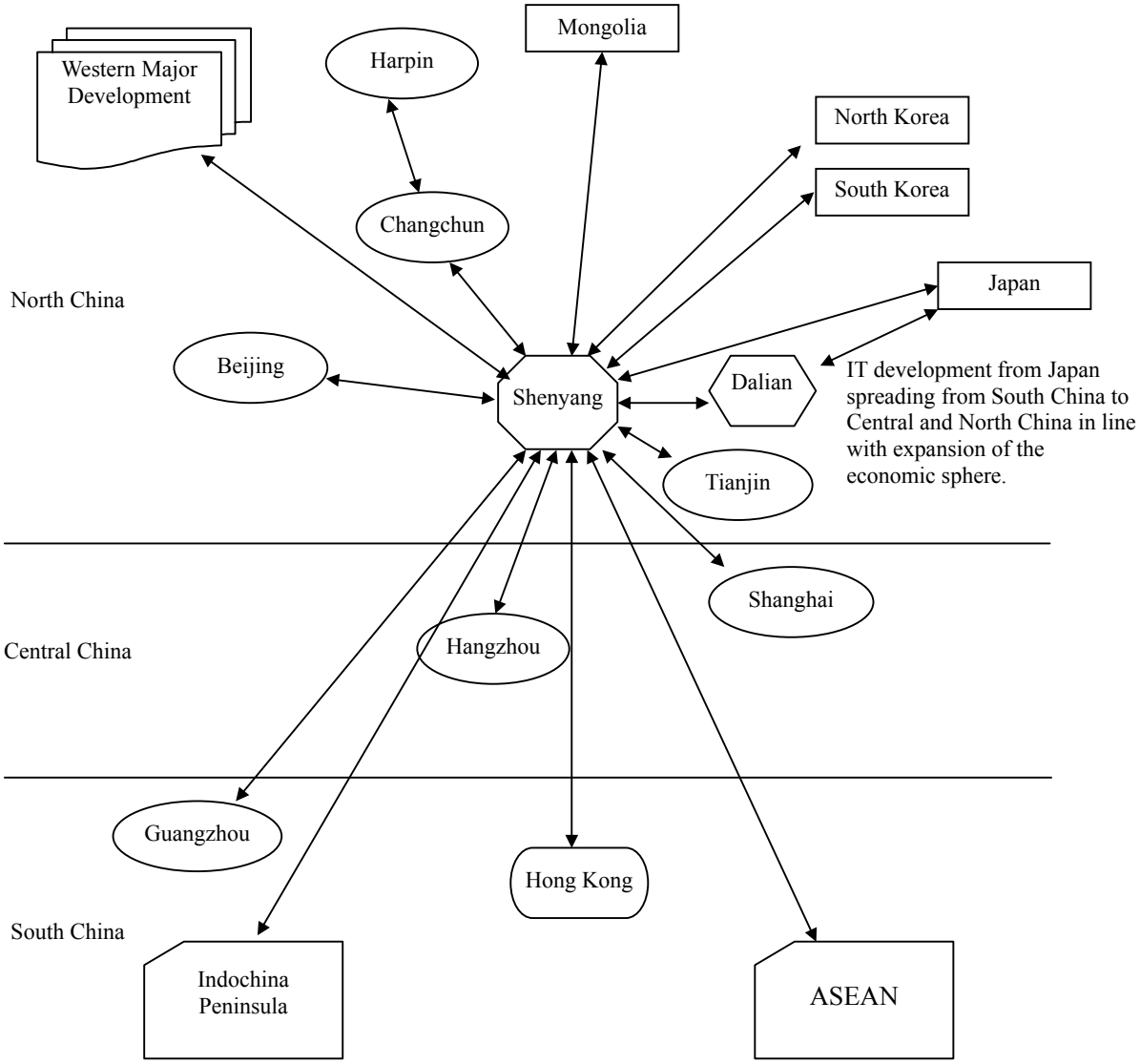

Fig. 8-2-1 IT Construction of the Economic Sphere Around Shenyang

CHAPTER 9

SME PROMOTION MASTER PLAN AND ACTION PLANS

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SME PROMOTION MASTER PLAN AND ACTION PLANS

9.1 Formulation of Master Plan

The master plan discussed in this chapter is the basic plan for SME promotion policies consisting of a number of strategic recommendations while action plans mean individual projects to implement the master plan. For the recommendations to become concrete projects, they must satisfy 5W1H.

As it is hoped that the Chinese side will continue to implement the master plan as well as action plans after the completion of the present Project, the Study Team consulted with the Chinese counterparts so that these plans fully reflect the opinions of the Chinese side.

The master plan was formulated in accordance with the processes shown in Fig. 9-1-1.

(1) Recommendation for Basic Policies

As these policies constitute the basic concept for the formulation of the master plan, the promotion of privatization and rebuilding measures for state SMEs were considered.

(2) Obstruction and Growth Factors for Development of SMEs

The master plan was formulated based on the obstruction factors for the development of SMEs as identified by the questionnaire survey on 100 enterprises and the visit survey. The growth factors were identified by broad surveys on pilot projects.

(3) Concrete Targets for Industrial Development

The master plan was formulated by analyzing the gap between the present situation and the desirable state of industrial development. The study team responded to the request by the SMETC made at the beginning of the Study to specify the direction for future development in terms of industrial sectors to be studied.

(4) Master Plan

In formulating the master plan, proposals and priority measures by the Chinese side were duly considered and agreement on the contents of the master plan was sought through a series of meetings of the Steering Committee and others. The themes for the pilot projects were those of the highest priority among the policy recommendations. The

participatory planning approach was adopted from the initial selection stage of themes using the PCM. The pilot projects were subsequently implemented to confirm the validity of the policy recommendations and the objectives of the pilot projects were achieved.

(5) Action Plans

Among the recommendations to implement the master plan, those which could be formed into a program were made into action plans. The action plans are classified into three grades (A, B and C) depending on the urgency and importance of each plan. Those Grade A action plans require urgent implementation. Most of the Grade A action plans relate to the continuous development or are derivatives from the pilot projects implemented under the Study.

Fig. 9-1-1 shows the formulation processes of the master plan. Table 9-1-1 shows the composition of the master plan and also explains the relationship between the basic policies, obstruction factors for the development of SMEs as well as the master plan to the action plans which form the basis of the recommendations.

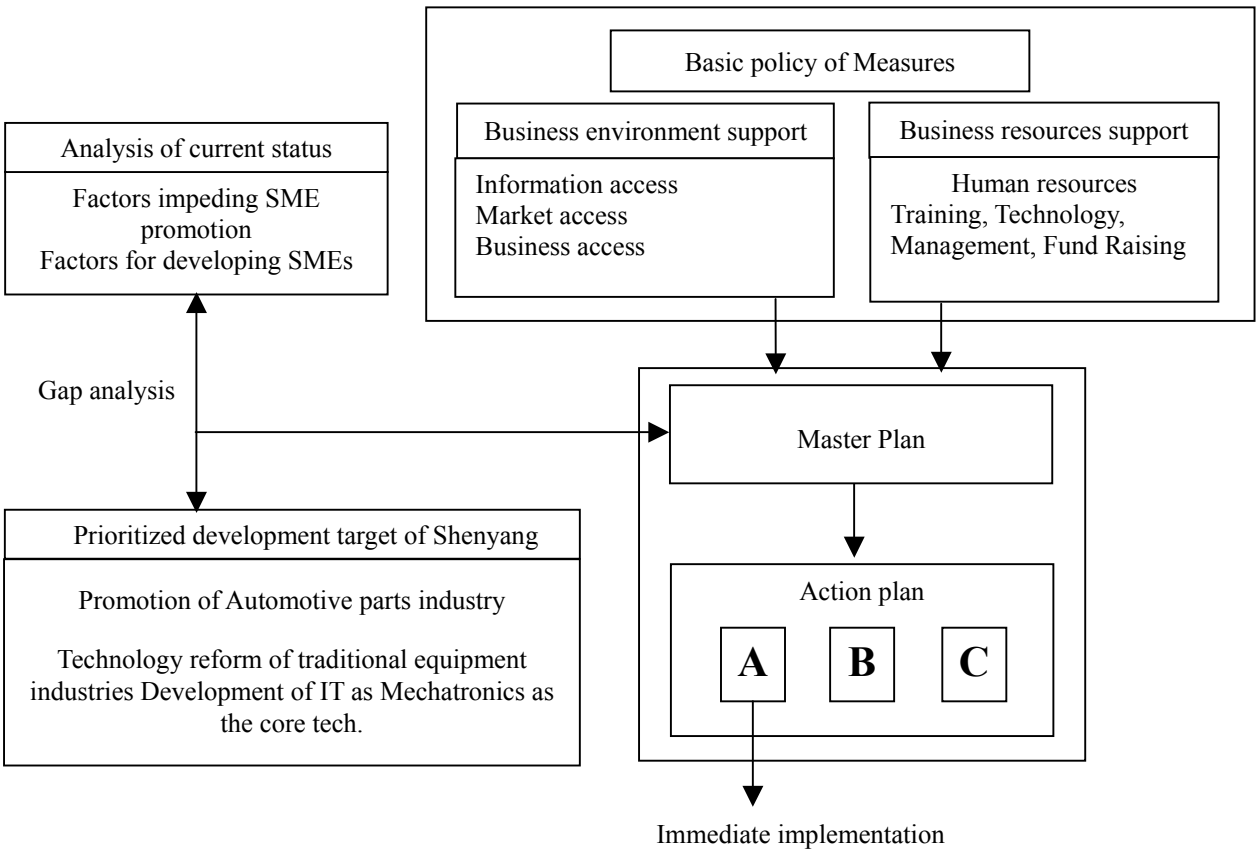


Fig. 9-1-1 Formulation Processes of the Master Plan

Table 9-1-1 List of Master Plan Composition

Theme	Basic Policies	Factors Obstructing or Promoting (in italics) Development of SMEs	Contents of Policy/Measure	Action Plan (A, B or C) (Priority Ranking: A is the highest)
Establishment of a SME support system	• Shift to support led by the private sector • Simplification of the administration • Shift from a vertically divided administration to a cross-sectional administration • Information service	• Absence of supporting bodies • Weak cross-sectional support structure • Low use of private sector bodies • Poor fiscal situation of the municipal government	• Fostering of semi-public support bodies • Fostering of SME service centers • Promotion of SMEs in industrial parks • Use of private sector bodies • SME support at the ward level • Cooperation with financial institutions	• Strengthening and expansion of the information network for SMEs (A) • Fostering of SME service centers (A)
Market expansion for SMEs through partnership activities	• Support for market access • Support for business access • Response to new situation due to participation in the WTO	• Insufficient market information • Low level of international trade • Small inward foreign investment • Lack of the conditions required of an international city • *Well-developed information network using the Internet* • *Availability of promising markets*	• Creation of an information network for SMEs • Creation and fostering of a business introduction function	• Permanent partnership activities between Japanese and Shenyang enterprises (A) • Invitation to Japanese enterprises to move into industrial parks (C)
Reform of the industrial structure	• Proper implementation of the “control large, free small” policy • Implementation of a prioritized industrial policy for a limited period	• Lack of a well-developed subcontracting system • Delay of specialization • Low degree of industrial concentration • Slow technological reform of traditional industries • *Presence of basic technologies for “manufacturing”* • *Progress of development of industrial development zones*	• Shift from the full-set production method to the specialized production method • Establishment of a healthy subcontractor agreement system • Networking of businesses	• Formulation of a supporting industry development strategy (B)
Promotion of high technologies	• Technological and financial support • Support for business start-up • Prioritized industrial policy	• Low skill level to promote the industrial application of technologies • Lack of the industrial application of high technologies • Weak R & D capability of enterprises • *Rich human resources, research facilities and research results* • *Availability of technological base for mechatronics* • *Well-developed IT industry*	• Strengthening of TLO • Establishment of a technology center to promote the industrial application of technologies	• Strengthening of incubation bodies (system) and TLO (A) • Establishment of an industrial technology research institute (C)

Theme	Basic Policies	Factors Obstructing or Promoting (in italics) Development of SMEs	Contents of Policy/Measure	Action Plan (A, B or C) (Priority Ranking: A is the highest)
Strengthening of the management base	• Technological and financial support • Human resources development	• Survival of some aspects of the management characteristics of state enterprises • Low quality level of products • Low productivity • Old production technologies by one generation • Shortage of human resources • Inadequate education for top executives • Poor financial state of enterprises	• Diagnosis of 100 excellent SMEs • Education for SMEs • Training of SME advisors (consultants)	• Diagnosis of excellent SMEs in Shenyang (A) • SME support measures based on marketing (C) • Establishment and operation of a model training center for top executives of SMEs (C) • Training of business managers using the SME evaluator system (C) • Creation of a human resources introduction database in response to a change of values
Support for SME finance	• Financial support • Restoration of creditability through business improvement	• Inability to secure loans • Lack of creditability • Poor state of corporate finance • Absence of proper accounting practices • Poor fiscal situation of the municipal government	• Encouragement for the establishment of branches by various banks and support for the creation of local joint equity commercial banks • Expansion of the fund size of the SME Credit Guarantee Center, network and service contents • Planning and implementation of an excellent SMEs fostering program • Fostering of 300 SMEs showing excellent management and finance • Cash flow-based management	• Training program to foster excellent SMEs in terms of management and finance (A) • Optimization of the credit guarantee system (B) • Increase of the fund supply channels and provision of long-term funds (B) • Recommendations for a reduction of the fund shortage to facilitate the development of SMEs in Shenyang
China's policy to attract inward investment by foreign enterprises	• Support for business access	• Low level of investment from abroad • Lack of a legal system to promote inward foreign investment	• Opening of the way for foreign subsidiaries to issue debentures • Improvement of the stock market • Strengthening of the credit guarantee system • Improvement of the inter-bank trade market	
Support for investment in SMEs	• Proper implementation of the "control large, free small" policy • Financial support	• Inability to restructure small and medium state enterprises which are experiencing financial difficulties • Lack of a bankruptcy option	• Restructuring scheme	

9.2 Obstruction and Growth Factors for Development of SMEs

9.2.1 Problems of Industries

While Shenyang has traditionally been the largest heavy industrial city in China, it has failed to achieve a smooth transition to a market economy during the period of economic reform and liberalization. As a result, many local enterprises are suffering from an operating loss as their inability to utilize their advantage of having the leading industrial infrastructure in China means that they lag behind coastal areas from Shanghai southwards in terms of industrial development.

The business diagnosis results for some 60 enterprises actually visited by the Study Team out of the 100 most representative SMEs selected by the SMETC for the Study indicate that some 19% of these enterprises can survive while 37% are facing extinction without improvement of the current business performance. Many SMEs which are judged to be able to survive are foreign subsidiaries and state enterprises are generally facing a crisis.

Most local enterprises in Shenyang are SMEs which are said to greatly contribute to the local economy in terms of employment and tax payment from the statistical point of view. However, the reality of the automobile parts industry, for example, observed by the Study Team through actual visits to enterprises is that SMEs have not yet established solid status in this industry.

Tiexu Ward is said to be a strategic manufacturing base for machine tools and production equipment in China as it has a traditional machining industry and many supporting industries. Even in this traditionally strong industry, human resources and technical expertise have been draining to other areas over many years. The failure to modernize equipment and to introduce new technologies now necessitates technological innovation. Despite these difficulties, Shenyang has the following development (growth) potential.

(1) The Economic and Technology Development Zone established in 1988 has been making favorable progress through investment by foreign enterprises, including some 60 Japanese excellent enterprises.

(2) The State High-Tech Development Zone established in the same years as the fifth such zone to gather enterprises specializing in advanced technologies has successfully attracted Dongfang Software, the largest software making in China, and boasts a high growth rate, contributing to the economic development of Shenyang.

(3) Datong Ward has a concentration of multi-national car manufacturers. This ward also has a SME industrial park featuring new technologies. Meanwhile, the Township-Village Enterprises Bureau has constructed 20 industrial parks in an attempt to promote local development. The key to the success of the development of Shenyang is how to strategically develop these industrial development zones. SMEs should play a significant role in this development as main players.

(4) Shenyang has 132 research institutes at the municipal level or higher. The industrial application of new technologies is implemented at all four of the state level research institutes visited by the Study Team, i.e. Metal Technology, Casting Technology, Vacuum Technology and Automation Technology Research Institutes. Shenyang also enjoys a concentration of universities, the engineering departments of which perform an incubation function to contribute to the industrial application of new technologies.

Despite the above-mentioned advantages of Shenyang, the city has been slow to promote international trade and inward foreign investment. Many local enterprises have begun to share a sense of crisis in recent years because of the anticipated participation of China in the WTO. However, there have been active efforts to promote inward foreign investment in more recent years and 19 of the 500 top enterprises in the world have so far established a joint venture or joint management enterprise.

9.2.2 Problems of Local SMEs

The main problems of local SMEs are described below.

(1) External Factors

The business diagnosis results point out that fair market competition is hampered in some SMEs by technological reform and state enterprise restructuring policies under the instruction of the state government. Many enterprises are suffering from a serious operational deficit due to inflexible business management and hampered self-reliant development, both caused by various factors, including the inheritance of huge debt from past operation.

The development of privatized enterprises is also hampered by the non-rectification of business practices of the days of being state enterprises. The debts from the days of being state enterprises and the compulsory requirement to continue to employ surplus workers are also factors impeding their development. In contrast, foreign subsidiaries have been generally successful as they have adapted to the market economy.

There are many cases where an excellent SME cannot make its intended contribution to industrial development because of its inability to receive a loan even though it may want to apply advanced technologies to its industrial operation, to challenge the modernization of its management and/or to establish a joint venture.

(2) Internal Factors

The biggest problems are inadequate business management ability and business strength. Those companies where the top management have maintained the business practices of the days of being state enterprises and have failed to introduce a new style of management corresponding to a market economy are not performing well. The main factors for their failure to adapt to a market economy are listed below.

1) Business management without a proper marketing strategy
2) Pricing policy not based on market principles
3) Neglect of quality and customers
4) Slow R & D of new products and improvement of the production processes
5) Inadequate study of competitors and the products of other enterprises
6) Absence of accounting practices and financial management to qualify for a loan (lack of profitability or collateral)
7) Absence of cash flow management

While overcoming of the above problems is an essential requirement to survive the market competition, there are not many enterprises which do not suffer from any of these problems.

A shortage of funds is a common as well as the largest problem for all SMEs. The inability to provide proper and transparent accounting and financial information, failure to repay loans and the absence of a medium to long-term business plan are the fault of SMEs and SME owners must be aware of their obligations.

9.2.3 Problems of the Government

(1) Control

The control of enterprises by the state government based on the type of ownership, mainly focusing on state enterprises, has created a complicated control mechanism and the resulting excessive administrative control has hampered the spontaneous

development of enterprises. While the introduction of a privatization policy in 1998 and the emphasis on SMEs in 1999 attempted to simplify the control of enterprises, there have been few signs of improvement of the cross-sectoral control function.

Following the establishment of the SME Development Guidance Sub-Committee, the Shenyang Municipal Government established the Office for Members of SME Cooperation Sub-Committee in May 2000 as a cross-sectoral body to coordinate the various organizations responsible for the control of SMEs. Work is currently in progress to upgrade the SME Office of the SMETC to a bureau and, as part of such work, the privatization of SMEs is also in progress with a target achievement rate of 70% in 2000 and 90% in 2001.

In the midst of these activities, the responsibility for the control of enterprises has recently been delegated to wards in the municipality. As a result, there has been an increase of the ward level SME support activities and various reforms of enterprise control are being discussed.

(2) Policies

While SME promotion policies are still at the preparation stage, the general stagnation of local industries is currently an obstruction factor for the promotion of SMEs, making the implementation of appropriate industrial policies urgently necessary. The Technology Reform Office is actually promoting some industrial policies but has as yet been unable to fully solve the problems listed below.

- Absence of an industrial development strategy to move to a market economy

  Delay of the modernization of traditional industries
  Insufficient utilization of local industries
  Absence of concrete measures to organize SMEs to create a network

- Weak function to promote joint ventures

  Introduction of foreign technologies
  Introduction of foreign capital

- Absence of concrete measures to strengthen competitiveness in the domestic and international markets

- Lack of the development of core technologies

(3) Support

- Absence of SME support in terms of the system and present guidance capability
- Delay of the utilization of private organizations
- Insufficient linkage with financial institutions (another obstruction factor in terms of support for fund raising)

Many of the above problems originate from the delayed solving of the problems of state enterprises and the dissolution of badly performing state enterprises. The other main factors are listed below.

- Unfair arrangements in connection with privatization
- Insufficient human resources development and training/education
- Inadequate understanding of the importance of owner training and the slow implementation of such training
- Inadequate education suitable for SMEs
- Inadequate business diagnosis ability

Because of the poor business performance of enterprises in Shenyang, the municipal finance has been tight, failing to provide active investment and industrial support. This situation is also hampering the implementation of SME promotion measures.

9.3 SME Promotion Policies

9.3.1 Recommendations for Basic SME Promotion Policies

The expected roles of the municipal government in the promotion of SMEs are described below.

(1) Simplification of Administration

At present, a major reduction of administrative staff and the abolition of the direct control of SMEs by the municipal government are in progress. Taking this opportunity, a cross-sectoral SME support body should be established by overcoming all conceivable difficulties.

(2) Proper Implementation of "Control Large, Free Small" Policy

In connection with the free small enterprises policy, the municipal government should provide more support for the privatization of small state enterprises.

The municipal government should not directly control private enterprises but should leave them to carry out self-reliant efforts.

Although the control of large enterprises is important from the viewpoint of prioritized industrial promotion, this should not create factors which obstruct the promotion of SMEs.

(3) Macroscopic Studies and Support

The priority themes regarding support for SMEs are compiled below:

1) Prioritized Industrial Policy

This policy should be implemented with a limited time-scale in view of the severe business conditions of enterprises in Shenyang and the forthcoming participation of China in the WTO.

2) International Comparison by Industrial Sector

Priority themes relating to products and production technologies should be selected for study purposes so that the study findings can be reflected on the industrial policy.

3) Study on Marketing Strategy

A marketing strategy study should be conducted, featuring the economic and industrial complementary relationship with Dalian, the three northeastern provinces, the great development in the western region and the northeast/Korea/Japan economic zone.

4) Measurement of Productivity

As a productivity movement led by the municipal government is necessary to promote the improvement of the market competitiveness of SMEs, the first step should be the measurement of the productivity of SMEs.

5) Human Resources Education for SMEs and Movement to Reform Business Awareness of Top Management

The virtual absence of education/training for SMEs at present demands urgent actions to improve the situation.

6) Supply of Useful Information for SMEs

The information service should be improved to include a consultation service function to meet the needs of SMEs.

(4) Private Sector-Led Activities

The privatization of enterprises is not sufficient by itself. The municipal government must reform administrative practices and the attitude of administrative staff in view of the adoption of a way of thinking which is appropriate vis-à-vis a market economy. Maximum efforts must be made to support the activities of private organizations to facilitate the transition from government-led SME promotion activities to private sector-led activities.

9.3.2 Recommendations for Prioritized Industrial Policies to Promote SMEs

The following three points are recommended to constitute prioritized industrial policies to reform and strengthen the basic technologies for "manufacturing", which represents the strength of Shenyang, to establish the strongest comparative advantage in China.

(1) Establishment of Industrial Base for Parts Production Supported by Assembly Industry

Shenyang has base industries led by the machining industry and enjoys a comparative advantage over the coastal zone where the assembly industry has recorded strong growth. In acknowledgement of such an advantage, 19 of the world's top 500 enterprises have so far invested in Shenyang. The automobile industry is particularly strong with the world's leading assembly makers operating side by side in Shenyang. Despite the existence of more than 80 enterprises which are capable of manufacturing various automobile parts, however, the local procurement rate of parts by automobile makers operating in Shenyang is only 20%. The promotion of the parts industry by means of increasing the procurement rate of these multi-national corporations through improvement of the product quality and price competitiveness is essential in the coming years. In this context, the municipal government has correctly judged that the development of the automobile parts industry will be a breakthrough for the promotion of local SMEs. In the future, the municipal government should try to develop Shenyang as a parts supply base

for not only Liaoning Province and other areas in China but also for the international market.

(2) Technological Innovation of Traditional Equipment Industries

More than half of the manufacturers in Shenyang are equipment manufacturers and such a high concentration of equipment manufacturers is unparallel in China. The great development of the western region in the near future will provide huge business opportunities for the development of equipment manufacturers in Shenyang as a huge quantity of work equipment and accessories will be required for the infrastructure construction projects of this anticipated great development, involving roads and electricity, water and gas supply. The types of equipment required will range from plant-type equipment to power equipment and power generation units and innovation is urgently required for products as well as production technologies. In addition, there is a strong prospect of the growth of the environmental protection industry.

(3) Development of IT Industry Centering on Mechatronics Technologies

Shenyang has seen the growth of the largest computer software enterprises in China and IT-related industries. What particularly characterizes Shenyang is mechatronics as there are eight state levels advanced manufacturing technology research and process centers, including the National Robotics Process Center, the National Automated Process Center, the National Advanced NC Center, the National Software Process Center and the National Sensor Element Center. In general, China shows a tendency to be strong in regard to software and weak in regard to hardware. Should Shenyang develop a strong hardware capability, it will certainly enjoy a strong advantage vis-à-vis the international competition after China's participation in the WTO.

Shenyang should use its above-mentioned advantage in three areas, which are absent in other areas, as crucial elements for its industrial promotion strategy.

The machine and electric industries are the prime movers of industrial development, particularly export industries, in advanced countries. Shenyang should foster these industries as leading industries.

Manufacturing industries of machinery and electrical goods consist of three layers, i.e. processing (machining), parts manufacturing and assembly. So far, Japanese enterprises have been creating overseas production bases for export in China's coastal zone which meets their requirements for cheap and abundant labor. Both the Japanese and Chinese sides now realize that the offshore export-oriented production system aiming at utilizing cheap labor does not

have much prospect for future development and that the local procurement of parts is crucial, making the development of such local base industries as parts manufacturing and machining essential. The presence of such base industries is, therefore, truly important together with efforts to move base industries from Japan. From this viewpoint, Shenyang is one of the most promising areas for the development of base industries, enjoying a great comparative advantage over Dalian in Guangdong Province where the assembly industry has far prospered.

Supporting industries, including the machine industry, in Shenyang are inferior in terms of products, production technologies and management as well as control techniques by today's global standards. However, machining technologies in Shenyang are generally evaluated as being superior to those in Shanghai. It will, therefore, be possible to revive the strong base industries through the introduction of foreign capital and the transfer of modern technologies.

9.3.3 Financial Support for Implementation of Master Plan and Action Plans

In Japan, the central government, local public bodies and the Chamber of Commerce and Industry, etc. provide financial support for the development of SMEs. However, this type of arrangement cannot be applied in full to Shenyang. Apart from financial constraints, the municipal government appears to be trying to reduce financial assistance for SMEs by accelerating their privatization and relying on the market principle thereafter while providing priority loans for strategic large-scale state enterprises based on the "control large, free small" policy. While the investment budget for the innovation of industrial technologies is accounted for in its 10^{th} five-year plan, hardly any funding is currently in place for direct support for SMEs.

The provision of public financial support for the implementation of the master plan and action plans recommended in this Report is proposed here. Each action plan is accompanied by a description of its prospective funding by the public and private sectors and the possibility of such funding must be carefully examined.

In formulating the action plans, conscious efforts were made to select those urgent projects which do not require large equipment investment and, therefore, the required budget of which is relatively small. However, the implementation of the selected projects will still require spending to cover the personnel cost and the operating cost. If these costs cannot be met by the self-reliant efforts of the organizations in question or by the private sector at large, the financial support of local public bodies will be required. It is hoped that the development zones and district governments which are close to enterprises and which have their own

funding sources will provide active financial support. This financial support should be provided as much as possible within the tolerable financial limits, especially for industrial park development, assistance for business start-up, domestication of foreign technologies, market surveys, expansion of the credit guarantee center, human resources development and the spread of IT, etc.

In regard to support for business start-up, it will be a great loss to the city if business opportunities are lost due to the lack of minor funding. Another important task is to secure funds to deal with the bankruptcy of poorly performing enterprises as recommended by the Study Team although the municipal government has already begun the relevant consultation process.

For financial assistance for private enterprises, it is important to foster a semi-public body with the aim of achieving its financial independence and/or private consultants. An intermediation fee for partnerships, which are expected to increase in the coming years, will provide a major source of income.

9.4 Master Plan

9.4.1 Establishment of SME Support System

Present Situation and Problems

The Shenyang Municipal Government established the SME Office in early 1999 and is trying to upgrade it to bureau status. However, the members of the SME Office have been halved to three as of August 2001 as a result of administrative reform.

Meanwhile, although the Shenyang SME Service Center was established in December 2000, it has not yet reached the stage where organized and specialist support activities are conducted. The Productivity Promotion Center of the Science and Technology Committee provides SME diagnosis and support services for the promotion of high-tech industries.

Purpose of Recommendation

As the establishment of a policy implementation body and a SME support system is the highest priority for the promotion of SMEs in Shenyang, the creation of such a system around the existing SME Office of the SMETC is recommended.

Contents of Recommendation

(1) Basic Principles for Operation of SME Service System

1) Fostering of Semi-Public Bodies

The three organizations mentioned earlier are mutually independent, public benefit corporations which adopt a self-supporting accounting system assisted by a different government grant. (At present, two of them receive a grant from the DFID but will move to complete self-financing status three years after the date of their establishment.) It is a precondition for any body providing a SME service to operate on the basis of market economy principles.

The semi-governmental status of a SME support body is expected to reform the vertically divided functions of any predecessor. At present, the complete privatization of such a body is unrealistic and limited public support is necessary.

Based on these necessities, the Shenyang SME Service Center enjoys the most ideal conditions as it has been virtually privatized.

The Study Team has set the self-reliant development of these bodies after the Study as the main task and the achievement of this target will be the biggest result of the Project. In order for each body to achieve self-financing status, it must have its own means of income and each body is fully aware of such requirement.

The Study Team hopes that the SME Service Center will learn concrete techniques for intermediation through OJT as the transfer of FS techniques, which are essential for intermediation work, will greatly contribute to the development of this center. This intermediation work will provide a source of income to make the center financially independent.

2) Strengthened Links with Financial Institutions

The Study Team points out the weak linkage between the municipal government and financial institutions as a problem. It is hoped that links with cooperating banks and other financial institutions will be improved through the activities of the SME Credit Guarantee Fund to promote cash-flow management among SMEs.

3) Promotion of Industrial Parks

Industrial parks enjoy the highest level of economic independence and are capable of carrying out industrial reform without external assistance. The promotion of

industrial parks and development zones has been contributing to the industrial development of Shenyang, particularly to the promotion of joint ventures and partnerships with foreign capitals. The Economic and Technology Development Zone, the High-Tech Development Zone and the Dadong Industrial Park are hoping to attract investment by SMEs. These moves will hopefully lead to the accumulation of technologies, networking and product experts to the international market by SMEs.

Industrial parks in particular already have a one stop service function and also have the advantage of an active partnership function involving joint ventures and partnerships without direct government assistance.

4) Utilization of Private Bodies

With the progress of privatization, privatized enterprises leave government control. This issue is currently being dealt with by the Private Sector Economy Development Promotion Committee. It is hoped that the work of this Committee will be gradually taken up by such private bodies as the Chamber of Commerce and Industry (FICAS), manufacturing cooperatives and industrial associations.

(2) Recommendations for SME Support Bodies

1) Specialist SME Support System

Here, the Study Team recommends the desirable SME support system for Shenyang to be provided by four bodies selected by the SMETC. The validity of this recommendation has already been confirmed by the pilot projects which were implemented between May and August 2001.

Fig. 9-4-1 classifies the various SME support bodies and places them in appropriate positions in three groups based on the desirable SME support system in the future.

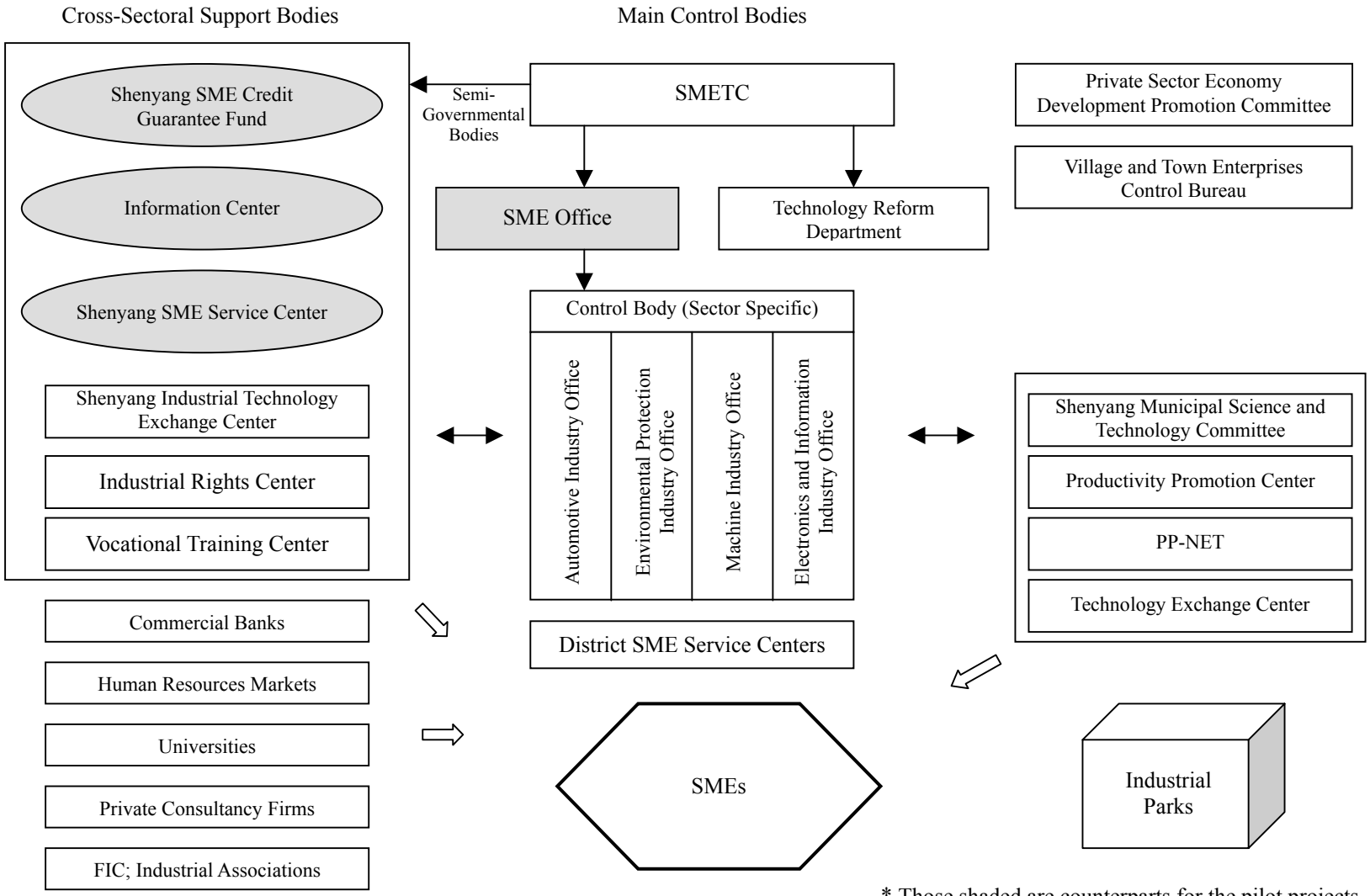


Fig. 9-4-1 SME Support System in Shenyang

a) SMETC-Related Enterprise Control Group

The core function of the support system shown in Fig. 9-4-1 is played by those directly linked to the SMETC.

At present, the SMETC has the SME Office and intends to upgrade this office to a bureau with a cross-sectoral control function. The SMETC also has sector-specific offices to control the respective industrial sectors. Below the SMETC, district economic and trade commissions control those SMEs for which the control function is delegated by the SMETC.

b) Cross-Sectoral Support Bodies

Cross-sectoral support bodies are shown on the left-hand side of Fig. 9-4-1 and the following three bodies (shaded in Fig. 9-4-1) are considered to be SME service bodies in Shenyang.

Shenyang SME Service Center

In the first field survey, the Study Team entrusted the private consultancy firm which is the main body of this center to provide assistance for the visit survey to 100 SMEs. This center currently receives financial assistance from the DFID and is capable of accepting many orders using its accumulated ability to provide direct support for SMEs. The Study Team provided training for this center under the pilot project to make the center capable of providing an intermediary service.

Information Center

Through cooperation with the Study Team, the Information Center has created an information network for SMEs and is now responsible for the maintenance of this information network. At the same time, the center is responsible for the promotion of the Shenyang Municipal Technology Innovation Service Center announced by the municipal government in March 2001 with a view to materializing this new center.

Shenyang Municipal SME Credit Guarantee Fund

This center was established with DFID assistance. Under the pilot project, the Study team developed a system to support the introduction of cash flow management for SMEs on the Internet. This center will use this tool to support SMEs for the purpose of creating 300 excellent SMEs.

c) Cooperating Administrative Bodies

The Private Sector Economy Development Promotion Committee was established in 1998 and has been contribution to the promotion of privatization, playing an important role in assisting the rapidly increasing number of private SMEs. The Village and Town Enterprises Control Bureau is involved in regional development as it controls most micro-enterprises and newly created SMEs.

The Productivity Promotion Center is a public benefit body which provides cross-sectoral support for high-tech SMEs. Its contribution to support for SMEs includes the following activities.

- Loans for high-tech SMEs
- Company diagnosis and guidance in association with loans
- Information service through the PP-NET
- Intermediary service for the industrial application of high and advanced technologies

This center plays a significant role in supporting SMEs and the Study Team has recommended collaboration between this center and the Shenyang Municipal SME Service Center. It is hoped that closer collaboration will materialize between the three groups of SME support bodies shown in Fig. 9-4-1.

2) Situation of SME Control at State, Provincial, Municipal and Ward Levels

The response of the municipal government to the notifications and written opinions issued by the State Economic and Trade Commission has far been mainly in line with them. In regard to the relationship between the municipal government and ward authorities, the authority to control SMEs is delegated by the former to the latter. Accordingly, ward authorities are now at the front-line of contact with SMEs. Preparations are in progress to establish SME service centers and SME Credit Guarantee Fund at the ward level.

In the case of development zones and industrial parks, the High-Tech Development Zone is controlled by the state, the Economic and Technology Development Zone is controlled by the municipal government and the Dadong Ward Industrial Park is controlled by the Dadong Ward Authority.

The Study Team surveyed four of the 13 wards in Shenyang. On 20th September, the first ward level SME credit guarantee center started operation in Heping Ward. The initial capital is RMB 3 million, of which RMB 1 million was funded by the municipal government and the rest by the ward authority. Four more similar centers will soon be established to bring the total to five. Meanwhile, a ward level SME service center will be established in six wards in the near future. A one-stop service is already provided in Heping Ward. Dadong Ward is discussed below as an example of ward level SME support.

Dadong Ward is currently planning to establish "a one stop service center" as a consultation office close to SMEs. This center will provide consultation and procedural services relating to business approval and permission and business registration in addition to a consulting support service to provide business information. Preparations are in progress to establish a ward level credit guarantee center as a separate organization in the same building in an attempt to provide support for the financial matters of SMEs by establishing a ward level credit guarantee system.

In response to this move by Dadong Ward, the municipal government has shown its willingness to subsidize the credit guarantee funds of Dadong Ward. A cooperative relationship between the municipal government and the ward/district authorities will be important for the effective development of SMEs. It may be a good idea to use the policy of local authorities to promote self-reliant efforts, such as that introduced by Dadong Ward, as a model case for development with the spread of the application of such a model throughout the city.

However, as the conditions regarding the economic reality and human resources, etc. differ from one ward/district to another, the development model of Dadong Ward is not necessarily fully applicable to other wards/districts. It is, therefore, recommended that the municipal government play a coordinating role in the formulation of a standard model. As part of JICA's pilot project, the Study Team consulted on the operation and management of the Dadong Ward SME Service Center based on Japan's experience, etc. and the subjects of the recommendations made by the Study Team are listed below.

- Operating method of the one stop service system
- Introduction of the business consultation service function
- Utilization of the SME information network

- Regional industrial promotion system with business intermediation and support bodies to attract business investment playing a central role
- Establishment and operation of the credit guarantee center

3) Recommendations for SME Support Model for Shenyang

Fig. 9-4-2 shows a draft SME support model for Shenyang featuring all of the above subjects. The system in question consists of the following elements.

- International aid organizations (JICA, DFID and World Bank)
- Public support bodies: municipal and ward level bodies
- Semi-public and corporate support bodies: those related to the SMETC and those related to the Science and Technology Committee
- Local support bodies
- Manufacturers' cooperatives and business owners' associations

Under the Study, efforts to foster and strengthen SME service centers mainly focus on semi-public (semi-governmental) and corporate support bodies. The municipal government has delegated the authority to control SMEs to the ward authorities, the position of which is close to SMEs, and some ward authorities have established a SME service center and credit guarantee fund. The Study Team recommends that industrial parks, business owners' associations and manufacturing cooperatives also provide support for SMEs together with these centers.

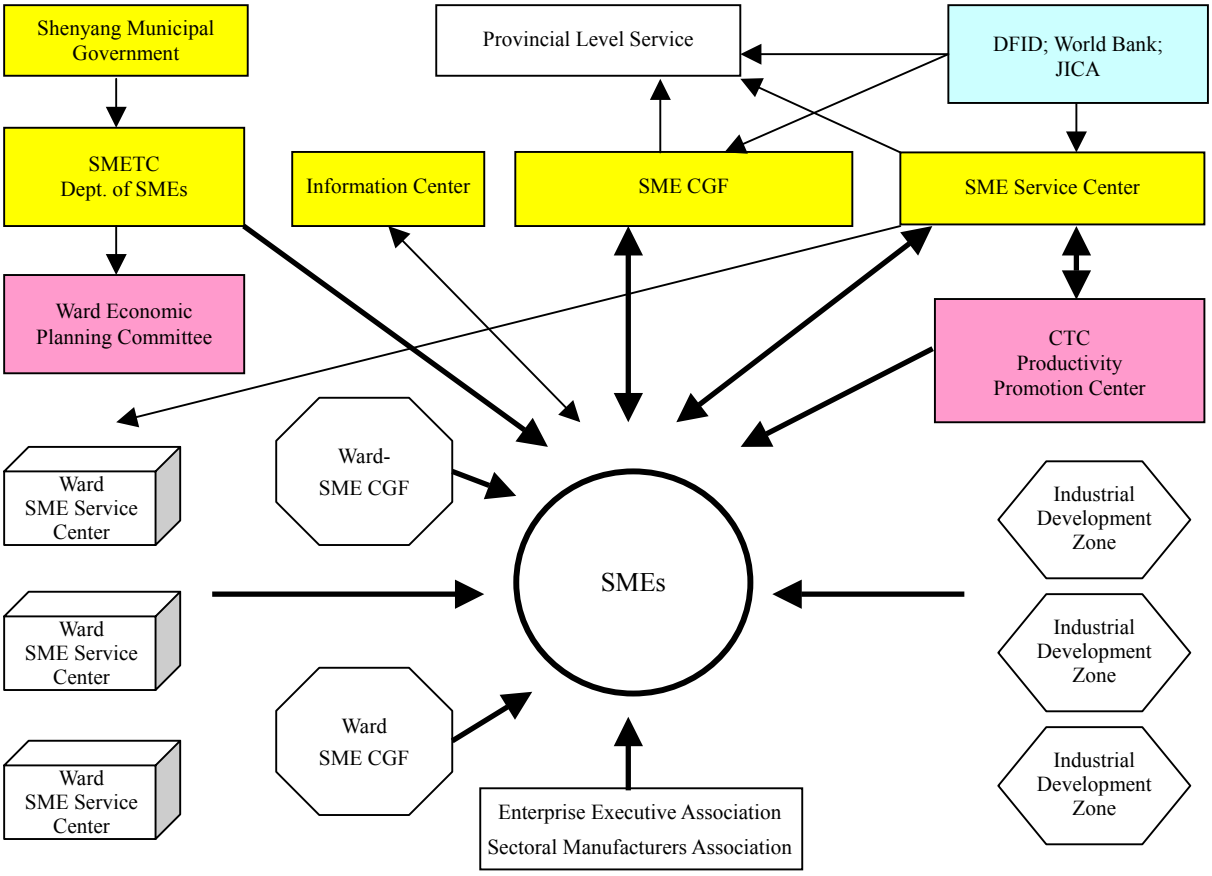


Fig. 9-4-2 Proposed Model of SME Supporting Model

(3) Contents of SME Support Service

Fig. 9-4-3 shows the SME support system diagram. The target improvements are largely classified into improvement of the management environment and improvement of the managerial resources. The public sector should mainly concentrate on improvement of the management environment while the improvement of managerial resources should be left to the self-help efforts of enterprises and efforts of private consultants and private bodies. In regard to the managerial resources of enterprises, public support for the general business conditions through strengthening of the economic and industrial bases, reform of the industrial structure and infrastructure development is more important than public support for individual enterprises.

Three business environment improvement elements, i.e. information access, market access and business access, were taken up as subjects of the pilot projects.

Market access means liberalization of the access by SMEs to both domestic and overseas markets and is important as it assists the marketing activities of SMEs. Business access

means support for partnership activities. Although business access can be said to be part of market access, the former should be considered as the business matching of individual enterprises while the latter should be considered as macroscopic activities.

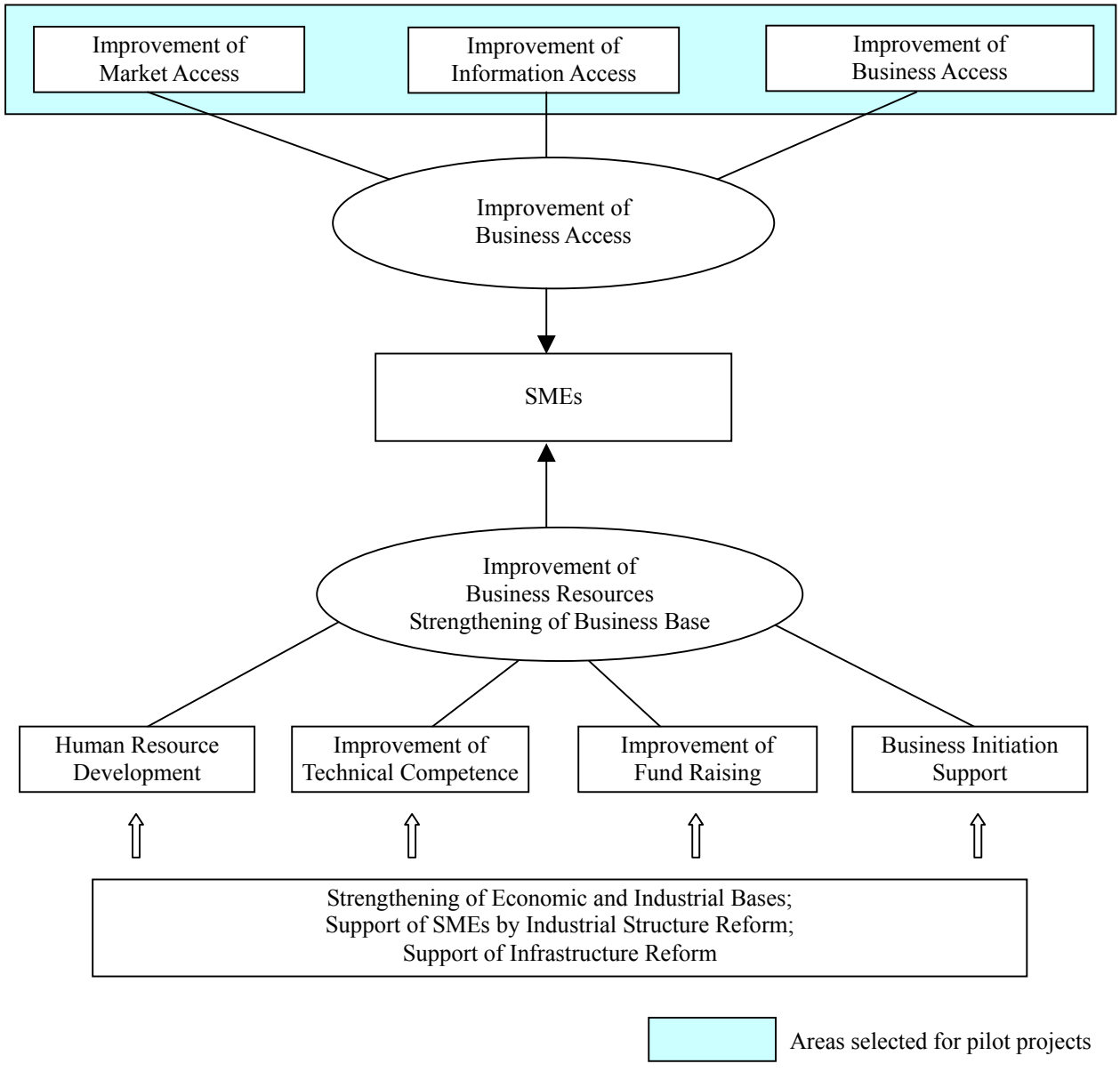


Fig. 9-4-3 SME Support System

9.4.2 Vitalization of SMEs by Partnership Activities

Current Situation and Pending Tasks

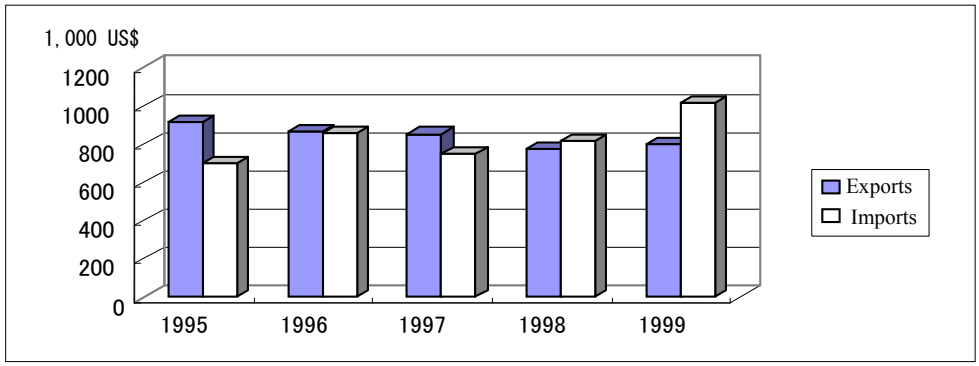
The word "partnership" is broadly used here to include collaboration in terms of trade, production and marketing, transfer of technology and joint ventures/business partnerships between Chinese enterprises and those in China or abroad.

In general, southern China, i.e. from Shanghai southwards, has developed through economic exchanges with abroad with the resulting development of SMEs.

Although the Northeastern Region has lagged behind the south in terms of overall economic development, there are variations within the region. For example, the international trade amount and the amount of foreign direct investment, etc. in Shenyang are much lower than in Dalian which is located in the same Liaoning Province. One crucial factor for this is believed to be their geographical locations: Dalian is located on the coast while Shenyang is located inland. In short, SMEs in Shenyang face the following problems.

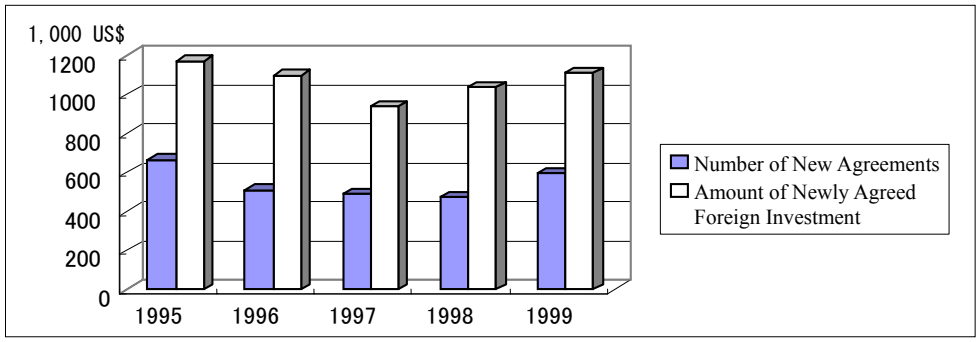
- Lack of access routes to international markets and lack of technical information at home and abroad
- Much lower standard of products and production technologies of traditional industries in Shenyang than the relevant international standards due to few exchanges with foreign countries over a long period of time
- Extremely small number of SMEs which are attractive enough for investment by foreign enterprises
- Lower foreign trade amount and amount of foreign investment than other advanced areas in China because of the above problems

This situation is illustrated by the statistical data shown in Fig. 9-4-4 through Fig. 9-4-6.



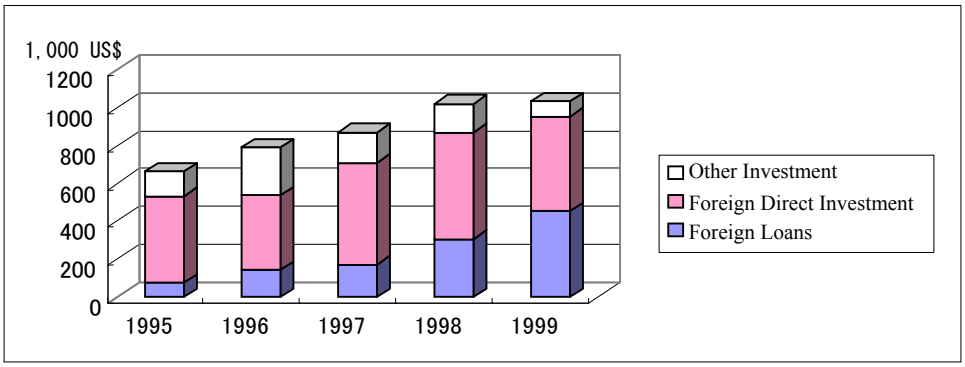
Source: Shenyang Statistical Yearbook, 1999

Fig. 9-4-4 Shenyang's Foreign Trade Amount



Source: Shenyang Statistical Yearbook, 1999

Fig. 9-4-5 Amount of Newly Agreed Foreign Investment



Source: Shenyang Statistical Yearbook, 1999

Fig. 9-4-6 Amount of New Foreign Investment (Amount Actually Spent)

As these figures show, while the amount of exports and the amount of foreign investment increased in 1999, their level is not yet satisfactory. When the amount of agreed foreign investment in Shenyang is given as 100, other cities are performing much better (total from 1990 to 1997): 308 for Beijing, 289 for Tianjin, 828 for Shanghai, 492 for Guangzhou, 275 for Shenzhen and 200 for Dalian. In short, foreign investment in Shenyang is one-third of that in advanced cities or half compared to Dalian and is very low for the fifth largest city in China.

As the amount of exports and the amount of foreign investment are quite influential factors to response to the new situation when China joins the WTO, urgent improvement measures are required and strengthening of the partnership activities by SMEs in Shenyang is one such measure. The most effective and quickest way is to promote direct investment and the transfer of technology from abroad. This is the reason why partnerships were selected for a pilot project.

Purposes of Recommendations

With China's participation in the WTO having been decided, SMEs in Shenyang are facing a crisis posed by international competition. The urgent task is to open the local market to abroad in order to stimulate foreign trade and investment. To be more precise, the SME information network taken up as a pilot project by the Study Team should be continued and developed to support partnership activities.

Contents of Recommendations

(1) Vitalization of Partnership Activities of SMEs (see Fig. 9-4-7)

1) Fostering of the SME Service Center should be attempted as an intermediation body for SMEs with self-reliant development ability in the future by making this center participate in the Project.

2) Emphasis should be placed on Sino-Japan joint ventures and partnerships. The Shenyang Municipal Government believes that the creation of these enterprises is an important measure for the development of SMEs which are highly adaptable to a market economy based on the prospective achievements of the relevant pilot project formulated by the Study Team.

3) The SME partnership function of industrial parks should be strengthened.

4) The participation of the SME Credit Guarantee Center should be encouraged. Partnership activities should be assisted from the side by activities to improve the financial management of SMEs as efforts will be made to spread the cash flow management guidance system prepared by the Study Team using the Internet.

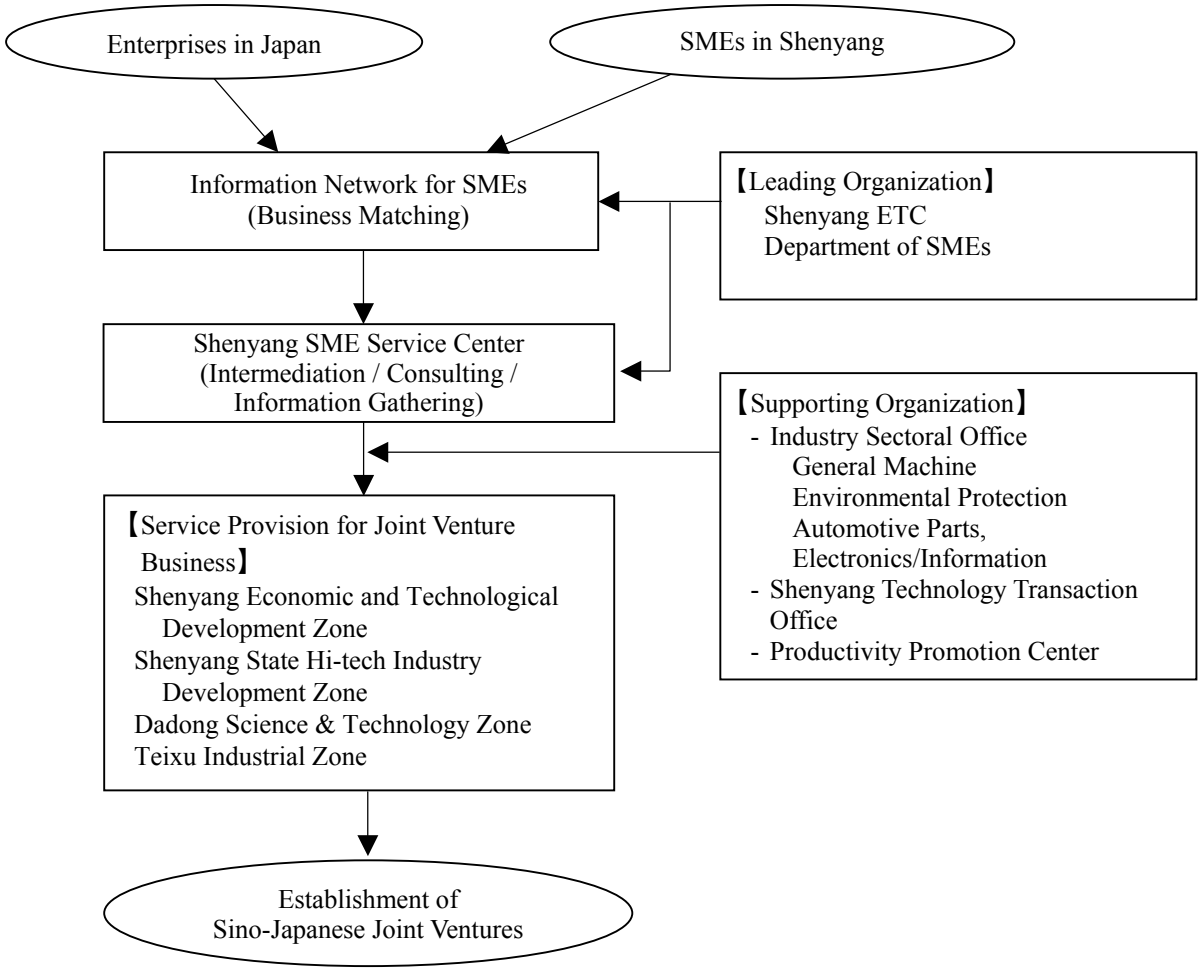


Fig. 9-4-7 Outline of Japan/Shenyang Partnership Activity

(2) Establishment of Information Network

As a tool for partnership activities, the "SME information network system" has been jointly created by the Study Team and the SMETC Information Center. This system will be the core of the pilot project. The problems and points for improvement regarding the SME promotion strategy, promotion system and services will be identified through the operation of this system to deal with real cases for partnership and to clarify the problems and needs of both sides.

Supporting bodies can assist human resources development and partnership activities by SMEs by providing the opportunity for SMEs to transmit and receive information through the network function as SMEs are provided with the tools to create their own home page. In addition, encouragement should be provided for SMEs which have not yet used the Internet to establish a link to the Internet.

The Internet is capable of overcoming the hurdle created by the conventional, vertically divided administration for SME support through linkage involving various networks. The information network service is also important from the viewpoint of a strategy to use IT as described next. This service has strategic significance in addition to responding to the needs of enterprises.

Utilization of Comparative Advantages of IT in China

The SMETC, the FICAS and the Science and Technology Committee already have their own home page. These home pages provide wide-ranging information on government policies, laws, various procedures, enterprises, exhibitions and trade fairs, new technologies and examples of successful businesses, etc. They do not specifically target SMEs and can be widely used. There is a portal site for business matching covering 300 enterprises.

Establishment of SME Support System Through Creation of Interactive Website

The existing websites simply provide users with information. Although such a function if valuable by itself, the Study Team recommends the introduction of a interactive service system as a pilot project using the excellent IT environment in Shenyang with a view to the firm establishment of such a system in the future. This interactive function will require maintenance and data gathering, input, renewal and processing work. It should also have consultation and partnership functions.

Revival of SMEs Using the Internet

IT is a tool which is capable of overcoming the many disadvantageous conditions faced by SMEs to access new business opportunities based on self-help efforts together with large enterprises. The questionnaire survey conducted by the Study Team found that more than half of SMEs want to import technologies from and/or business partnerships with Japanese enterprises. 50% of SMEs are already using e-mail on the Internet and 25% accept on-line order placement.

9.4.3 Reform of Industrial Structure (Specialization and Integration)

Current Situation and Problems

The Shenyang Municipal Government has so far formulated industrial policies and technology and structural reform plans based on the "control large, free small" policy. Despite its original intention, this policy has resulted in the neglect of SMEs. Examination of the need to control large enterprises and the freedom of SMEs in combination is essential from the viewpoint that the reform of large enterprises is required for the development of SMEs.

It is recommended that the municipal government provide support for the reform of the industrial structure as described below for SMEs to overcome their problems.

Purpose of Recommendations

Shenyang has traditional base industries for manufacturing. The potential of SMEs should be developed through reform of the industrial structure rather than the provision of support for individual SMEs.

Contents of Recommendations

(1) Shift from Full-Set Production Structure to Specialization

Many of the state enterprises visited by the Study team employ the full-set production system incorporating casting, forging, pressing, sheet metal processing and machining, producing almost all parts in-house regardless of their business size. The adoption of the full-set production system by SMEs leads to a high production cost because of their inability to exploit the scale merit of production. The existence of many SMEs employing the full-set production system means the duplication of manufacturing processes from the social point of view, resulting in a poor equipment operation rate at individual SMEs.

Knowing this situation, large assembly makers do not select SMEs employing the full-set production system as subcontractors for parts/components for assembly.

The municipal government must properly understand the reality and should try to create a situation of specialization through the provision of administrative guidance to avoid the duplication of manufacturing processes in society in view of the establishment of a parts supply system based on specialization.

While the municipal government has assisted the introduction of NC machine tools at some SMEs using World Bank funds, the machining conditions at most SMEs have not yet been modernized. Some large full-set type manufacturers have separated the machining department through the rationalization of their operation. However, the SMEs newly created by such separation do not necessarily form a supporting industry for the supply of parts to large assembly makers as specialist subcontractors. Here, the problem lies with the lack of specialization and advanced technologies on the part of these SMEs.

(2) Establishment of Healthy Subcontracting System

Except for venture enterprises, many SMEs are engaged in the manufacture or processing (machining) of parts and their clients are set makers rather than end users. These SMEs tend to operate as subcontractors. However, there are no mature subcontractors in Shenyang because of the following reasons.

- Subcontractors relying on their clients tend to fail to make efforts to improve and rationalize their parts production. The technology and product levels of these enterprises are low.
- The idea of parent enterprises providing assistance to foster subcontractors is virtually non-existent except at a few enterprises.

The development path of the subcontracting system varies from one sector to another. In the case of automobile manufacturing, for example, there has been progressive globalization for not only assembly makers but also for parts manufacturers as they seek scale merit in the face of severe international competition. The procurement of automobile parts involves complicated problems, including the viability of overseas procurement and the need to abide by the local content requirement. These problems must be dealt with taking the international price competition and trade balance between different countries into consideration. Therefore, the question of the affiliation of automobile parts manufacturers must also be answered in Shenyang. Enterprises affiliated to the largest automobile group in Shenyang are listed below (see Fig. 9-4-8). The development of parts manufacturers is facilitated by such affiliation. The Study Team visited four of the listed enterprises and the following findings should prove useful reference materials for the development of SMEs.

- The holding company conducts company diagnosis and evaluation using the 5 grade method.
- Improvement guidance on mainly quality and cost control is planned.

- The holding company operates a training center and a research institute
- The guidance provided by the holding company is limited to factory management techniques. As the holding company is unable to provide guidance on products and technologies to modernize products, it relies on the transfer of technology from or joint venture(s)/partnership(s) with a foreign enterprise(s).

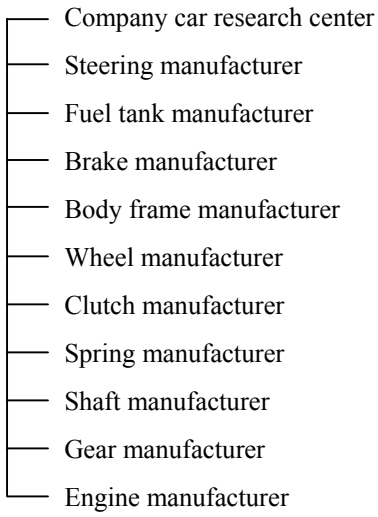


Fig. 9-4-8 Automobile Manufacturing Group in Shenyang

Fig. 9-4-9 shows an example of a Japanese automobile manufacturer operating in Chongqing. This manufacturer has affiliated local manufacturers of some key components while making its affiliated manufacturers of key components in Japan establish a production base in Chongqing.

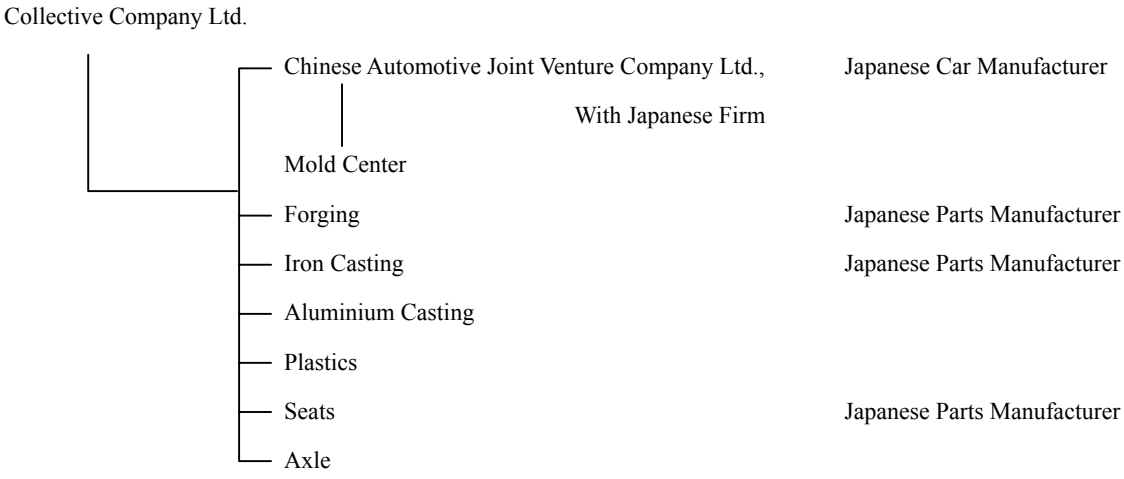


Fig. 9-4-9 Japanese Automobile Manufacturer Operating in Chongqing

Fig. 9-4-10 shows the structure of the parts industry. The development of the parts industry requires the presence of a powerful large enterprise, particularly a multi-national enterprise. Some set makers of parts have now become multi-nationals. Accordingly, parts manufacturers in Shenyang will play the roles shaded in Fig. 9-4-10. According to the diagnosis survey findings of an automobile parts manufacturer, it is clear that local set makers of parts in Shenyang which have reached the international level are extremely rare.

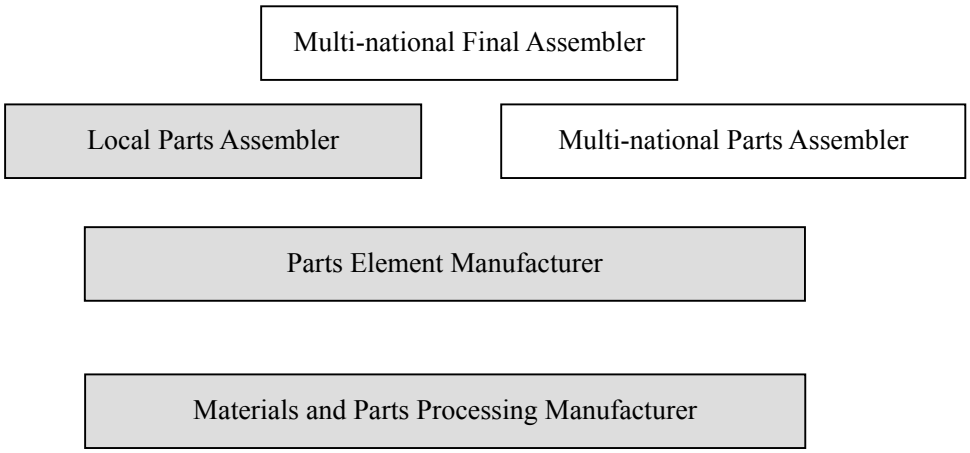


Fig. 9-4-10 One Model Structure of Manufacturing Sector

Recommendations for Parts Industry in Shenyang

Many industries, including the assembly, parts manufacturing and machine industries, are related to the manufacture of parts. While each industrial sector has its own specific problems, common problems are dealt with by the following recommendations.

Assembly Industry

- Non-employment of extreme reliance on offshore production
- Targeting of niche markets through large variety, small quantity production
- Encouragement of investment by multi-nationals
- Fostering of new set industries, such as the environmental protection industry, as trunk industries

Parts Industry

- Pursuit of knowledge intensive type, highly value-added products while avoiding mass production parts

- Pursuit of competitive advantage in the form of small lot, short delivery time production
- Establishment of a subcontracting system as the primary target to beat the competition posed by outsiders in its own geographical area

Machine Industry

- Pursuit of higher added value
- Pursuit of the accumulation of technologies through networking
- Active marketing to set makers at home and abroad

The automobile parts industry in the Shanghai area boasts the highest growth in China and the reason for this is said to be investment of some of the profits of large automobile manufacturers in the development of the local parts industry. Although the automobile manufacturing sector in Shenyang is practically dominated by one manufacturer, the precedent set by Shanghai should constitute a useful reference for future growth.

(3) Local Integration of Technologies

Although SMEs cannot expect direct support by the municipal government, they can expect support by large enterprises through vertical integration. This is, in fact, the pattern shown by the development of the parts industry in Japan. In recent years, however, the business structure has undergone a great transformation. Vertical integration has been replaced by international horizontal specialization and the affiliation within a group has weakened. Under such circumstances, SMEs in Japan, which are facing a difficult business situation due to recession, are trying to find a way out in the IT revolution. For late-starting SMEs in Shenyang, the Internet is a very easy tool to use and the active use of this tool will result in excellent opportunities for business growth. The creation of a suitable mechanism is, therefore, necessary.

Fig. 9-4-11 shows a model for the local integration of technologies in Shenyang based on the example of strategic regional development in Japan.

1) While the concentrated existence of SMEs in the machine and electrical industries is necessary, their operation in the same industrial park is unnecessary.
2) Manufacturers' cooperatives are established with the joint funding by member enterprises together with the financial assistance of a local government organization with a view to conducting the following work.
   - Joint purchase

- Joint procurement and use of highly useful machinery

3) SME support bodies or the FIC will cooperate with an academic institution(s) to provide technological guidance.
   - Technological guidance on IT and FMS, etc.
   - Guidance to solve technological problems

Although Shenyang has a traditional machine industry and base industries to support the machine industry, it has lost its international competitiveness due to the out-dated production equipment and technologies and the outflow of technologies to other areas, both of which originate from the historical emphasis on large state enterprises. At the same time, however, the existing industries still constitute valuable resources.

For the implementation of the recommendations described above, the participation of manufacturers' cooperatives and the FIC is essential. These recommendations pose major tasks to be achieved by overcoming various difficult problems for the promotion of SMEs together with the future privatization of enterprises in Shenyang.

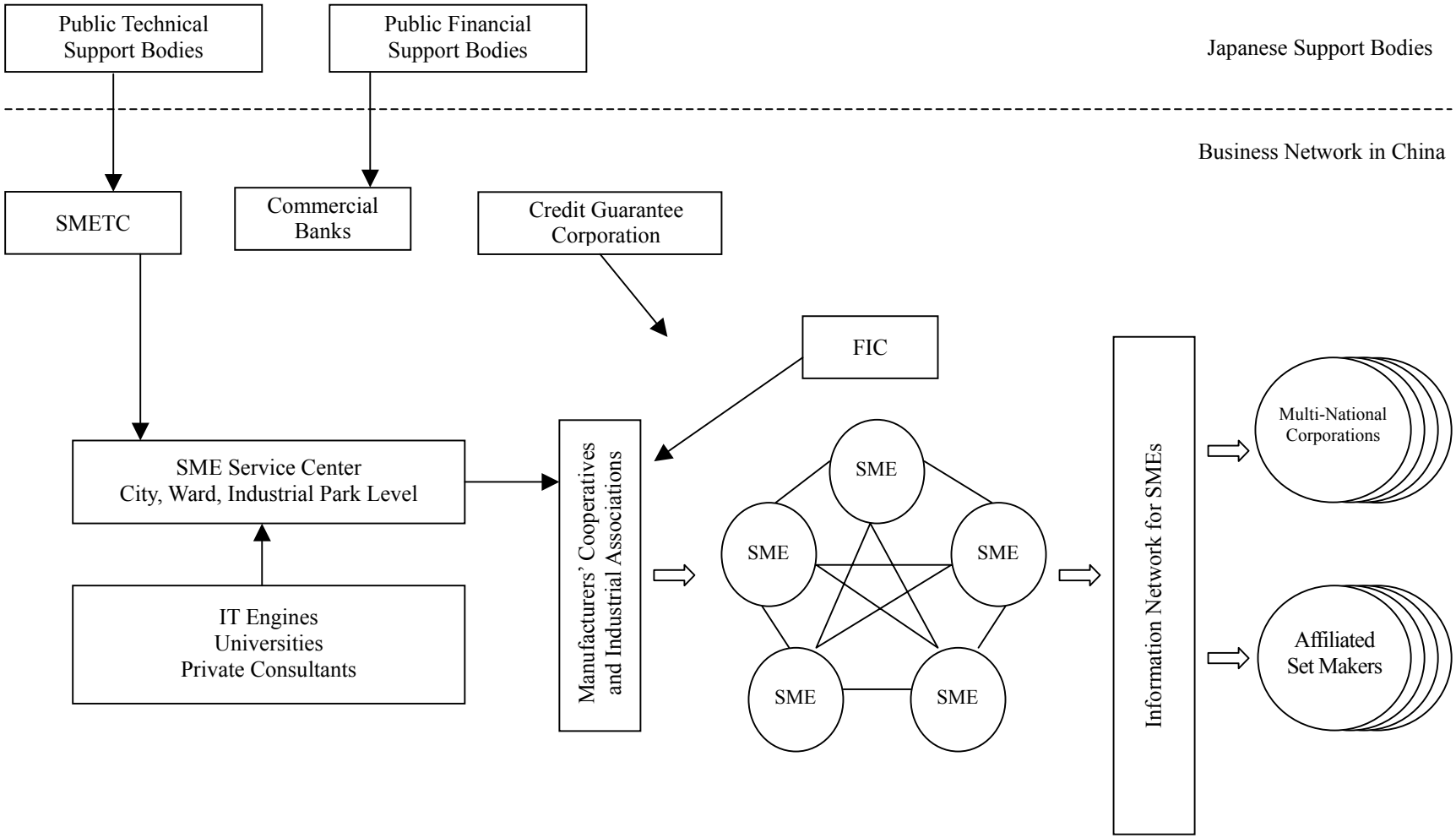


Fig. 9-4-11 Local Integration of Technologies

9.4.4 Promotion of High Technologies

Current Situation and Problems

The Shenyang Science and Technology Committee has been promoting high technologies for some time. At the instruction of the State Economic and Trade Commission, the SMETC invited local SMEs to the announcement of the policy to emphasize the creation of innovative technologies in February and March 2001. The key point of this policy is the creation of a technological innovation service system for SMEs as soon as possible for the purpose of linking such a system to the optimum deployment of scientific and technological resources. Meanwhile, the Industrial Technology Exchange Center of the SMETC is earnestly making efforts for the industrial application of the joint research results of industrial and academic circles using the Shenyang Innovation Information Network which is part of the nationwide Innovation Information Network of the State Economic and Trade Commission.

On 30th June 2001, the Liaoning Provincial Government sponsored exchange meetings in Shenyang and Dalian to which 1,000 foreign researchers on China with concrete ideas for industrial development were invited. These meetings were organized by the Provincial Science and Technology Committee which paid the travel, accommodation and other expenses of these 1,000 guests.

The Shenyang Municipal Government considers the industrial application of innovative technologies and partnership activities to develop the automobile parts industry the highest priority for the promotion of SMEs.

The current situation of the promotion of high technologies is described next.

(1) Strengthening of TLO (Technology Licensing Organization) Function

Industrial incubation activities in Shenyang take the form of the industrial application of the research results of universities and research institutes, business start-up by universities and research institutes using their research bodies and business introduction activities by the Shenyang Industrial Technology Exchange Center. The Study Team visited some state level research institutes related to metal materials, casting, automation and vacuum technologies and found that these institutes commenced business by separating their lower stratum and that their laboratories are actually involved in such business activities as manufacturing and marketing. This practice is common throughout China.

For example, the Equipment Engineering Department of the Shenyang Municipal Industrial College plans to develop 10 priority businesses relating to industrial measurement and control, mechanical plants, specialist NC machining, metal surface treatment, alternative energies, die manufacture and permanent magnetic motors, etc. with a view to establishing a technology innovation base characterized by the development of modern manufacturing technologies, an incubator base for service and technology-oriented enterprises, a funding base, a human resources development base, an information gathering and dissemination base and a product trading base over a period of 3 – 5 years.

University laboratories are making products using their own R & D results and earn a profit through production and marketing.

The State High Technology Development Zone has the following two incubation centers.

1) Shenyang High Technology Development Center (21st Century Building)

   This is a non-profit organization established in 1997 and is assisted by the Shenyang Municipal Government and the Development Zone. It has a site of 60,000 m^2.

2) Liaoning Shenyang Overseas Scholars Business Park

   This incubator facility established in 1999 invites renowned Chinese researchers working abroad and provides assistance for business start-up by these researchers based on the transfer of high technologies.

(2) Strengthening of High-Tech Industrial Parks

In Shenyang, the National High Technology Development Zone was created as one of the first such zones in China. This zone now has a concentration of incubators, computer software companies and manufacturers of high-tech products. Shenyang also has the Economic and Technology Development Zone into which several foreign enterprises have moved, the Tiexiu Industrial Park with traditional industries and the Dadong High-Tech Park with a concentration of excellent SMEs. In other words, Shenyang has wide-ranging industries, from high-tech industries to supporting industries. The current situation of high-tech parks and the planning of future parks in Shenyang are described next, featuring four industrial parks and five centers.

Four Industrial Parks

1) AMT (Advanced Manufacturing Technology) Industrial Park

This park will be jointly created by enterprises and R & D organizations in China and abroad with the Shenyang Automation Research Institute of the Academy of Science of China, Shenyang Xinsong Robot Automation Co., Ltd. and the Shenyang High Technology Development Zone acting as the promoters. This park is planned to be developed as a first rate AMT industrial park by international standards with integrated research, design and production facilities to become an ATM industrialization base for China and Asia.

2) Digital Medical Equipment Industrial Park

Dongda Alpa Digital Medical Care System Co., Ltd. will play a central role at this park in the application of the virtual production method with the assistance of the Dongfang Software Group and the State Digital Medical Equipment Technology Center.

3) Environmental Protection Industrial Park

The Special Environmental Protection Group will play a central role in this park with the technical assistance of Dongbei University and the Ecology Research Institute of the Academy of Science of China, making the best use of Shenyang's advantageous position in terms of the machining and parts supply capacity for large equipment.

4) Transport Equipment Industrial Park

Shenyang Golden Cup Locomotive, Golden Cup GM, Golden Cup Passenger Coaches and the Jiangming Aviation Engine Group will play a central role in the creation of this park in cooperation with well-known enterprises in China and with the provision of technical support by Qinghua University, Xian Jiaotong University and the 606 Research Institute.

Five Centers

1) NC Machine Tool Manufacturing Center

Shenyang Machine Tool Co., Ltd. will form the main body of this center with the provision of technical support by the Shenyang Automation Research Institute and the Shenyang Computer Research Institute, both of which belong to the Academy of Science of China, and the Shenyang Industrial Academy.

2) Advanced Die Manufacturing Center

This center was established by the Golden Cup Corporation, the Shenyang Aviation Corporation and Shenyang Die Factory as the main bodies with the provision of technical support by the Shenyang Computer Research Institute of the Academy of Science of China. The development of the die industry in China in the direction of large, precision, complicated and long life dies, during the period of the 10th Five Year Program is necessary. Meanwhile, specialist die factories should be developed in the direction of small but specialist factories. The die workshops of enterprises should seek to gradually become self-financing, specialist die factories with specific target industries in mind, exploiting their own specialist fields.

The above descriptions are mainly based on the plan of the municipal government. The field survey conducted by the Study Team found that the improvement of many aspects is necessary to break through the present situation in order to achieve the plan targets. The principal measures to achieve these targets are described below.

Purpose of Recommendations

The provision of assistance for the already active industrial application of high technologies using the advantageous science and technology environment in Shenyang is believed to be the most effective measure to promote SMEs.

Contents of Recommendations

(1) The problem of incubation activities in Shenyang lies with a lack of positive achievements due to a weak approach by the enterprise side. To rectify the situation, a technical service center for industrialization should be established in addition to the current use of trade fairs and the Internet. This center should provide management software for marketing, FS, research management techniques, production technologies and design development techniques, etc., all of which are required to produce new products from seed, and should also provide technical support for the design, trial manufacture and testing of hardware.

(2) Support for Business Start-up by Venture Capitals

Shenyang has already seen such successful high-tech business development as the Heguang Group, the Dongyu Group and Dongda Alpine, each of which has grown to become the largest enterprise in its respective field in Shenyang after being launched by a group of several university researchers. Dongda Alpine in particular is so successful that it has become the largest software company in China. The success stories of these

enterprises are precedents for the business start-up by those returning to China after studying abroad. As mentioned above, the industrial application mechanism for incubated technologies is gradually taking shape in Shenyang. However, it is now necessary to urgently develop an environment which attracts venture capitals. There are, in fact, three venture capitals currently operating in Shenyang.

(3) International Information Exchange

International specialization and strategic collaboration (partnerships) are essential to beat the competition for rapid technological innovation. Shenyang must aim at becoming an international city and send out hitherto buried technological information to the world to create and capitalize on business opportunities.

(4) Benchmarking

One inevitable problem associated with the development of high technologies is to catch up and to stay in touch with the changing situation as the speed of innovation is faster with a higher level of technology.

While Shenyang has the advantage that technology is always combined with manufacturing, there is a problem that product technologies mostly lag behind the highest international standard by one generation. This technological gap will constitute a major problem when the import of products of an international level commences after China joins the WTO. The first step is the introduction of the benchmarking practice. At present, however, the level of this practice is still inadequate and, even if the current situation is correctly understood, the necessary improvement measures are not implemented.

(5) Implementation of Proper Feasibility Studies (FS)

The development plans for industrial parks, etc. have been analyzed in terms of the required investment amount and prospect of investment recovery, etc. but lack a properly conducted feasibility study. In this context, there is a strong tendency to invest in buildings and equipment in advance as a legacy of the planned economy in the past.

The Study Team has transferred FS techniques to the SME Service Center and recommends the implementation of proper feasibility studies for the industrial park development plans described earlier.

(6) Invitation to SMEs

It will be necessary to invite SMEs to industrial parks in order to strengthen the industrial structure at these parks.

1) Inclusion of parts manufacturers instead of sole dependence on offshore assembly makers
2) Increase of knowledge-intensive enterprises
3) Improvement of the business environment of industrial parks to make them attractive for SMEs

9.4.5 Strengthening of Business Management Base

Current Situation and Problems

The evaluation results of the company diagnosis conducted by the Study Team indicate that the problems of SMEs currently facing a crisis lie with human resources (54.8%), finance (53.2%), technological strength (48.4%), business planning strength (29.0%), production and marketing strength (23.0%) and business management (16.1%).

The above findings are one example illustrating the present situation of SMEs. The municipal government must understand the situation by its own efforts and should urgently introduce measures to improve the general level of competitiveness of SMEs.

The first step is clarification of the business management strength of individual SMEs by analyzing the current situation of the technological level of products, production technologies, control techniques, business management and market so that the situation can be improved on all fronts.

Purposes of Recommendations

"Human resources development" and "manufacturing practices" at the production floor represent the weak points of SMEs in China and must be strengthened as basic requirements for business management. Even though strengthening of the management base is a long-term theme, the priority measures discussed below should be strategically implemented to achieve positive results as soon as possible.

Contents of Recommendations

(1) Diagnosis of Individual SMEs

It is recommended to conduct simplified diagnosis for 1,000 SMEs in Shenyang. These SMEs were classified into three groups in advance based on existing data.

Group A : excellent SMEs, including foreign subsidiaries, which do not require any external support

Group B : intermediate level SMEs of which the business performance can be expected to improve with external support

Group C : inferior SMEs which cannot be expected to benefit from external support

As of July 2001 when this diagnosis was conducted, some 400 SMEs were controlled by the municipal government while the control for others had been transferred to the ward authorities. The diagnosis will be conducted for 100 SMEs in Groups A and B based on their voluntary application and the improvement of these SMEs will be expected mainly by means of technological support.

The selected SMEs will be those expected to lead industrial activities in Shenyang and the selection priority will be given to those in the parts, traditional equipment, mechatronics and other industries.

The recommendations for inferior SMEs may be restructuring, a fresh start or merger. Such action, however, should be taken on the own initiative of such enterprises and the municipal government should restrict its role to the provision of advice. It is necessary for the municipal government to allocate the necessary funds in its budget in anticipation of the bankruptcy of some SMEs.

What is crucial is for a government administrator to visit each SME to obtain a proper understanding of the business reality. There is a precedent for raising the industrial base as a national project in some European countries as part of their preparations to join the EU.

(2) Measurement of Productivity

The diagnosis results indicate much variation of the productivity between SMEs and also between different sectors. In the case of those SMEs which provided a financial statement, analysis of the business performance based on actual figures was possible. However, accurate data is not generally available. While sector-based data is published in

Japan every year, its comparison with China is impossible because of the absence of comparable data in China.

The productivity improvement movement should be led by the municipal government. The municipal government should firstly define productivity and should measure it for each SME to set a target for the movement. The added value productivity is appropriate subjects for the establishment of target values for improvement of the business performance. Macroscopic statistics are published in China at the state and municipal levels. However, statistics by enterprise, sector and/or sub-sector must be produced to strengthen the competitiveness of enterprises. The suitability of establishing a productivity center in Shenyang to promote the productivity improvement movement should be examined in connection with the establishment of a human resources development training center.

(3) Human Resources Development and Organizational Development at SMEs

Among the various measures to promote SMEs, human resources development is considered to be the biggest task. However, hardly any programs for SMEs are currently implemented. Human resources development must always be implemented along with organizational development because of the following reasons.

1) People create an organization and vice-versa. An organization (enterprise or society) has its own culture.

2) The quality of business management is determined by the ability of the top management.

3) In terms of human resources development, China is fortunate in that the general quality of its human resources is fairly good. Excellent human resources are being supplied to society en masse because of the emphasis on education at home and highly competitive university entrance examination. In addition, there are many opportunities for working people to receive further education. This situation was fully verified by the excellent abilities of business owners and government officials met by the Study Team members in the course of the Study.

4) Problems

- While there is strong emphasis in China on management engineering education at universities, resulting in a noticeable increase of MBA holders, education is biased towards theoretical teaching.

- The sense of belonging to an enterprise among employees is relatively weak. There is no strong commitment to strengthening an organization through teamwork based on the participation of all.
- There is a lack of modern management practices in relation to, for example, the relationship between line workers and staff members, the transfer of authority and cross-sectional groups.
- Information sharing is non-existent.
- Even though excellent plans may be formulated, they cannot be implemented. There is a culture of tolerating the non-implementation of plans.

The business climate described above has weakened the awareness of the importance of improving productivity and quality and placing emphasis on customers. Although above problems are specific to SMEs in China, they are affected by the general culture among Chinese enterprises. Accordingly, the organizational development is an important task for human resources development by enterprises.

Among the guidance techniques applied by Japanese enterprises to Chinese enterprises, patrolling of the production floor, guidance for individual workers and repeated dialogue with business owners are said to have been effective. Reform of the business attitude by means of TQM, TPM and small group activities designed to produce better products is required. Some Chinese enterprises have already started the small improvement, small reform movement.

The absence of in-house education/training can be attributed to the lack of (i) standardization of work, (ii) preparation of work manuals and (iii) information sharing. In general, it is said that the business ability of an enterprise can be measured by how quickly new recruits are taught to efficiently perform their work. In China, however, only a small number of enterprises appear to share this sense of values.

(4) Training of Business Advisors

Company diagnosis/guidance experts and private consultants are still rare in Shenyang even though professional consultants capable of evaluating and providing guidance for enterprises have begun to emerge. However, consultants capable of providing on the spot direct guidance for business owners or senior managers are virtually non-existent.

The training of such consultants is regarded as an important task for the promotion of SMEs by the SMETC and the State Economic and Trade Commission. Accordingly, the following requests have been made for Japanese cooperation.

- Study on and the introduction of the Japanese SME evaluation (diagnosis) system
- Training for government officials, business owners and managers
- Continuation of company diagnosis and the transfer of diagnosis techniques to counterparts through OJT by Japanese experts
- Construction of a training center with Japanese aid

(5) Problem-Solving Measures

1) Insufficient Manpower and Ability to Conduct Company Diagnosis and Staff Guidance

The future training emphasis should be placed on private consultants rather than government officials with a view to utilizing those working at enterprises or universities.

2) Establishment of Advisor Training Center

A plan should be formulated to conduct training in steps using the existing facilities.

3) At the stage of establishing an advisor training center, “candidate business advisors” in Shenyang should accompany Japanese experts as assistants for OJT involving the transfer of diagnosis and guidance techniques.

4) Guidance should primarily focus on excellent SMEs to create successful examples for other enterprises. The success stories of these enterprises should be taught through diagnosis and guidance.

5) The municipal government, industrial associations and the FIC, etc. should pay the costs of seminars and group education/training. The trained advisors (consultants) should then impose a charge for their diagnosis service used by enterprises.

6) A consultation desk for SMEs should be opened in each ward or district in Shenyang.

Fig. 9-4-12 summarizes the above measures and shows the support procedure for excellent SMEs.

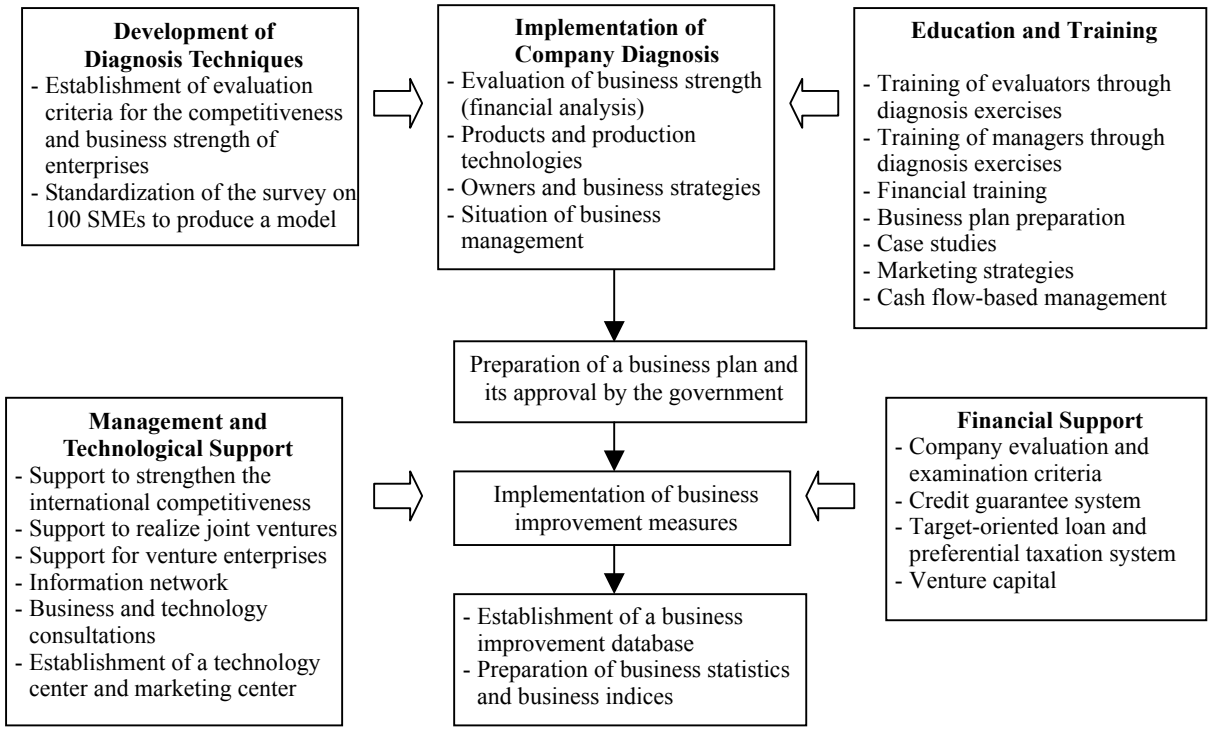


Fig. 9-4-12 Support System to Foster Excellent SMEs

9.4.6 Indirect Finance Support Policy

Current Situation and Problems

The Study Team recommends that policies and measures for SMEs' funding by indirect finance vehicle should be carried out by so-called indirect support policy framework.

Specifically, in pursuance of three interrelated SME supporting issues such as expansion of the bank loan channels, strengthening of the credit guarantee systems and improvement of the SMEs' financial structure, the government should carry out continued financial support.

The government should also carry out these policies and measures considering deterioration of confidence of the financial system and moral hazard of SMEs caused by loose lending and credit guarantee.

Purpose of the Proposal

According to the various investigations on Shenyang SMEs management problem, the funding difficulty is counted for the most serious obstruction factor of SMEs' development.

Based on the findings of these investigations mentioned above, the Study Team proposes measures hereunder to both the lenders such as banks and credit guarantee funds, and to borrowers such as SMEs in order to solve this problem effectively.

Contents of the Proposal

(1) To attract new establishment of branches of the various commercial banks which have not any branch in the city yet, and to promote a local based Joint-Equity Commercial Bank foundation

As for the SME's lending from the financial institutions, a remarkable progress has been performed recently by the business activities of the commercial banks which newly advanced to the Shenyang City.

It is expected that this tendency could be promoted further if the government could attract another four Joint-Equity Commercial Banks, which have not advanced to the city yet.

The cost necessary for the execution of such policy measure would be extremely small, because the pipe of SMEs' funding could be greatly expanded by the business activities of banks' own will.

This would be the best alternative to be able to improve the corporate funding environment greatly.

In addition to above, there is an advantageous condition peculiar to this city, as a Shenyang based enterprise has submitted the application plan of establishment a Joint-Equity Commercial Bank to the central bank. If this plan will be approved in the near future, the positive impact given to local SMEs' funding would become very large. Because, the effort which the local based bank would pour into the local enterprises will be much greater than that of the branch bank.

Though the banks' decision making on the matter would be influenced basically by the fundamentals of the city's economic development, however, ardent attraction including offering of cooperation by the local government and the local economic organizations will also produce a positive influence on the decision making of them.

The Study Team suggests that the government or the local economic organizations could cooperate with the banks in various fields to provide useful statistical data and information etc. Those are;

- Construction of official statistics database on SMEs in Shenyang
- Execution of periodic sample survey on business performance of SMEs in Shenyang
- Arrangement of the comprehensive information on the institutional SMEs' supporting policies and measures in Shenyang
- Invitation of the banks' people to seminars or events for SMEs being conducted by the government or local economic organizations
- Provision of special site for the banks in the SMEs network web site to be able to serve original information concerned of banks to the local SMEs

(2) Expansion of Fund Scale of the CGF and Building up a Network of the Credit Guarantee Funds

The Shenyang City has already worked on expansion of fund scale of the CGF and networking of the ward level credit guarantee funds in planning phase. The City government and the CGF also have been making effort to increase the numbers of partner banks.

In the Study Team's opinion, the object of the CGF in the future should be set to get large numbers of SMEs clients and to collect the repayment from them surely. And, the CGF should straighten the following two conditions for this accomplishment of the said object. Those are; 1) the CGF should strengthen its credit examination capacity in both of the quality and the quantity, 2) The CGF should increase the numbers of partner banks, and ask each partner bank to increase the numbers of SMEs clients of guaranteed financing.

In addition, the Study Team recommends to the CGF to start a consulting service aiming at the improvement of SMEs' financial management. The reasons of the recommendation are as follows:

1) This is necessary to prevent default and the bankruptcy of the SMEs, which are guaranteed by the CGF.
2) The management guidance to the CGF's member SMEs in which the funding needs exist would be more effective than the management guidance to SMEs in general.

However, because doing the individual management guidance to a lot of SMEs far exceeds the capacity of the CGF, it is reasonable to instruct a new management technique by a standard method, and to press the introduction to SMEs.

Then, the Study Team is now carrying out the web site guidance on the cash flow-based management as one of the components of the pilot project.

(3) Plan and Execution of Excellent SMEs Promotion Program

The Study Team judges that this program is the most important strategy among various finance support policies and measures.

The strategic concept is to bring up one hundred of the excellent SMEs within five years for the dramatic change of the Shenyang SMEs' image. The program will serve the guidance for financial structure improvement to about three hundreds of SMEs, and one third of them might arrive at the goal, as s result.

And, the government would challenge an ideal scenario in the future, in which "the financing to Shenyang SMEs greatly contributes to the development of the banks" would be proved by the dramatic development of these excellent SMEs.

To achieve this scenario, the Study Team advises to the government as described hereunder:

1) The government will only support existing excellent SMEs with high development potential,
2) The government will offer highest support measures as possible as it will be able to prepare,
3) The government will bring up a lot of excellent SMEs as fast as possible.

If the scenario would be achieved, the government could prove objectively that success of the local SMEs might not be exceptional case. At the same time, this fact might bring the self-confidence, highly motivated will and energies in their management to the entire local SMEs. Then the SMEs would put strong confidence in the financial support policies and measures.

The object SMEs of this program shall be limited to those with high potential capacity to grow up in excellent SMEs as mentioned above.

For example, the beneficiaries shall be identified by the authority concerned based on the criteria such as technology, management, marketing and financial structure etc., and top 300 ranking SMEs shall be qualified as the trainees of this program.

Moreover, the trainees should be distinguished top management officers who have strong management mind, autonomous mind, budgetary provision to carry out the restructuring practice required in their companies.

And it is needles to say that the SMEs should voluntarily participate in this program.

If the execution body of the government does not have the capacity to evaluate SMEs management ability, the convenient method of selecting SMEs ranked to triple A would be adopted expediently.

By the way, the SMEs in the city seem to try hard to correspond with the Chinese market oriented economy, and still not acquire a modern management practices yet. The Study Team does not hesitate to say that it is quite necessary that the local SMEs should introduce a global standard management method to survive at the age of a global competition. And, the Study Team supposes the proposal of introducing a modern management method will be appreciated by the local SMEs.

Then, the Study Team proposes, "Plan and execution of the program which makes excellent SMEs introduce "cash flow-based management"".

“Cash flow-based management” is the effective management method aiming at correct sustainable development of the enterprises through various improvements and restructuring of the corporate management aspects.

Based on the characteristics mentioned above, “cash flow-based management” can improve SMEs’ business performance by working together with other support policies and measures.

As the pilot project, the Study Team constructed the web site in collaboration with the information center, which supports the cash flow-based management for SMEs on the Internet. However, this is a kind of infrastructure that individual SME can use voluntarily, and no further service is available. Therefore, the strategic concept of the excellent SMEs promotion program is different from utilization the “cash flow-base management” on the web site.

9.4.7 China's Policy to Attract Inward Investment by Foreign Enterprises

Current Situation and Problems

Despite the unencouraging prospects for the world economy, foreign direct investment in China in the first five months of 2001 increased by 17.98% on the same period in 2000. According to the State Economic and Trade Commission, the number of approvals for the establishment of enterprises by foreign capitals in the above five months was 9,421, an increase of 21.97% on the same period in 2000, indicating strong interest on the part of foreign investors in the Chinese market despite the stagnant world economy.

The forecast of the said Commission that foreign investment in 2001 will increase by 5% on 2000 has so far proved to be modest. According to professional sources, the increasing investment trend in China reflects the view that China has broken itself free from the negative impacts of the Asian currency crisis in 1997. The total amount of foreign investment from January to May, 2001 published by the Commission totaled US$ 15 billion while the agreed investment amount totaled US$ 25.9 Billion, 42.3% increase on the previous year. Staff members of the Commission observed earlier in the year that foreign investment in 2001 was accelerating because of the rapid growth of China's economy in the last three years and the excellent economic performance in the first quarter of 2001 even though the slow down of the world economy was making investors cautious.

The views expressed by the Chinese government in relation to China's participation in the WTO has boosted the confidence of foreign investors in China. One reason for the higher level of China's trade figures since 1992 is the ongoing process towards an advanced industrial structure due to improvement of the technological level throughout China, in turn caused by inward direct investment in and technology transfer to China. The fall of the RMB (vis-à-vis the US dollar) from 1992 to 1994 boosted exports to steadily increase China's foreign reserves. The total trade balance of foreign subsidiaries operating in China went into the black for the first time in 1998. There has been a marked increase in direct investment in China by US enterprises since 1998 in anticipation of a further liberalization of the telecommunication and retail sectors following China's participation in the WTO. The investment amount by US enterprises (agreement basis) in 1998 increased by 26% on the previous year while the investment amount by Japanese enterprises recorded a 21% decline. In 2001, not only large US enterprises but also large European enterprises have begun large-scale investment, illustrating the rapid inflow of foreign capitals described earlier. Even though there are political issues to be solved between China and the US, US enterprises are constantly aiming at increasing their profits through an increased market share in China based

on the principle of the separation of political and economic matters or, sometimes, the skilful use of politics.

Purpose of Recommendations

The promotion of direct investment by foreign enterprises which is currently a priority task for China will be assisted by finance-related measures.

Contents of Recommendations

(1) Foreign subsidiaries should be allowed to issue debentures under certain conditions. Beijing Jeep in 1992 is a precedent for this.

(2) Development of Stock Market

Foreign subsidiaries used to take the form of a joint venture, partnership or independently capitalized enterprise. Since 1995, however, it has been possible to establish a joint-stock foreign subsidiary. Japanese enterprises are now listed on the Shanghai Stock Exchange, raising funds in RMB. As there are currently many regulations on financial and other matters in addition to approval by the competent authority, gradual deregulation should be implemented to change the situation.

(3) Strengthening of Credit Guarantee System

In the Chinese financial market, there is a phenomenon of reluctance among lenders to approve loans. One measure to deal with this situation is the thorough dissemination of know-how on cash flow. Because of the official encouragement of the growth of SMEs, it is expected that the number of cases of the establishment of a joint venture by a foreign capital with a private enterprise in China will increase. However, there is a possibility that Chinese financial institutions will refuse to guarantee RMB loans for Chinese investors when raising funds for such joint ventures. In order to solve this problem, the introduction of a system whereby credit guarantee associations can provide an alternative guarantee is essential.

(4) Development of Interbank Trade Market

Interbank trade of RMB is restricted to settlement within four months. Even though foreign subsidiaries can now receive a RMB loan with a repayment period of up to five years, the deregulation process should be accelerated to allow a longer interbank trade period for the diversification of the fund raising channels of financial institutions. The handling of RMB by foreign banks operating in China to support domestic enterprises should also be deregulated.

9.4.8 SME Financial Supporting Policy: A Scheme for Revitalization of State Owned SMEs

Current Situation and Problems

The Civil Restructuring Law enforced in April 2000 in Japan provides a clue to this scheme. The Civil Restructuring Law has replaced the Composition Law (enforced in 1923) which had been the main law governing the bankruptcy of SMEs and introduces a reconstruction type bankruptcy procedure with the following characteristics.

(1) An application for bankruptcy can be made prior to actual bankruptcy if the continuation of business is severely restricted.

(2) An application for bankruptcy can be made by not only a creditor but also by a debtor.

(3) Reconstruction is possible with the same top management in place.

(4) The repayment of debt is likely to be conducted in a clear manner as the process is monitored by the court.

The enforcement of the new law makes the industrial set-up in Japan approach the US type legal regime for bankruptcy where enterprises find it easier to restart after bankruptcy. The new regime can be expected to stimulate entrepreneurship to start venture businesses despite a risk. The application of this regime in China is worthy of consideration as an alternative to the statutory bankruptcy process.

While the present situation where many state enterprises are kept alive to prevent the bankruptcy of banks is understandable, it is also true that there is no scheme for the restructuring of enterprises to replace the bankruptcy procedure. Efforts to keep almost bankrupt state enterprises alive, however, could further deepen such problems as an increasing amount of interest and the deterioration of assets. SMEs in particular tend to find themselves at a dead end as they cannot hope for business restructuring through the merger, etc. of state enterprises led by the government as in the case of large enterprises or financial restructuring by means of a dead equity swap. In short, they can neither become bankrupt nor survive in a healthy state. The establishment of a restructuring scheme through the abandonment of part of the debt owed to banks as described below is essential to solve this situation.

Purpose of Recommendations

The objective of the scheme is to revitalizing stated owned SMEs facing difficulties by restructuring and reorganizing corporate forms through selling to private bodies. It is Chinese government's policy to enforce the reform of state owned SMEs, with this scheme the policy will be effectively realized and SME's weak corporate governance will be strengthened as well.

Contents of Recommendations

(1) Application Targets of the Scheme

State enterprises and collective enterprises with excessive liabilities compared to assets or in a poor financial situation due to a large repayment burden caused by borrowing are the application targets of the scheme.

(2) Outline of the Scheme

Through consultations with the creditor bank(s), part of the debt is forgiven to make the difference between the total assets and the remaining debt the net assets of a new enterprise for calculation of the value of the new enterprise on this basis for the purpose of selling it to an investor (investment fund, another enterprise or an individual). During this process, the investment fund (Private Equity) set up as part of the scheme will act as a new shareholder responsible for the supervision of business management. The money invested by this investment fund (Private Equity) will be pooled as a current fund for the new enterprise and will be accounted for as a debt of the investment fund (Private Equity) to the seller. Here, special measures are required to allow the investment fund (Private Equity) to discharge the said debt when the new enterprise becomes bankrupt.

(3) Necessity for Abandonment of Partial Liabilities by Bank

For the implementation of the scheme, it is essential for a creditor bank(s) to abandon part of its credit. To make this happen, a request to the state government to give priority to the scheme and the pursuit of the bank involved are necessary.

Even though such partial abandonment of credit damages the bank in question, it is a positive move in the end because of the eventual recovery of the remaining credit while abandoning such portion of the credit which will be lost in any case. As in the case of ordinary merchandise, the sale of a state-owned SME must be preceded by moves to make it attractive in terms of its price and other aspects for a prospective buyer(s). The restructuring scheme has the effect of making a SME for sale attractive. For the uniform

application of the scheme, however, it will be necessary to set a ceiling for the amount of liabilities to be forgiven, for example, up to 30% of the total liabilities.

(4) Trial Calculation of Total Amount of Disposed Liabilities Regarding Restructuring Scheme

The results of the calculations based on 293 enterprises listed for sale at the Shenyang Property Right Transaction Center in 1998 (Table 7) suggest that some RMB 2.6 billion will be required to reduce the situation of the excess liabilities of these enterprises to a liability ratio of some 90%. This cost increases to RMB 3.58 billion if the target liability ratio is increased to 80%. Such a reduction exercise does not involve actual cash payment as it only disposes of non-performing loans on the book.

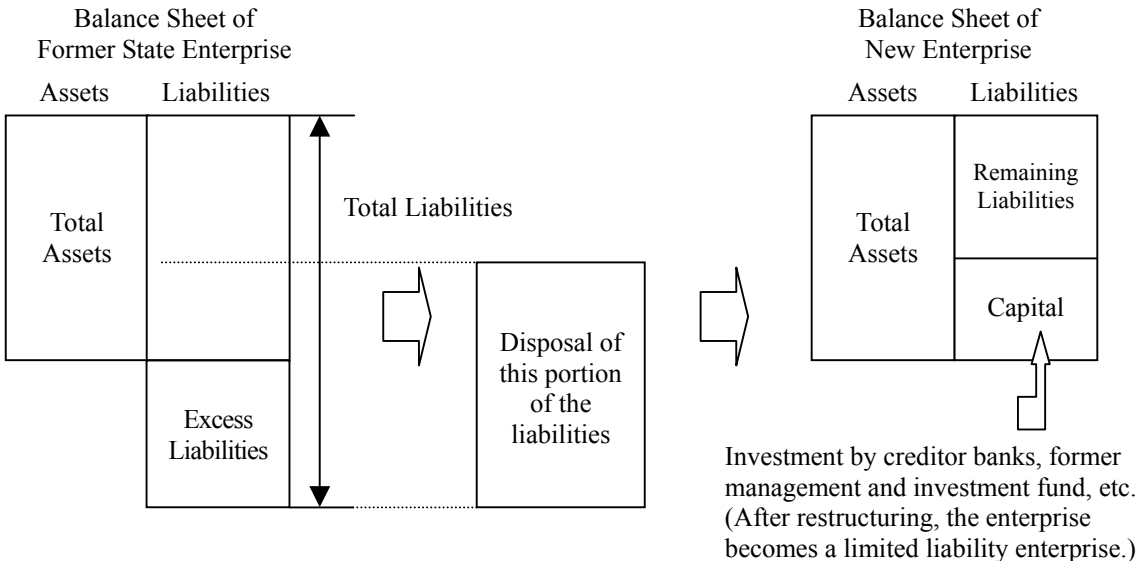


Fig. 9-4-13 Conceptual Diagram of State Enterprise Restructuring Scheme

Table 9-4-1 Relationship Between Liability Ratio and Amount of Liabilities to be Disposed

(Unit: RMB million)

Total Book Assets of 293 Enterprises	9,529.65
Total Book Liabilities	7,395.40
Nominal Liability for Employees (RMB 15,000/person)	2,328.24
Reduction of Assets after Evaluation (10%)	852.96
Excess Liabilities	-2,046.96
Amount of Liability Disposal to Achieve Liability Ratio of 100%	2,046.96
Amount of Liability Disposal to Achieve Liability Ratio of 90%	-2,614.63
Amount of Liability Disposal to Achieve Liability Ratio of 80%	-3,582.30

Source: Shenyang property transaction center

(5) SOE Restructuring Buy-Out Fund (SOE-RBOF)

The SOE-RBOF is an investment fund (PE) designed to support the state-owned enterprises restructuring scheme. The necessity for this fund is explained below.

- To deal with a possible situation where the buy-out funds for a restructured enterprise under the scheme are insufficient despite strong will to buy out such enterprise
- To strengthen the corporate governance of a new enterprise through the involvement of its management
- To make restructuring easier with the improved liquidity of a new enterprise by temporarily pooling the invested money by an investment fund (Private Equity) as current funds; to make it easier to secure the consent of the seller because of the involvement of a government-led investment fund (Private Equity)

The involvement of the SOE-RBOF in the scheme is shown in Fig. 23. The former management and employees of the state enterprise which is the buy-out target and of which part of the liabilities have been disposed or a third party enterprise/individual willing to buy such enterprise set up a limited liability company, i.e. receiving company, jointly with the SOE-RBOF based on the Company Law. Here, the rights and obligations of investors in the new enterprise are clearly defined. The said receiving company purchases the ownership rights of the former state enterprise in question from the State Assets Management Bureau or another body which either possesses or controls the said ownership rights. The transfer of the ownership rights of the former state enterprise (conversion of the business type and sale of the business) is complete when the purchased state enterprise and receiving company have merged. Financial assistance in the form of a government subsidy and/or loans by city banks during this period of ownership transfer in addition to that of the SOE-RBOF should prove more effective for the intended restructuring.

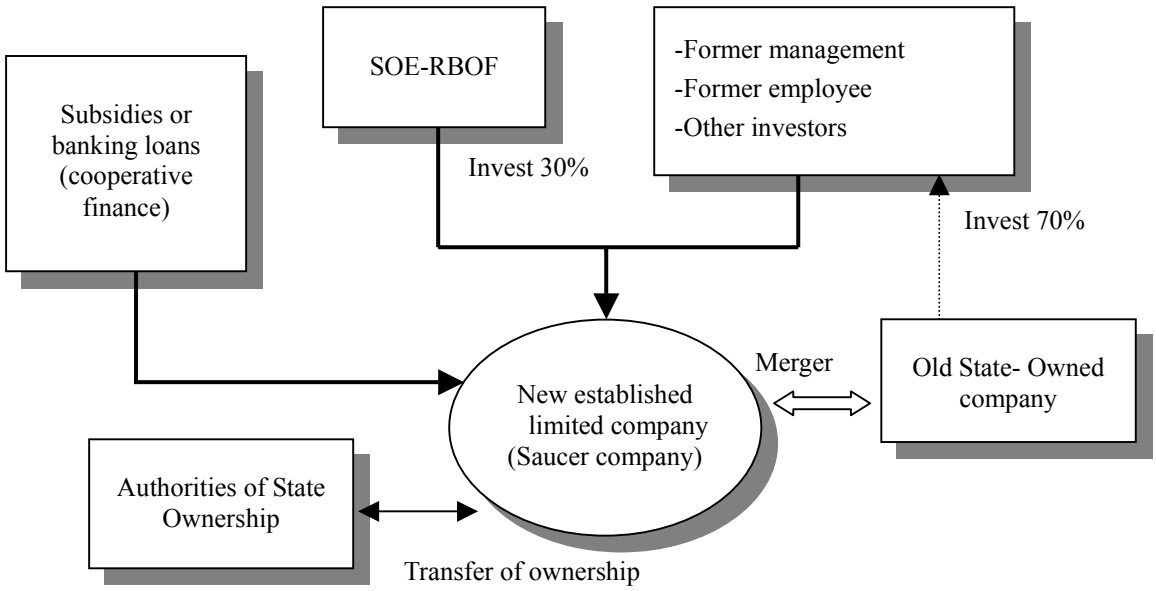


Fig. 9-4-14 Players Involved in SOE-RBOF

9.5 Implementation Results of Pilot Project and Recommendations

Under the pilot project entitled "Information Network Service for SMEs", two measures, i.e. "establishment and fostering of SME support system envisaged in the master plan" and "enlargement of the market for SMEs through partnership activities", were planned. The planned system became successfully operational on 15th August, achieving the objectives of the pilot project.

9.5.1 Implementation Results

(1) Construction of the System

The following hardware and software were provided to the Chinese side.

Hardware : net server, WS and five PCs
Software : one-stop HP creation software; search engine

(2) Supply of Contents Data

Technology transfer data of Japan Techno Mart: 100 cases

JETRO parts and materials trade data (Dalian Trade Fair)

Information on seeds and needs of Chinese enterprises (based on the questionnaire survey results): 80 cases

Parts of the Study Team reports
- Questionnaire Survey Results
- Collection of Company Diagnosis and Guidance Cases
- SME Network Utilization Manual

(3) Preparation of In-House Education Software for Enterprises and Its Insertion on Home Page

Development of a support system for cash flow-based management by SMEs and the provision of a service to use the system

Creation of a website for the system to support theoretical learning, management analysis and business planning

Transfer of technologies to operate the system

Networking of dissemination activities involving related SME support bodies and cooperating banks

(4) Free Provision of One-Stop Home Page for Chinese Enterprises: 35 Enterprises

The target is to expand this free service to 100 enterprises by the end of 2001.

(5) Development of SME Service Center

Transfer of business introduction techniques: preparation of a manual and its uploading to the Internet

Transfer of FS techniques: supply of the COMFAR, a UNIDO software, and case studies

(6) Business Introduction

Questionnaire survey on 100 SMEs in Shenyang to gather and analyze data on the needs for joint ventures or partnerships

Uploading of the analysis results to the Internet

Business introduction for Japanese enterprises: five cases are in progress, including three model enterprises (20 cases of business introduction are planned)

9.5.2 Evaluation

(1) Evaluation of Role of Pilot Project for Policy Recommendations

The pilot project was selected to correspond to the highest priority item among the policy recommendations made by the Study Team. In Fig. 9-5-1, the recommended master plan for eight themes is shown on the left-hand side and those themes closely related to the pilot project are indicated by an arrow with a solid line. On the right-hand side, six action plans are listed as programs which are urgently required to implement the master plan. Those directly related to the pilot project are indicated by an arrow with a solid line while those which are indirectly related are shown by an arrow with a broken line.

As shown in Fig. 9-5-1, the pilot project covers many components of the master plan and the related action plans were formulated based on the pilot project results. In other words, the continuation and further development of the pilot project has become the most important task, indicating that the pilot project has achieved its objectives.

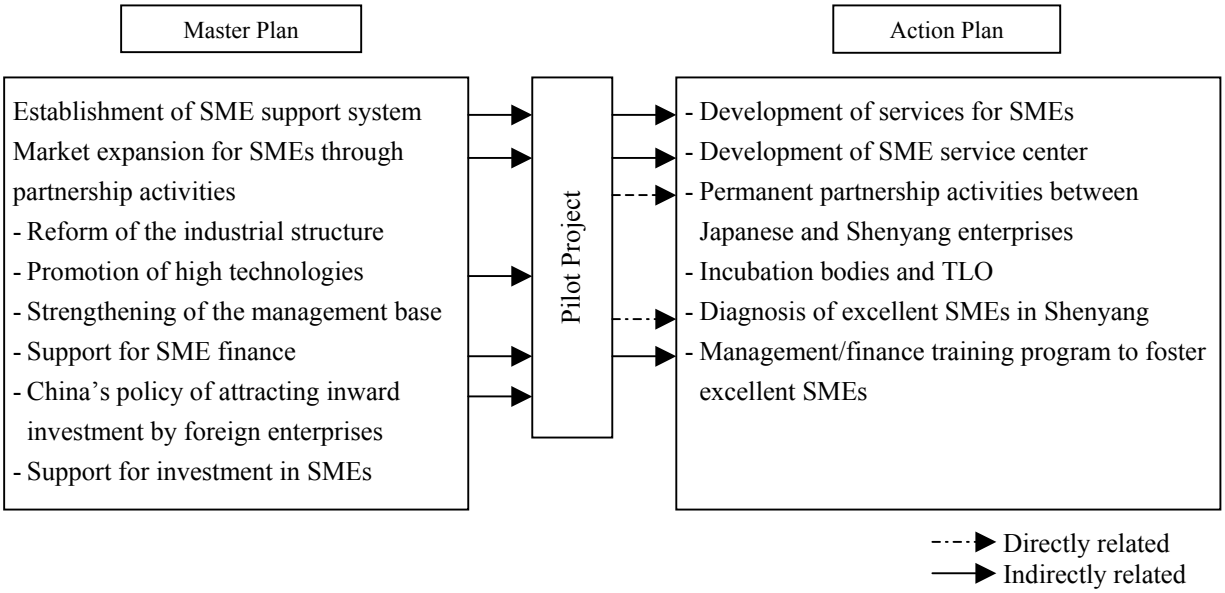


Fig. 9-5-1 Relationship between Policy Recommendations and Pilot Project

(2) Effectiveness of Pilot Project

The private consultancy firm entrusted to conduct the diagnosis of 100 SMEs which was the starting point of the Study was designated to become the Shenyang SME Service Center by the municipal government in December 2000.

It was then decided that the Study Team would again entrust the work to the consultancy firm in question with a view to its fostering as a business introduction organization for the pilot project as well as the SME Service Center.

Three of the target SMEs for business introduction were selected from the 10 model SMEs.

As described above, the consistency of the study process from the initial stage to the implementation of the pilot project was maintained while also maintaining the relationship of this process with the entire scope of the Study. As a result, the high efficiency and effectiveness of the Study were achieved. The flow of the Study is shown in Fig. 9-5-2.

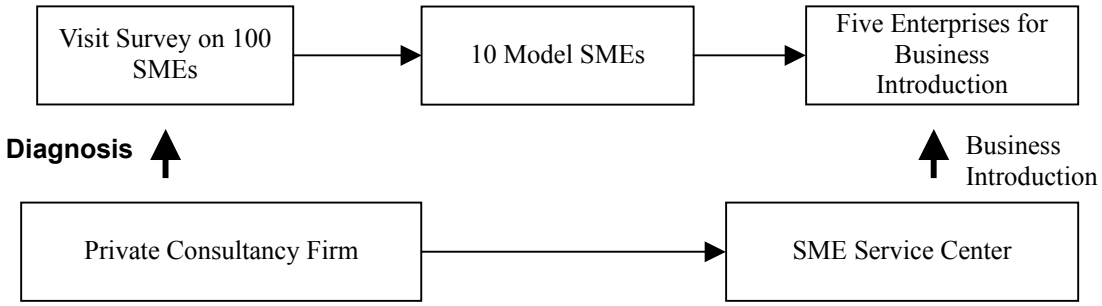


Fig. 9-5-2 Study Flow (from Diagnosis to Pilot Project)

9.5.3 Pending Task

(1) Maintenance of Information Network

The information network jointly created by the Japanese and Chinese sides under the pilot project is essentially part of the network of the SMETC and it is believed that its operation will be automatically transferred to the Chinese side. However, efforts to link it to other networks are required to increase the number of accesses. In the first stage, priority should be given to the establishment of links with those local networks in Shenyang operated by the municipal government, wards, development zones, FIC and the Science and Technology Committee (see Fig. 9-5-3).

(2) Partnerships

One important theme for the future is partnership activities with Japan. A number of trade missions have already been dispatched by the municipal government, wards and

development zones. Information exchange on the Internet and other actions will be required to enhance the effects of such visits, making the effective use of the information network created this time essential. For this purpose, a counterpart organization in Japan is required and it is desirable that the private sector in Japan play a leading role. It is also desirable that this information network be linked to the Liaoning Provincial Government in order to secure Japanese cooperation even though the form of this link must be examined in a comprehensive manner from the viewpoint of effective marketing. This examination should also include China's forthcoming participation in the WTO in its scope.

As shown in Fig. 9-5-3, mutual access between Japanese and Chinese enterprises could take place in five stages.

1) Direct access between enterprises: mutual access to home pages, etc.
2) Use of portal sites in Japan and China
3) Automatic matching: for example, the TTPP run by the JETRO
4) Use of portal sites with an introduction function for members (for example, use of these sites by Japanese and Chinese traders handling SMEs)
5) Use of publicly run information networks with a business introduction function

The information network created this time is characterized by the presence of a Sino-Japan partnership function and the introduction of measures to maintain and develop this function is necessary. For this purpose, it is essential to create an environment in which partnership negotiations can smoothly progress due to the removal of uncertainties which could occur during such negotiations, including those relating to the details and background of information on needs, company outline, current situation and future prospects of the market and others, prior to negotiations taking place. Should this work to remove uncertainties be called "partnership interface", the establishment of such a partnership interface relating to needs and seeds will be an important requirement at the next step. Moreover, the development and improvement of a business introduction body on the Japanese side must also be examined.

(3) Fostering of SME Service Center

The ultimate objective of the Study is the creation of the SME Service Center in Shenyang. In the pilot project, emphasis was placed on the development of the business introduction function for SMEs of the Shenyang Municipal SME Service Center.

Firstly, the Study Team entrusted a survey on the demand for partnerships among SMEs in Shenyang to the Shenyang Municipal SME Service Center, followed by the preparation of a partnership interface. Secondly, business introduction consultants at the SME Service Center were trained through OJT.

Given the limited capability of the center in question, it is hoped that support for SMEs will be provided by service centers at the ward level, development zones and industrial parks together with support activities by the Productivity Promotion Center of the Science and Technology Committee, the FIC of which the participation in partnership activities is anticipated, business owners' associations and manufacturers' cooperatives. For the promotion of such activities, the creation of a system through cross-sectional collaboration led and coordinated by the SME Office is recommended.

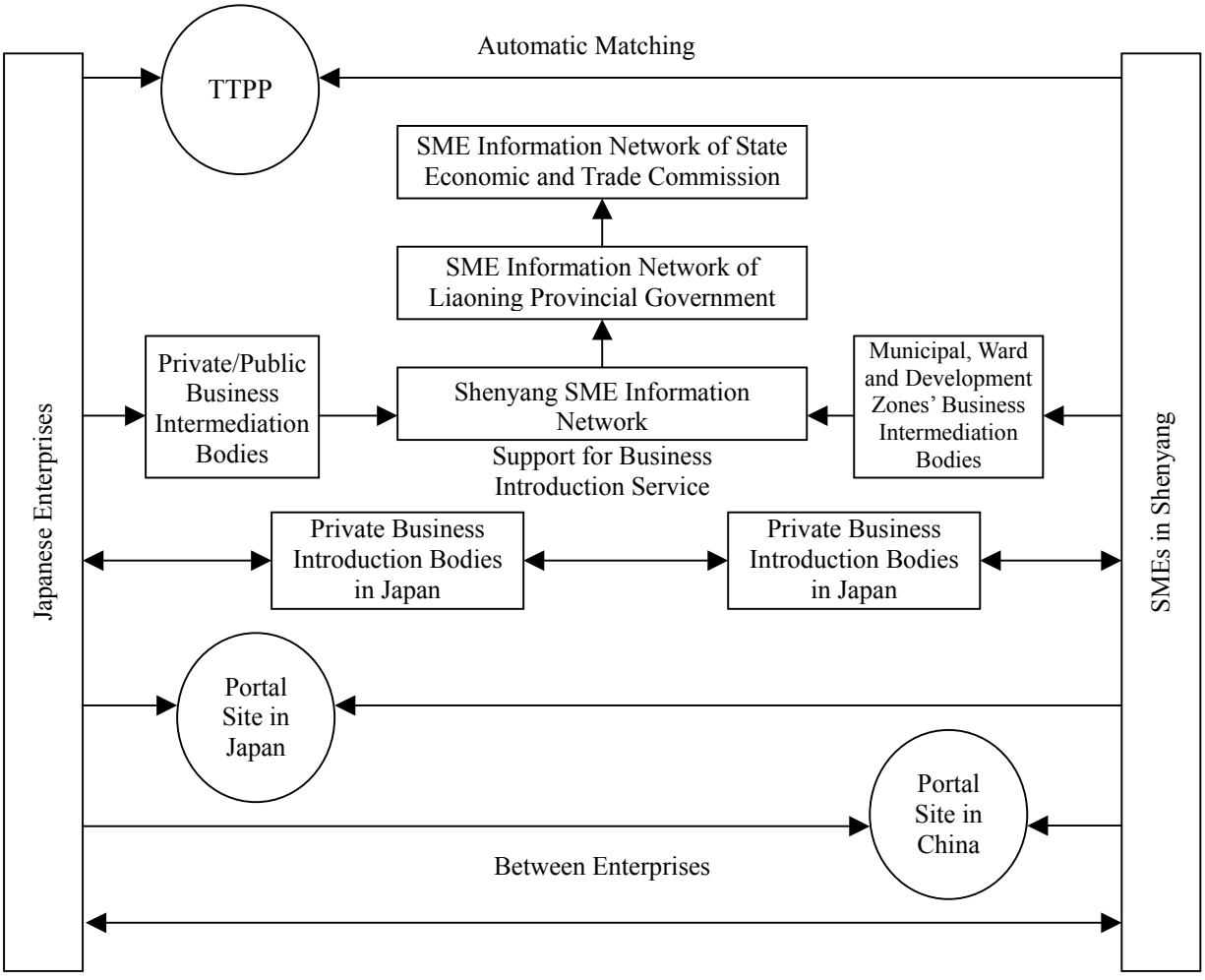


Fig. 9-5-3 Access between Japanese and Chinese SMEs Via the Internet

9.6 Action Plan

The subject items of the master plan and the action plans which are the implementation plans for the master plan items are shown in Table 9-6-1 and Table 9-6-2 respectively.

Table 9-6-1 Urgency of and Implementation Schedule for Recommended Action Plans

No.	Master Plan Item	Urgency	Importance	Implementation Period				
				2001	2002	2003	2004	2005
1	Establishment and Fostering of SME Support System							
1-1	Strengthening and Expansion of Information Network for SMEs	A	A					
1-2	Fostering of SME Service Centers	A	A					
2	Expansion of Market for SMEs through Partnership Activities							
2-1	Permanent Partnership Activities Between Japanese and Shenyang Enterprises	A	A					
2-2	Invitation to Japanese Enterprises to Invest in Industrial Parks	C	B					
3	Reform of Industrial Structure							
3-1	Formulation of Supporting Industry Development Strategy	B	B					
4	Promotion of High Technologies							
4-1	Incubation Bodies and TLO (Transfer of Technology and Business Start-Up Using Technology)	A	B					
4-2	Establishment of Industrial Technology Research Institute	C	A					
5	Strengthening of Management Base							
5-1	Diagnosis of Excellent SMEs in Shenyang	A	B					
5-2	SME Support Measures Based on Marketing	C	B					
5-3	Establishment of Model Training Center for Top Executives of SMEs	C	A					
5-4	Fostering of SME Managers Using Certified SME Evaluator System	C	B					
5-5	Creation of Database of Human Resources in Response to Changing Values	C	B					
6	Financial Support for SMEs							
6-1	Management/Financial Training Program to Foster Excellent SMES	A	A					
6-2	Optimization of Credit Guarantee System	B	A					
6-3	Reinforcement of Fund Supply Channels and Supply of Long-Term Capital	B	A					
6-4	Recommendations to Reduce Fund Shortage for Development of SMEs in Shenyang	B	B					
7	Development Strategy for Specific Industrial Sectors							
7-1	Technological Development and Creation of Business Start-Up System, etc. for Environmental Protection Industry	B	B					

Table 9-6-2 Contents of Individual Action Plans

<table>
<tr><td>1-1</td><td colspan="6">Strengthening and Expansion of Information Network for SMEs</td></tr>
<tr><td colspan="7">< Purpose >
(1) Spread of the information network to SMEs in Shenyang and the relevant education
(2) Substantial expansion of the flow of information to and from SMEs in Shenyang
(3) Expansion of partnership activities at home and abroad</td></tr>
<tr><td colspan="7">< Contents >
(1) Guidance on investment in information for top executives of SMEs
(2) Arrangement of funding and leasing of hardware to assist such development
(3) Education and training of experts
(4) Support by the information network
- Grouping of SMEs for friendly exchanges, communication and mutual support, etc. to eventually create groups with specific objectives, such as exchanges between different types of businesses, development of new businesses and e-commerce, etc.
- Provision of free software for education and enlightenment (for example, that for CAD and CAM)
- Simple business diagnosis on the Internet
(5) Creation of a members-only network of SMEs
(6) Extension of the support circle for SMEs through efforts to link with the Technology Innovation Network which is being created by the State Economic and Trade Commission
(7) Establishment of an integrated network incorporating the networks in the three northeastern provinces, including the Shenyang Technology Innovation Network which is already linked to the state network, to expand the market for SMEs in Shenyang and to develop the regional economy focusing on the markets of these three provinces.</td></tr>
<tr><td>Expected Effects</td><td colspan="6">(1) Upgrading of the IT level of SMEs
(2) Great performance by SMEs through cooperation even though individual SMEs are not strong
(3) Expansion/improvement of the businesses of SMEs using IT</td></tr>
<tr><td>Anticipated Problems for Implementa-tion</td><td colspan="6">- Funding of the operation and maintenance cost of the Information Service Center
- Understanding by both the public and private sectors of the need for collaboration between enterprises</td></tr>
<tr><td>Budget</td><td colspan="6">- Small public budget as the plan is implemented by the private sector
- Some funding, manpower and facilities are required for start-up as the administration will play the role of a coordinator at the beginning.</td></tr>
<tr><td rowspan="2">Schedule</td><td>Short-Term</td><td>Medium-Term</td><td>Long-Term</td><td rowspan="2">Major Promoter</td><td colspan="2" rowspan="2">Information Service Center; FIC
SME Service Center</td></tr>
<tr><td></td><td>O</td><td>O</td></tr>
<tr><td colspan="7">< Basis for Recommendation >
In September 2000, the SMETC and the China Telecommunication Shenyang Office opened the “Shenyang Enterprises Information Network” with 300 subscribers, including those linked to the network. This site carries a list of enterprises, introduces export products, provides information, and has enterprise database and partnership information. There is an information network (NC Network) in Japan for small and medium manufacturing enterprises. This Internet portal site was voluntarily created by several owners and successors (in their 30’s and 40’s) of SMEs in 1998 and is the first site providing useful information by and for SMEs. This free network has 8,500 factories with a total of 321,000 employees registered as of July 2001. The participating SMEs have broken away from the conventional subcontractor status and have created new businesses to beat the general recession severely affecting SMEs. Even though a direct comparison between these Japanese SMEs and SMEs in Shenyang is impossible, the development of a network by SMEs for SMEs should be a common target. Failure to use effective tools to do so is a major loss of opportunity.</td></tr>
</table>

Concrete Implementation Measures

(1) Implementation of the work proposed in the pilot project

The free supply of a home page was given to some 30 SMEs during the pilot project period. Further efforts should be made to achieve the original target of 100 SMEs. As many enterprises in Shenyang already have their own HP, the target SMEs should be selected based on a careful survey. The advantages of a one-stop HP provided by the SME Information Network (ease of creating and maintaining a HP and provision of a search function) should be publicized.

(2) IT education for SMEs

1) Utilization of the Net

- Utilization of IT by SMEs in conducted in the following areas.

(i) Application of existing business
Improved efficiency of marketing, sale, distribution, procurement and purchase (cost reduction and expansion of sales channels)

(ii) Application to business reform and creation
Active support by the municipal government and development zones for SMEs in terms of the supply of information, one-stop service and consultation; further application to investment, finance and TLO, etc.

(iii) Application to network business
o Members-only network for SMEs; free enrolment and annual subscription
o Creation of a forum: creation of a network beginning with the exchange of opinions among members
o Exchange of information on business seeds and needs

2) IT education

IT education should be introduced on the understanding that the skilful use of IT is an essential condition for the survival of enterprises in the 21st century and that IT is a powerful tool for SMEs to compete with large enterprises. The Internet should be used as much as possible for this education.

- Education for top management
- Listing of successful cases on the Net
- Education for in-house IT experts
- Supply of free download function for CAD, CAM and EDI software

3) Assistance for procurement of IT equipment
- Technical assistance
- Financial assistance

(3) Extension of links in Shenyang

Efforts should be made to link with as many existing networks and HP of various enterprises.

(4) Extension of links in and outside Shenyang

1) The Economic and Trade Commission-related networks at the state, provincial and municipal levels should be efficiently linked to facilitate use.
2) Overseas support will be easier to obtain if the network is linked to those in Liaoning Province and the three northeastern provinces in addition to those in Shenyang.

1-2	Fostering of SME Service Centers

< Purpose >
(1) Strengthening of the ability to provide direct support for SMEs
(2) Strengthening of the ability to provide indirect support for SMEs, i.e. business introduction ability
(3) Creation of the basis for the self-help development of the SME service centers

< Contents >
Step 1: Pilot Project
(1) Introduction of business introduction techniques
(2) Introduction of FS techniques
Step 2: Follow-up and further development activities after the end of the Study
(1) Maintenance and development of the center based on the self-financing system
(2) Development of cooperation between ward level SME service centers and development zones in the city under the leadership of and coordination by the SME Office

Expected Effects	(1) Creation of permanent SME service centers which are run by the private sector and which are suited to the market economy (2) Positive impacts on other public and private SME service centers to be created in the future and on existing consultancy firms in the private sector (3) Vitalization of consultancy activities in Shenyang in such fields as company diagnosis, improvement of business management, marketing and support for business introduction among various SME support measures
Anticipated Problems for Implementation	- Reliable income for self-financing operation - Development of new customers
Budget	- Creation of independent income sources for the Shenyang SME Service Center - Recommendation that public benefit bodies rely on self-finance while ward level and development zone SME service centers try to implement their own fund raising activities

Schedule	Short-Term	Medium-Term	Long-Term	Major Promoter	Existing bodies in charge of the management of industrial parks; competent government offices
	O	O	O		SME Service Center CRF Information Service Center

< Basis for Recommendation >
The State Economic and Trade Commission has instructed each city to establish its own SME service center and the said center was established in Shenyang in December, 2000 as a public benefit corporation based on a private consultancy firm which was in turn established with the support of the DFID in the UK. The Study Team conducted the following technology transfer.
(1) Company diagnosis techniques were transferred to the said consultancy firm during the survey and diagnosis of the 100 SMEs selected by the SMETC during the First Field Survey.
(2) During the pilot project period, the further transfer of techniques was conducted. Such techniques were taught using examples of business introduction which used the COMFAR, a software for industrial F/S developed by the UNIDO. The consultancy firm was invited to join partnership activities featuring model and other enterprises to learn business introduction techniques through OJT and to prepare a manual. The firm was requested to list the contents of the "Information Network for SMEs" jointly created with the Shenyang Municipal Information Center and to prepare, collect and analyze a questionnaire designed to clarify the partnership needs of the Chinese side with Japan.

Concrete Implementation Measures

(1) Measures to foster Shenyang SME Service Center

1) Support by municipal government

It is desirable that the center function as a semi-governmental organization as the Study team has learned that some SMEs reject support by a government body to avoid government control. In the meantime, a private center may be unable to reach some SMEs. At present, it is difficult for a private consultant to earn sufficient income to ensure its survival dealing only with SMEs in China. This necessitates conscious efforts on the part of the municipal government to provide as many jobs as possible for a limited period of, for example, three years.

2) Sources of income

a) As the financial assistance of the DFID will gradually decline, it will be necessary for the center to earn 30% of its operating budget in FY 2000, 70% in FY 2001 and 100% in FY 2002.

- Support for business introduction: efforts should be made to earn a business introduction fee using professional F/S skills, etc. which were transferred during the pilot project.
- Direct support: Production diagnosis is very important for SMEs and further experience and training are required in this field. It is recommended that training in Japan on specific countries or themes and the program of the Tianjin Training Center be used in addition to cooperation with the Productivity Promotion Center. To earn sufficient income, customers should not be restricted to SMEs at the beginning.

b) Interpretation and translation businesses

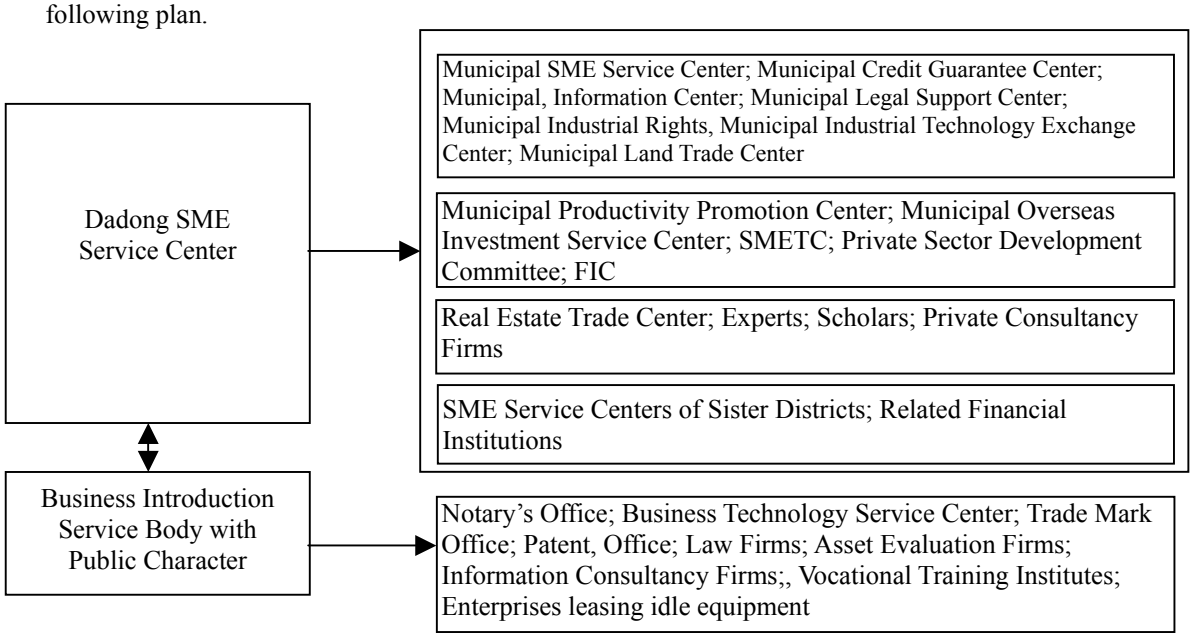
Interpretation and translation are important parts of business introduction work and are a good means of obtaining information. These constitute sources of income for private consultancy firms in Japan. High quality interpretation and translation services in English, German, Korean and Japanese will be required for the increased number of partnership activities following China's participation in the WTO.

(2) SME support by development zones

Dadong Ward already has a high-technology oriented development zone called Shangyuan which has national status. Economic and technology development zones and high-tech development zones have successfully secured inward investment by large foreign enterprises and have one-stop service facilities. Efforts to develop an investment environment which is suitable for SMEs should be made in the coming years and a body specializing in SME support should be created at the development zone head office.

(3) Development of ward level SME service centers

The main wards in the city have already commenced preparatory work. For example, Dadong Ward has the following plan.



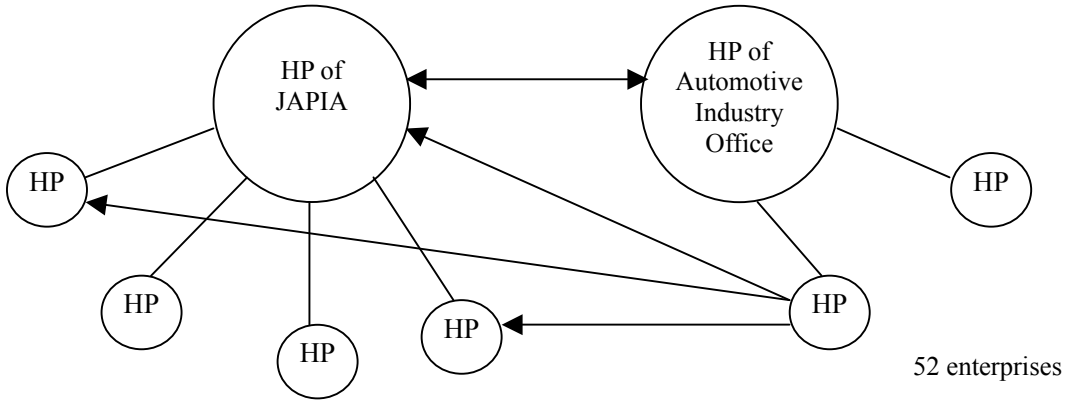
<table>
<tr><td>2-1</td><td colspan="5">Permanent Partnership Activities Between Japanese and Shenyang Enterprises</td></tr>
<tr><td colspan="6">< Purpose >
Permanent maintenance and development of (i) the information network system for SMEs created under the Pilot Project and (ii) Sino-Japan partnership activities which have commenced as pilot activities using this system.</td></tr>
<tr><td colspan="6">< Contents >
(1) Establishment of a responsible office in Japan and China
(2) New links with the existing international exchange networks
(3) Development of new functions using the system: information exchange for TLO, borderless cooperation and the development of an environment to attract SMEs</td></tr>
<tr><td>Expected Effects</td><td colspan="5">(1) Creation of permanent SME service centers which are run by the private sector and which are suited to the market economy
(2) Positive impacts on other public and private SME service centers to be created in the future and on existing consultancy firms in the private sector
(3) Vitalization of consultancy activities in Shenyang in such fields as company diagnosis, improvement of business management, marketing and support for business introduction among various SME support measures
(4) Promotion of Sino-Japan economic exchanges
(5) Development of the investment environment by Japanese enterprises in China</td></tr>
<tr><td>Anticipated Problems for Implementation</td><td colspan="5">Study on the related organizations (municipal, ward and district levels and development zones, etc.</td></tr>
<tr><td>Budget</td><td colspan="5">- Support by the municipal government which is currently promoting Sino-Japan joint ventures and partnerships is hoped for.
- Business introduction fees and consultancy fees will be used to cover the necessary expenses of public benefit or privately run SME service centers.</td></tr>
<tr><td rowspan="2">Schedule</td><td>Short-Term</td><td>Medium-Term</td><td>Long-Term</td><td>Major Promoter</td><td rowspan="2">Competent bodies at the state, municipal, ward and district levels; public or private business introduction bodies in Japan and China; existing management companies of industrial parks</td></tr>
<tr><td>O</td><td>O</td><td>O</td><td></td></tr>
<tr><td colspan="6">< Basis for Recommendation >
The Information Network Service for SMEs will be incorporated in the SMETC’s network for enterprises (Shenyang Technology Innovation Network in China: www.sysjm.com). Although the information network in question is operated as part of a wider network, responsible offices must be established in Japan and China. Japan has the TTPP Net of the JETRO with a business introduction function and other nets using English. The NC Net, the largest SME net in Japan, is expected to develop its overseas links in the future.</td></tr>
</table>

Concrete Implementation Measures

In principle, the Sino-Japan business relationship will be maintained through exchanges between private organizations.

(1) SME organizations will be established under the leadership of the state government to develop partnerships between enterprises using the Internet

The following example which has already been recommended by the Study Team and which is about to be implemented can be applied to other fields. The Automotive Industry Office of the Shenyang Municipal Government has a HP introducing 52 parts manufacturers in Shenyang and most of these manufacturers have their own HP. Meanwhile, the Japan Automobile Parts Industries Association (JAPIA) has a HP introducing its 460 members and has informed its members of the URL of the Shenyang Automotive Industry Office on its HP. Accordingly, enterprises in Shenyang can learn the outline of possible partners from the JAPIA's HP and retrieve further detailed information from the HP of individual JAPIA members. There are, therefore, a number of portal sites in Japan and China and the skilful use of these sites can assist the development of Sino-Japan partnership activities under the leadership of the municipal government, development zones and industrial associations (to be established in the coming years).



(2) Representatives or agents of Shenyang Municipal Government in Japan

At present, one representative of the Shenyang Municipal Government is stationed in Japan. This number should be increased as the activities of such representatives even in the limited period up to the time when exchanges regularly take place will prove highly productive. Alternatively, the municipal government could conclude an agreement to make a Chinese private consultancy firm its agent. However, it must be remembered that the utilization of IT alone is inadequate.

(3) Active use of Japanese public bodies by Shenyang Municipal Government

The future activities of the JETRO and Japan Techno Mark, both of which provided assistance for the pilot project, should be actively utilized.

(4) Human resources development for business introduction

The involvement of trustworthy persons and language fluency are essential requirements for business introduction. The most realistic option is the use of those who have studied in Japan.

1) Use of returnees from or resident Chinese in Japan

Many returnees from Japan have established new businesses in Shanghai and Beijing and publish bulletins in Japanese. They do not receive any public assistance. Some resident Chinese in Japan are active in business introduction. Encouragement by the municipal government for the self-reliant activities of similar persons should be provided in Shenyang.

2) Efforts should be made to train graduates of the Japanese language course of the university in Shenyang as interpreters or translators to assist business introduction between Japan and China. One idea is to establish a translation center which is capable of handling not only Japanese but also English, German and Korea. Such intellectual industries are support industries for the IT industry.

2-2	Invitation to Japanese Enterprises to Invest in Industrial Parks

< Purpose >

(1) To attract SMEs to the existing industrial parks to concentrate industries

(2) To expand the subcontracting businesses of SMEs

(3) To attract overseas excellent SMEs, particularly those in Japan, to further develop development zones

< Contents >

(1) Development of the environment to attract SMEs

(2) Invitation to Japanese SMEs to supply parts for Japanese and American assembly makers

Expected Effects	(1) Accumulation of manufacturing technologies and management know-how by SMEs (2) Diffusion effect of the establishment of a model development zone to other development zones
Anticipated Problems for Implementation	- Initial investment for, for example, factories to let - Advantages for Japanese enterprises to invest
Budget	To be borne by the business introduction body

Schedule	Short-Term	Medium-Term	Long-Term	Major Promoter	Management companies of existing industrial parks; competent bodies at the state, municipal, ward and district levels
	O	O	O		

< Basis for Recommendation >

This action plan responds to the following requests made by the Chinese side.

(1) To attract Japanese SMEs to economic and technology development zones
To attract Japanese SMEs in IT industries, focusing on those areas of industrial promotion recommended by the Study Team, i.e. (i) automobile parts, (ii) manufacturing and (iii) mechatronics

(2) To attract Japanese SMEs to the Auto Park developed for the automobile parts industry in Shenyang

(3) To attract Japanese SMEs to the Dadong SME Industrial Park
This development zone has a one-stop function, incorporating an import/export desk, etc., beyond the needs of ordinary SMEs with extensive support measures for SMEs, including statutory preferential measures.

3-1	Formulation of Supporting Industry Development Strategy

< Purpose >

(1) To attract SMEs to the existing industrial parks to concentrate industries

(2) To expand the subcontracting businesses of SMEs

< Contents >

1. Study on value-added products of state enterprises: preparation of a parts list

2. Listing of parts other than above (machining; press; sheet metal processing; welding; plastic moldings; die casting): study on the processing situation and parts of state enterprises
   - Processing situation
   - Processing equipment
   - Manufacturing cost
   - Specifications

3. Recruitment of independence-oriented employees of state enterprises; recruitment of persons and enterprises willing to establish a new business
   - Listing of subcontracted parts of state enterprises
   - Evaluation of processing equipment
   - Subcontracted price

4. Basic education on business management
   - Technical education
   - Free rental of equipment (use of idle equipment of state enterprises)
   - Examination of business plan
   - Education and funding required for business plan formulation
   - Self-development oriented education

5. Fostering of SMEs for subcontracting (diverse, small lot production; customer-oriented business) (self-reliant enterprises; development of new customers) (SME network for development of new products in the future and other purposes)
   - Preparation of factories to let; production space to let inside state enterprise factories
   - Supply of work by state enterprises at the beginning
   - Development of new customers using the business information networks of state enterprises
   - Support for business management (management; technology; funding)
   - Financial support for the procurement of new equipment

Expected Effects	(1) Accumulation of manufacturing technologies and management know-how by SMEs (2) Diffusion effect of the establishment of a model development zone to other development zones
Anticipated Problems for Implementation	Availability of municipal budget for a long-term project
Budget	As most of the expenses will be incurred as the personnel cost for administration, they should be accounted for in the current account.

Schedule	Short-Term	Medium-Term	Long-Term	Major Promoter	Management companies of existing industrial parks; competent bodies at the state, municipal, ward and district levels; Technology Reform Center of the SMETC
	O	O	O		

< Basis for Recommendation >

While Shenyang has seen the growth of the assembly industry in recent years due to investment by leading foreign enterprises, the local production level of parts is low due to the inferior quality and price competitiveness of locally manufactured parts. Shenyang traditionally has base industries to support the machine industry but state enterprises and large enterprises have been given priority for support. The restructuring of state enterprises and the splitting of large enterprises have been conducted as a means of privatization. However, the lack of technology concentration has weakened the new enterprises. This plan intends the promotion of the technological reform of SMEs by means of an industrial policy and the enhancement of their business potential by means of the reform of the industrial structure.

<table>
<tr><td>4-1</td><td colspan="5">Incubation Bodies and TLO (Transfer of Technology and Business Start-Up Using Technology)</td></tr>
<tr><td colspan="6">< Purpose >
(1) To create new industries by venture businesses
(2) To innovate the management of existing enterprises (second business start-up)
(3) To promote the self-reliant innovation activities of enterprises</td></tr>
<tr><td colspan="6">< Contents >
(1) Implementation of comprehensive measures featuring finance, taxation, information, management and technology, etc. to support venture businesses and management innovation
(2) To develop and apply a system for the formulation of management innovation plans as a management support measure in addition to a consultancy service
(3) To formulate self-reliant business management plans by enterprises and their submission to the administration
(4) To examine and approve plans by the administration and follow-up
(5) To organize and provide venues for venture seminars and planning seminars</td></tr>
<tr><td>Expected Effects</td><td colspan="5">(1) Creation of venture businesses
(2) Conversion of the business character of existing enterprises to development-oriented enterprises
(3) Vitalization of all industries and improvement of the international competitiveness
(4) Utilization of related bodies and the priority distribution of resources</td></tr>
<tr><td>Anticipated Problems for Implementation</td><td colspan="5">(1) Concern regarding the risks of the untried fostering of venture businesses
(2) Complaints regarding the perceived preferential treatment of selected enterprises
(3) Budget and staffing</td></tr>
<tr><td>Budget</td><td colspan="5">To be implemented within the scope of the ongoing project as much as possible with an increase of the budget size in accordance with the inclusion of loans and taxation measures</td></tr>
<tr><td rowspan="2">Schedule</td><td>Short-Term</td><td>Medium-Term</td><td>Long-Term</td><td>Major Promoter</td><td>SMSME Office
Incubation centers of existing institutions, development zones, research institutes and universities</td></tr>
<tr><td>O</td><td>O</td><td>O</td><td></td><td></td></tr>
<tr><td colspan="6">< Basis for Recommendation >
This plan represents the common industrial policy adopted by the US, Japan and many other countries. The purpose is to improve the international competitiveness of SMEs to deal with IT and technological innovation. The key point is the formulation of a business innovation plan. Forward-looking SMEs should be selected and supported by the administration. Unlike the conventional practice of providing wide but shallow support, the support budget should be distributed in accordance with priority.

In Japan, a management innovation plan is a key ingredient of the SME policy. Japan can provide concrete techniques and cases together with know-how.

At present, venture businesses are supported by the municipal government and there are three venture capitals in Shenyang. This proposal, however, intends the further fostering of the TLO, which is one step before the involvement of venture capitals, and conforms to the idea held by the municipal government.</td></tr>
</table>

Concrete Implementation Measures

While TLO-related activities are already popular in Shenyang, the recommendation is made for those items which are underlined among the industrial application support measures for TLO activities in order to make further progress.

(1) Introduction of Chinese information overseas via information network

There have been many exchange meetings/trade fairs to which Chinese academics residing abroad or in Shenyang have been invited in addition to exhibitions organized by leading research institutes. In the coming years, efforts should be made to expand the business opportunities through international exchanges with Japan and other countries. This will necessitate a preparatory stage using the Net prior to the holding of trade fairs. Data on Chinese enterprises equivalent to that of the Japan Techno Mart and the JETRO for uploading to the newly created network for SMEs must be developed to actively send out such data from China. This network should ensure advantages for SMEs in Shenyang over SMEs in other areas which are also interested in developing high technologies and their industrial application.

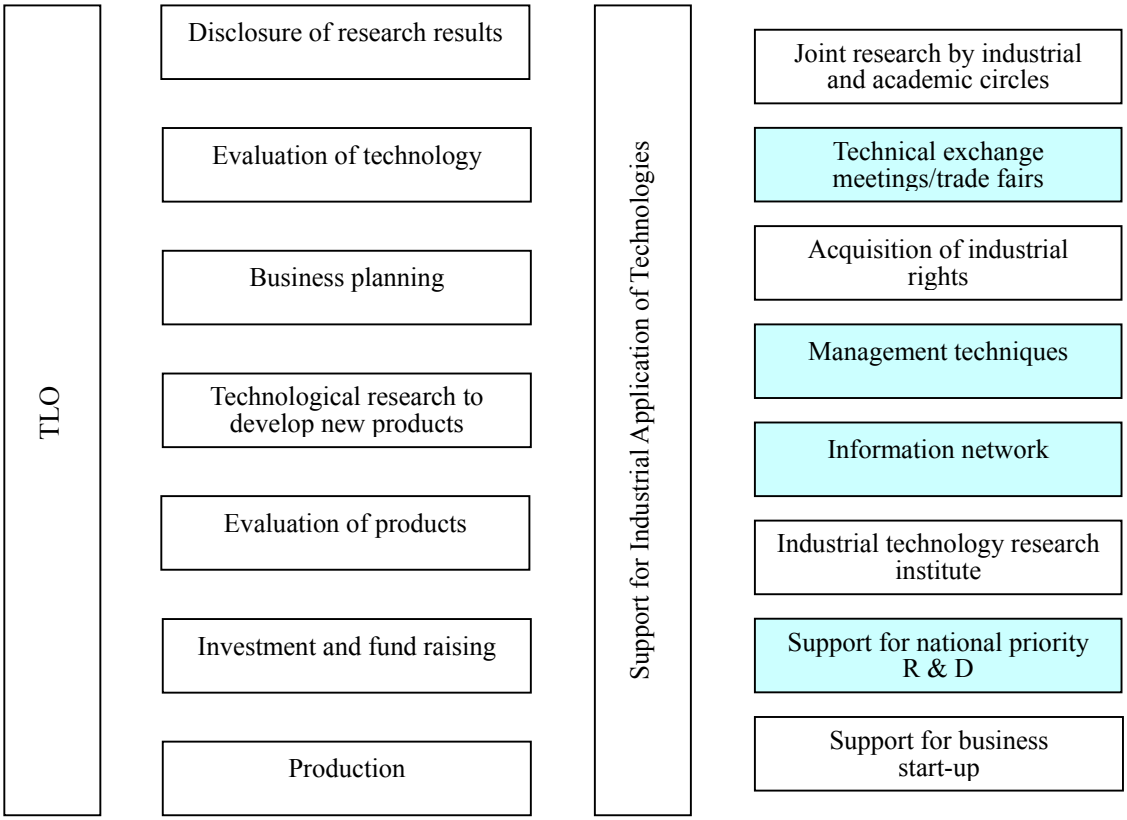
(2) International technology exchanges and trade

International exchanges should be organized by the municipal government and/or private bodies, including the use of international academic conventions. One example in Japan is Bit Valley (www.bitvalley.org/) which is a net venture community based in Tokyo and which consists of 1,500 SME members. Such a private sector-based body is highly effective for the stimulation of young entrepreneurs.

Exchange meetings involving different types of businesses can also stimulate information exchange and the creation of business opportunities.

(3) Themes

Under the present conditions for venture capitals in China, it is too early to contemplate high risk, high return venture businesses. Appropriate themes should be sought in terms of the application of high technologies to traditional industries, original Chinese fields (pharmaceuticals and materials) and computer software. The upgrading of technologies for industrial application is recommended in a separate action plan.



4-2	Establishment of Industrial Technology Research Institute

< Purpose >

(1) To support improvement of the technical standard of and product development by SMEs
(2) To promote collaboration between the industrial, governmental and academic circles for the development of technologies and products
(3) To further improve the development of technologies and to establish a database in each business field
(4) To provide integrated technological support for SMEs, centering on the institute

< Contents >

(1) Technological support for SMEs will be provided by the institute as a municipal organization playing a central role in such support. This institute may be a reorganized existing institute or a new institute established by a public-private partnership. It will be similar to the concept of "a product development experiment base for SMEs" currently being sought by the municipal government.
(2) The activities of the institute will include technical consultations for SMEs, dispatch of experts, establishment of development themes, collaboration with other research institutes, joint research, seminars, entrusted testing, inspection and the provision of an information service.
(3) Measuring of productivity
(4) Commodity evaluation testing for consumers
(5) The institute will also provide assistance for the patent applications of SMEs, wide use of patents, business establishment, exchange of technologies and exhibitions.

Expected Effects	(1) Promotion of the development of technologies by SMEs (2) Integration of related organizations or selection of the main organizations to provide technological support (3) Building up of a database on technologies
Anticipated Problems for Implementation	(1) Relationship with existing organizations (2) Questions regarding funding, human resources, location and facilities (3) Further elaboration of the planned activities.
Budget	Investment in stages depending on the business nature. The necessary budget will be reduced by using the existing buildings, etc. as much as possible. The municipal government will also provide financial assistance, if possible.

Schedule	Short-Term	Medium-Term	Long-Term	Major Promoter	
		O			As the Science and Technology Committee have its own research center, the new center will be mainly supervised by the Economic and Trade Commission. There may be separate institutes (centers) for each sub-sector such as machine and electronics.

< Basis for Recommendation >

The questionnaire survey on and diagnosis of 100 SMEs found that hardly any SME in Shenyang has the necessary funds or human resources for technology or product development. Even though more than 100 specialist technology research centers exist in Shenyang, the industrial application of the research results poses a problem. While the proposed institute will be involved in research on strategic businesses for the industrial development of Shenyang, it will also act as a user-friendly consultation service body for SMEs. Moreover, it will function as a technology support center operating side by side with the Business Support Center.

The Industrial Technology Research Institutes of the Tokyo Metropolitan Government and the Kanagawa Prefectural Government provide models for this recommendation.

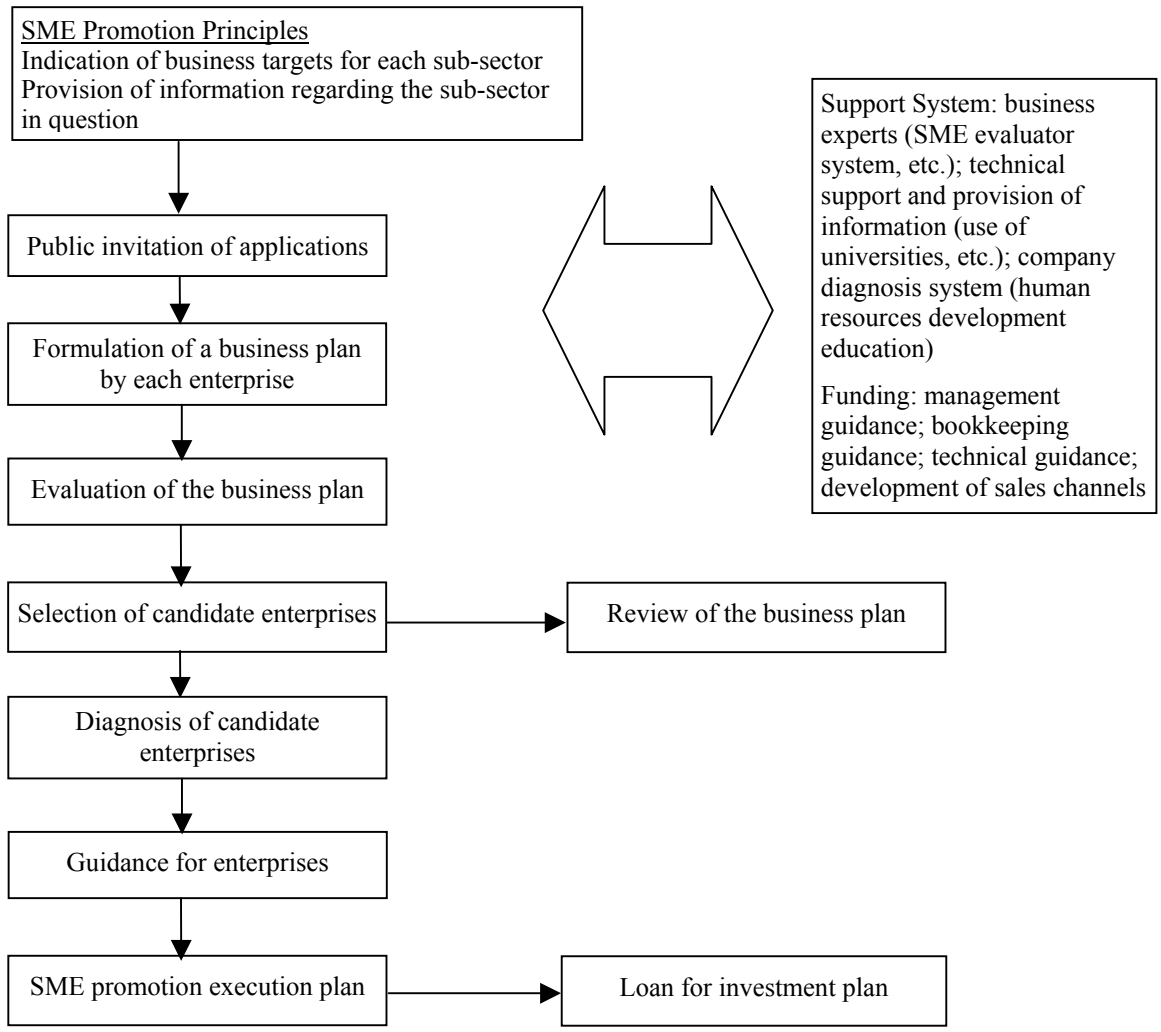
<table>
<tr><td colspan="2">5-1</td><td colspan="5">Diagnosis of Excellent Enterprises in Shenyang</td></tr>
<tr><td colspan="7">< Purpose >
(1) To foster enterprises which are capable of independent business operation
(2) To foster enterprises which are evaluated as attractive by foreign capitals</td></tr>
<tr><td colspan="7">< Contents >
(1) SME promotion policies
Indication of business targets by industrial sector; provision of information on each industry
(2) Diagnosis process
1) Invitation, 2) selection of candidate SMEs, 3) diagnosis and evaluation, 4) support: technology and loan arrangements</td></tr>
<tr><td>Expected Effects</td><td colspan="6">(1) Further development of excellent enterprises
(2) Rescue of those enterprises which can survive with some self-help efforts</td></tr>
<tr><td>Anticipated Problems for Implementation</td><td colspan="6">Government officials and experts capable of conducting diagnosis and guidance (in terms of both quality and quantity) must be made available.</td></tr>
<tr><td>Budget</td><td colspan="6">Relatively small; the input of human resources will be required rather than materialistic resources; government budget must be secured.</td></tr>
<tr><td rowspan="2">Schedule</td><td>Short-Term</td><td>Medium-Term</td><td>Long-Term</td><td>Major Promoter</td><td colspan="2" rowspan="2">SME Office; SME Service Center (Economic and Trade Commission; Ministry of Science and Technology; Federation of Industrial and Commercial Associations); local consultancy firms; international aid organizations</td></tr>
<tr><td>O</td><td>O</td><td></td></tr>
<tr><td colspan="7">< Basis for Recommendation >
One of the basic problems of SMEs in Shenyang is their lack of understanding of the reality of world-level enterprises as they are content with their own status. The resulting lack of clear management principles and targets has caused stagnation in all sections of these SMEs. Some of the enterprises studied as well as some of the model enterprises have promising business prospects if guidance continues to be provided. It is possible to find such enterprises outside the scope of the present Study by publicly inviting applications.

This plan aims at eliminating poorly performing enterprises which are beyond rescue and at vitalizing SMEs using excellent SMEs to create a traction force. Even excellent SMEs in Shenyang have much room for improvement by international standards.

Guidance to improve the business operation of SMEs is extremely important. The introduction of a flexible production method which can withstand rapid changes in the market is essential. Guidance by Japanese experts should prove highly effective. For the formulation of this plan, national projects introduced by such countries around the EU as Portugal and North African countries to upgrade their industrial level as part of their preparations to join the EU have been used for reference purposes. The Study Team makes this recommendation on the basis of its experience of providing assistance for some of these projects.</td></tr>
</table>

Concrete Implementation Measures

Summary of Relevant Project and Implementation Process



(1) Establishment of the secretariat
This secretariat will be established by the SME Office in line with a limited period of, for example, two years for the project.

(2) Selection of target SMEs based on the evaluation results of applicants
The selection criterion is an excellent SME or a SME which can become an excellent SME with minor assistance.

(3) SMEs will pay the cost of diagnosis

(4) The financial assistance will cover part of the investment and funding by the municipal government will mainly go towards the cost of technical support. One example is given below.

- Technical support (diagnosis; seminar participation cost): municipal government – 70%; SME – 30%
- Investment (in modernization equipment): municipal government – 30%; SME – 70%

(5) A private consultancy firm(s) will be used for diagnosis and guidance. If necessary, a small number of foreign experts (Japan or other countries) will be used. See the above chart for details of the guidance.

5-2	SME Support Measures Based on Marketing

< Purpose >
To clarify business targets for SMEs to develop SMEs in each sector

< Contents >

Study on each sector led by SME Office	The target enterprises are foreign subsidiaries and large state enterprises. Large private enterprises which can place orders to SMEs are also included in the scope of the Study	Preparation of a parts list	Specifications; quantity; classification of present manufacturing section or procurement sources; company policies
↓			
Municipal government policies to foster SMEs	Conceptualization of the size and number of SMEs and market size to be fostered based on survey data		
↓			
Survey on SMEs in Shenyang	Survey on SMEs producing each type of part	Understanding of the current situation (number, size, equipment, technical strength and insufficient resources, etc.) and bench marking	
↓			
Concrete plan to foster SMEs	Annual plan: determination of the target types of businesses; number of SMEs and work volume involved each year	Technical and financial support; budgeting	

Expected Effects	- Fostering of SMEs capable of exploiting their advantages by comparing themselves with other SMEs - Secured amount of work, including work hitherto given to other regions, for local SMEs because of clarification of their business management targets				
Anticipated Problems for Implementation	- Availability of government officials and private consultants (quantity and quality) to conduct surveys on specific industries and the products of SMEs to propose a study on the production conditions - Bureaucratic attitude of vertically divided government offices				
Budget	Relatively small; the input of human resources will be required rather than materialistic resources; government budget must be secured.				
Schedule	Short-Term	Medium-Term	Long-Term	Major Promoter	SME Office; SME Service Center (Economic and Trade Commission; Ministry of Science and Technology; Federation of Industrial and Commercial Associations); local consultancy firms; international aid organizations; municipal industry offices
	O	O			

< Basis for Recommendation >
SMEs in Shenyang have not yet fully adapted to the shift from a planned economy to a market economy. As a result, they are unable to identify the market requirements, market trends and needs of growth sectors due to their weakness in the following areas.
(1) Ability to evaluate the market and products
(2) Ability to develop products
(3) Ability to respond to market changes
The fostering of SMEs with emphasis on marketing should, therefore, prove effective.

<table>
<tr><td>5-3</td><td colspan="5">Establishment of Model Training Center for Top Executives of SMEs</td></tr>
<tr><td colspan="6">< Purpose >
(1) To establish a model training center for SME owners as the main pillar for human resources development
(2) To use the center as a base for the training of SME evaluators and the education/training of the top and middle management of SMEs
(3) To further expand the center in the future, leading to the establishment of a SME college
(4) To increase the number of preparatory schools for the SME evaluator examination and the number of private training institutions to conduct entrusted personnel training</td></tr>
<tr><td colspan="6">< Contents >
(1) To establish a new center within the Business Executives Training Center of the Economic and Trade Commission
(2) To introduce a SME evaluator training course within the new center as a model course
(3) To provide evening and weekend courses in view of the busy schedule of SME owners and executives
(4) To provide training for top and middle management based on the findings of a survey on the educational needs of SMEs
(5) To conduct group discussion sessions for the purpose of solving specific management problems
(6) To gradually entrust the management of this model training center to the private sector and to increase the number of private training institutes</td></tr>
<tr><td>Expected Effects</td><td colspan="5">(1) The center will efficiently train a large number of SME evaluators in the first 1 – 2 years to contribute to the establishment of the SME evaluator system.
(2) Together with SME evaluation training, the center will provide training for the top and middle management of SMEs regardless of their being state enterprises or private enterprises to meet their training needs in order to contribute to the improvement of their business management.</td></tr>
<tr><td>Anticipated Problems for Implementation</td><td colspan="5">At the beginning, it will be necessary to invite experts with rich experience from advanced countries, etc. to act as instructors, etc., necessitating administrative negotiations to secure the necessary budgetary appropriation, etc.</td></tr>
<tr><td>Budget</td><td colspan="5">The size of the relevant budget will increase in the first 1 – 2 years because of the above-described reason. The required budget size will be relatively small in the medium term although it will increase at the time when the SME college construction cost is incurred.</td></tr>
<tr><td rowspan="2">Schedule</td><td>Short-Term</td><td>Medium-Term</td><td>Long-Term</td><td>Major Promoter</td><td rowspan="2">SME Office; Educational Center of Economic and Trade Commission; Labor Bureau; Productivity Promotion Center; Private Sector Economy Development Commission; Educational Training Center of Township-Village Enterprises Bureau; Federation of Industrial and Commercial Associations; manpower market</td></tr>
<tr><td>○</td><td>○</td><td>○</td><td></td></tr>
<tr><td colspan="6">< Basis for Recommendation >
There is currently no training center in Shenyang which specializes in the training of top executives of SMEs. Unless such a facility is provided, the municipal government will not be able to support SMEs in terms of human resources development. An existing facility can be used for the establishment of the planned center even though the introduction of some educational tools, such as PCs, will be necessary.
The strongest reason for the establishment of this model training center is the fostering of top executives of SMEs which is the most important element of human resources development for SMEs. Once top executives are fostered, the education and training of managers and ordinary employees can be relatively easily conducted.
The training of SME evaluators can be considered a means of fostering SME top executives. Accordingly, no problems are anticipated if the training curriculum for SME top executives is the same as that for SME evaluators for the initial 1 – 2 years. In fact, education and training will prove more efficient in this way.
Alternatively, the systematic training of top and middle management personnel in accordance with the findings of a survey on the educational needs of SMEs is possible while separately training SME evaluators in the first 1 – 2 years of the center's operation.
However, as SME top executives are generally very busy, it will be necessary to introduce evening and weekend courses in addition to courses on weekdays. Training using videos should also be considered in the case where trainees cannot attend classes because of unavoidable reasons. At the same time, textbooks for distance education should be prepared to allow trainees to study on their own when they have time. For the recruitment of trainees, a recruitment home page should be created on the SME support information network together with the wide distribution of pamphlets. Acceptance should be based on a first come, first served basis and recruitment will be closed when the planned number of trainees has been reached. The fee will be partly subsidized and payment by means of a long-term loan should be accepted.</td></tr>
</table>

<table>
<tr><td>5-4</td><td colspan="5">Fostering of SME Managers Using Certified SME Evaluator System</td></tr>
<tr><td colspan="6">< Purpose >
(1) To enable the systematic learning of business management of SMEs by means of introducing a SME evaluator qualification examination
(2) To establish a SME evaluator system so that the social status of a national qualification will provide motivation for self-learning
(3) To allow employees and administration officials as well as SME owners to sit the examination to facilitate human resources development
(4) To privatize the guidance body for the SME evaluator qualification examination in the future in order to raise its social profile</td></tr>
<tr><td colspan="6">< Contents >
(1) To implement the education/training of SME owners and managers using the certified SME diagnosis specialist system
(2) To afford the social status of a nationally qualified SME evaluator to those passing the examination
(3) To prepare textbooks for the postal education of SME evaluators to stimulate voluntary learning
(4) To introduce distance education for SME evaluators using the SME support information network</td></tr>
<tr><td>Expected Effects</td><td colspan="5">(1) Simultaneous implementation of the training of SME experts and education for SME managers/owners as the SME evaluator examination system will allow the systematic learning of the business management of SMEs
(2) Production of a large number of SME experts as the national qualification of SME evaluator with its accompanying social status will stimulate applicants</td></tr>
<tr><td>Anticipated Problems for Implementation</td><td colspan="5">At the start of this system, instructors to train SME evaluators will be required. This means that it will be necessary to invite experts with rich experience from Japan, etc., necessitating administrative negotiations to secure the necessary budgetary appropriation, etc.</td></tr>
<tr><td>Budget</td><td colspan="5">Budgetary appropriation will be required in the first 1 – 2 years because of the above-described reason. However, the medium-term budgetary burden will be relatively small if distance (postal, etc.) education is introduced.</td></tr>
<tr><td rowspan="2">Schedule</td><td>Short-Term</td><td>Medium-Term</td><td>Long-Term</td><td>Major Promoter</td><td rowspan="2">SME Office; Educational Center of Economic and Trade Commission; Labor Bureau; Productivity Promotion Center; Private Sector Economy Development Commission; Educational Training Center of Village and Town Enterprises Bureau; Federation of Industrial and Commercial Associations; manpower market</td></tr>
<tr><td>○</td><td>○</td><td></td><td></td></tr>
<tr><td colspan="6">< Basis for Recommendation >

The main purpose of this recommendation is to change the MBA type education and guidance which is conventionally provided for the top and middle management of large state enterprises to education which is appropriate vis-à-vis the reality of SMEs. An examination system for SME evaluators will be introduced in Shenyang so that as many SME owners capable of responding to the market economy will be fostered in the shortest possible time. Examples of subjects include marketing, business management, financial management, personnel management, company diagnosis, SME policies/measures and computer literacy, etc.
The certification of SME evaluators as nationally qualified SME experts will establish their social status and the increased social recognition of SME evaluators will raise the awareness of many citizens in Shenyang of the nature of the business management of SMEs.
In general, SME owners preferably have previous experience of business management. In Shenyang, while many of those with such experience previously worked for a state enterprise, the number of those with business management experience at a private company is still small.
The management method of a state enterprise differs from that of a private enterprise in many ways. It is practically impossible for those with management experience at a state enterprise to handle the market economy after China’s entry to the WTO based on their past experience.
Accordingly, it will be more realistic and is more necessary to newly train entrepreneurs capable of handling the market economy rather than trying to rely on past management experience. Human resources development will be promoted by widening the scope of such training to include those with management experience at a state enterprise, owners of private enterprises, employees, administration officials, university teachers, students and unemployed persons.
The concept of quickly responding to market changes is crucial for the successful business management of SMEs. It is the task of the municipal government to widely search and find capable personnel. Accordingly, eligibility for the SME evaluator examination should be lowered to include, for example, those who have completed secondary education.</td></tr>
</table>

5-5	Creation of Database of Human Resources in Response to Changing Values

< Purpose >
(1) To review the present inflexible criteria for manpower registration to facilitate human resources development
(2) To shift the evaluation emphasis from the past criteria of high and intermediate classes, etc. to the individual ability to perform certain work in the future
(3) To stimulate the development of temp businesses which can flexibly provide the workforce in response to fluctuations of the manpower requirement of enterprises
(4) To promote the effective use of human resources by improving the labor supply and demand adjustment function through the use of a human resources database

< Contents >
(1) To change the manpower registration items which have failed to respond to changing values in recent years
(2) To make applicants declare their work performance for the last six months and their specialties, etc. themselves instead of emphasizing their past work experience
(3) To create a new database of human resources to correspond to changing values separately from the existing database held by the manpower market
(4) To enable every citizen to register with the new database using the SME support information network
(5) To enable every citizen to retrieve data from this database while publicly accessible information and the recruitment procedure will be controlled by the administration to start with
(6) To gradually entrust the management of the database and the recruitment management to the private sector to develop the temp market

Expected Effects	(1) As SMEs are increasingly demand that their recruits have not only past experience but also the ability to respond to market changes, this database of job seekers capable of responding to changing values will prove highly useful for SMEs. (2) The introduction of a temp system capable of adjusting the labor supply in response to fluctuations of the manpower requirements of enterprises will improve the business management efficiency and will facilitate the effective use of human resources.
Anticipated Problems for Implementation	For example, village and town enterprises cannot recruit from the manpower market because of the restrictions posed by the family registration regulations.
Budget	While the preparation of the necessary software featuring new manpower registration items and the input of data will incur some expense, this expense will be covered by the budget for the SME support information network.

Schedule	Short-Term	Medium-Term	Long-Term	Major Promoter	
	○	○			SME Office; Educational Center of Economic and Trade Commission; Labor Bureau; Productivity Promotion Center; Private Sector Economy Development Commission; Educational Training Center of Township-Village Enterprises Bureau; Federation of Industrial and Commercial Associations; manpower market

< Basis for Recommendation >As already mentioned in Recommendation-11, business ideas which quickly respond to market changes are crucial for the successful operation of SMEs. The municipal government is required to widely explore capable personnel to generate such ideas. It will be necessary to implement Recommendation-13 from both the short-term and medium-term perspectives. In the short-term, some of the registration items of the manpower market which have failed to respond to changing values in recent years will be changed to enable the finding of personnel which are suitable for the current needs of SMEs.
Emphasis on the self-declaration of what has been done in the last six months and the specialties of job seekers will be particularly important rather than relying on such past evaluation criteria as high class and intermediate class personnel. Even though the contents of such self-declaration will be examined, they will be respected in principle. At first, administrative officials will have the responsibility to introduce job seekers. However, this responsibility will gradually be shifted to the private sector as temp companies will be able to deal with the needs of prospective employers and employees more carefully.
In the medium term, a temp market should be created. Given the current global trend of employment control, the life-type employment system is increasingly becoming a thing of the past and employment is treated as one form of contract.
For SMEs in particular, an excessive workforce constitutes a heavy burden as it is a major obstacle to improvement of the business management efficiency.
In the coming years, there will be an inevitable increase of the demand for the temp system among SMEs in Shenyang with the development of the market economy as such a system will allow the flexible adjustment of employment in response to fluctuations of the required work load. This careful matching between the labor supply and demand will facilitate the effective utilization of human resources while a manpower database which responds to changing values will provide the opportunity for the creation of such a system.

<table>
<tr><td>6-1</td><td colspan="6">Management/Financial Training Program to Foster Excellent SMEs</td></tr>
<tr><td colspan="7">< Purpose >
(1) To improve rating of SMEs by restructuring of their management and financial structure
(2) To upgrade the customer service of the Shenyang SME Credit Guarantee Fund
(3) increase the bank loans for SMEs financing
(4) To acquire know-how about effective upbringing of excellent SMEs</td></tr>
<tr><td colspan="7">< Contents >
(1) To introduce a modern financial management improvement tool, i.e. cash flow-based management, for local SMEs
(2) To support the training programs of banks, the SME Credit Guarantee Fund, the administration concerned and private enterprises associations
(3) To foster excellent SMEs of 300 companies (Shenyang small dragon 300) by training of 60 SMEs every year for the period of 5 years
(4) The enterprises with remarkable restructuring should be recommended by the training entity to banks and /or SME Credit Guarantee Fund to be accommodated with bank loans. Moreover, a subsidy should be separately granted to a super excellent SMEs as a reward</td></tr>
<tr><td>Expected Effects</td><td colspan="6">(1) Increased number of SMEs of a higher grade
(2) Increased number of SMEs eligible for credit guarantee
(3) Increased number of bank loans for SMEs
(4) Improved image of the creditability of local SMEs in general</td></tr>
<tr><td>Anticipated Problems for Implementa-tion</td><td colspan="6">(1) Some time will be required to train and coordinate Chinese experts to provide the necessary guidance.
(2) Strengthening of the authority of the top management will be necessary for the reform of enterprises (state enterprises).
(3) It will be necessary to overcome the sense of values which is resistant to the new corporate culture (state enterprises).
(4) Agreement must be reached between the related bodies in regard to cost sharing.</td></tr>
<tr><td>Budget</td><td colspan="6">Because of the importance of the theme, the municipal government will pay 70% of the total budget.</td></tr>
<tr><td rowspan="2">Schedule</td><td>Short-Term</td><td>Medium-Term</td><td>Long-Term</td><td rowspan="2">Major Promoter</td><td colspan="2" rowspan="2">SME Office; SME Credit Guarantee Fund; banks; Federation of Industrial and Commercial Associations; Federation of SMEs (to be established under the Tenth Five Year Plan)</td></tr>
<tr><td></td><td>○</td><td></td></tr>
<tr><td colspan="7">< Basis for Recommendation >
To alleviate the SMEs' financing difficulties, three parties (the financial institutions, the credit guarantee centers, and SMEs) should make effort respectively. Balanced development of the three parties would be required for sustainable growth of them.
Serious contradiction is observed on the corporate finance in Shenyang; SMEs have funding difficulty, while financial institutions have financing difficulty to SMEs.
The most important measure required at present is to support self-help efforts of SMEs to overcome their financing obstructions such as lack of creditability, low profitability and unhealthy corporate finance, etc.
The cooperation between the banks and the SME Credit Guarantee Fund started recently with the establishment of the center. This tendency will be progressed further by foundation both of a Shenyang based Joint-Equity Commercial Bank and new SMEs credit guarantee centers in the near future. In fact, a small number of program implementation organizations have begun to provide a support service with the coordination of the SME Office. As such, the external environment for fund raising is, without doubt, improving.
However, these measures could not bring efficient effects to SMEs, if the management and financial structure of SMEs might stay in same as current states. A prompt restructuring should be promoted by drastic means to bring up many excellent SMEs. Otherwise few SMEs will be accommodated with bank loans, so that rapid up brings of a large number of excellent SMEs will be indispensable.
The success of this project will bring profit to creditors as well as economic development and employment opportunities of the local.
The JICA Study Team proposes to the government to carry out this program as the most important project for SME finance.</td></tr>
</table>

Concrete Implementation Measures

In 2001, a web system to support cash flow-based management was developed under the pilot project and the relevant techniques were transferred to the SME Credit Guarantee Fund. The developed system can be used by all SMEs free of charge. It can also be used by financial institutions and other credit guarantee centers as part of their customer service for SMEs. In fact, it is now used by the credit guarantee center in Dalian and Anshan as well as by cooperating banks. In the coming years, it will certainly be used by Datong Ward and others.

The next step will be enhancement of the strategic impacts of cash flow-based management. For this purpose, a numerical target of 300 is set to foster excellent SMEs in five years after 2002 through the practical application of cash flow-based management. This target can be achieved by providing management/financial training for top executives of SMEs. As the success rate of training SMEs as excellent SMEs cannot currently be determined, training will be provided for 60 SMEs in the first year.

These 60 SMEs will be selected from those SMEs which are recommended by the ward authority or by themselves using strict criteria. It must be made clear that only top class SMEs in terms of profitability, financial health and accounting transparency are eligible for training while avoiding competition for places between SMEs. In other words, this training will be provided to make practically excellent SMEs to improve to super-excellent SMEs. As an incentive for attendance, a bank or the SME Credit Guarantee Fund will promise to provide a loan for the current funds required by SMEs or credit guarantee. With the precondition that what is learned will be put into practice, the training will mainly consist of classroom teaching on business management and fund raising and study visits will also be included in the program. In consideration of the fact that top executives have a busy schedule, the introduction of a repeat course of 2 – 3 months based on a half-day lesson a week will be examined. Lecturers will consist of those who hold a responsible position in actual business and who enjoy a good reputation. Examples of lecturers and possible themes which will satisfy the needs of the participants are given below.

Lecturers	Themes
Branch manager or employee in charge of SME finance at a bank	- Key points for evaluation of SMEs by banks (reasons for emphasis on cash flow-based management) - Regional comparison of SMEs receiving bank loans (characteristics and problems of SMEs in Shenyang)
Top executive or finance manager of a local listed enterprise	- Corporate development and financial strategies - Participation in the WTO and business strategies
Top executive or finance manager of an enterprise receiving a World Bank loan	- Strategy to strengthen fund raising ability of enterprises - Key points for a loan repayment plan
Top executive or chief examiner of the SME Credit Guarantee Fund	- Key points of company evaluation by the SME Credit Guarantee Fund - Case studies on successful examples of using credit guarantee
Audit firm in China or abroad	- Issues for finance and accounting of SMEs - Case studies on successful examples of cash flow-based management

Study visits to local high-tech industrial park and an advanced area in China, both of which top executives of local SMEs find it difficult to visit because of their busy schedule, will be planned. Moreover, a study trip abroad may also be planned. The SME Credit Guarantee Fund will act as the secretariat and will ensure the success of the program through cooperation with cooperating banks, ward level credit guarantee centers and the SMETC (SME Office). The conclusions on the results of the first year will comprise the basis for determination of the size and contents of the program in subsequent years.

<table>
<tr><td colspan="2">6-2</td><td colspan="5">Optimization of Credit Guarantee System</td></tr>
<tr><td colspan="7">< Purpose >
(1) To rationalize the size of the existing credit guarantee centers
(2) To establish and conduct the trial operation of district level credit guarantee centers</td></tr>
<tr><td colspan="7">< Contents >
(1) To enlarge the fund scale of the existing credit guarantee centers and to increase the number of cooperating banks
(2) To establish and conduct the trial operation of credit guarantee centers at the ward or district level to understand the pending tasks in terms of cooperation with banks and the operation of credit guarantee centers
(3) To study methods to improve the examination function and to establish a corporate information database through collaboration between credit guarantee centers</td></tr>
<tr><td>Expected Effects</td><td colspan="6">(1) Improvement of the creditability of the credit guarantee centers will make it easier for them to secure the cooperation of banks.
(2) Private enterprises will find it easier to obtain credit guarantee.
(3) The number of loans for SMEs by banks will increase.</td></tr>
<tr><td>Anticipated Problems for Implementation</td><td colspan="6">(1) There is concern in regard to restriction of the expansion of the funding size because of financial difficulties.
(2) The shortage of corporate examination and collateral evaluation specialists may hinder widening of the client base.
(3) The slow speed of business expansion could make the profitable operation of the credit guarantee funds difficult.</td></tr>
<tr><td>Budget</td><td colspan="6">A relatively large budget will be required.</td></tr>
<tr><td rowspan="2">Schedule</td><td>Short-Term</td><td>Medium-Term</td><td>Long-Term</td><td rowspan="2">Major Promoter</td><td colspan="2" rowspan="2">Municipal Financial Department; SME Office; Shenyang SME Credit Guarantee Fund; cooperating banks; Federation of Industrial and Commercial; ward (district) authorities)</td></tr>
<tr><td>O</td><td>O</td><td></td></tr>
<tr><td colspan="7">< Basis for Recommendation >
To alleviate the financial difficulties of SMEs, three parties (financial institutions, Credit Guarantee Fund and SMEs) should make respective efforts. The balanced development of these three parties will be required for their sustainable growth.
The Shenyang SME Credit Guarantee Fund commenced operation in August 2000 with funding of RMB 30 million. However, strong concern has been expressed by cooperating banks and others that this funding size may be inadequate to properly bear the credit risk. To engender trust in the credit guarantee system, further development from the “experimental stage) must be planned by means of providing a guarantee that the existing funding size will definitely be increased.
The SMETC has put forward the idea of establishing ward level credit guarantee centers. By definition, the scale of these centers is likely to be small. These centers will commence as experimental centers to identify the likely problems regarding their operation.
As a credit guarantee center will be an ideal place for those SMEs which do not yet properly understand the concept of “credit” to learn such a concept in a practical manner, it is recommended that all related organizations consolidate the functions of such a center.</td></tr>
</table>

6-3	Reinforcement of Fund Supply Channel and Supply of Long-Term Capital

< Purpose >

(1) To increase SMEs loans by the Joint-Equity Commercial Banks.
(2) To improve banking system for long-term capital supply.
(3) To improve cash management practices of enterprises.

< Contents >

(1) To attract all banks to establish branches in Shenyang
(2) To establish a Shenyang based Joint Stock Commercial Bank.
(3) To invite the establishment of a branch before other regions when the planned SME Development Bank (tentative name) is established at the center

Expected Effects	(1) Increase of SME loans by joint equity commercial banks which are familiar with practical finance in a market economy (2) Promotion of investment by SMEs in modern equipment as they can secure long-term loans (3) Raising of the necessary funds for business growth through bank loans even if there is a growth boom.
Anticipated Problems for Implementation	(1) As the successful implementation of this recommendation will depend on a policy decision by banks, healthy fundamentals of the local economy will be a key precondition. (2) There may not be many SMEs of which the creditability is strong enough to secure a medium-term loan.
Budget	A relatively large budget will be required.

Schedule	Short-Term	Medium-Term	Long-Term	Major Promoter	People's Bank of China; Shenyang Municipal Government; local leading business groups
	○	○			

< Basis for Recommendation >

To alleviate the financial difficulties of SMEs, the three parties (financial institutions, Credit Guarantee Fund and SMEs) should make their respective efforts. The balanced development of all three parties is required for their sustainable growth.

Although joint equity commercial banks are taking an active part in SME financing throughout China, their share of SME financing in Shenyang is still small. Out of the 10 joint stock commercial banks, six have already established branches in Shenyang and it is desirable that the remaining four banks also open branches in Shenyang. Moreover, there is news that a local powerful group is planning to establish a new joint equity commercial bank. This plan should be welcomed because it is expected that such a local bank will devote much of its energy to financing local enterprises by establishing many branches in Shenyang. Meanwhile, it is reported that the state government plans to establish a bank for the exclusive financing of SMEs. Whether or not these banks establish branches in Shenyang depends on the policy of the financial authority and the strategic decision by each bank and, therefore, the Shenyang Municipal Government cannot be directly involved. Nevertheless, it is possible for the municipal government to approach these banks with a view to persuading them. An increase of the number of banks operating in Shenyang will lead to the availability of long-term loans, which are virtually non-existent, for SMEs, assisting the dynamic development of SMEs. It is, therefore, recommended that the Shenyang Municipal Government actively try to attract these banks to Shenyang.

6-4	Recommendations to Reduce Fund Shortage for Development of SMEs in Shenyang

< Purpose >

(1) To improve the creditability of SMEs through upgrading by management and financial reform
(2) To solve the fund shortage to finance many projects
(3) To review projects in Shenyang and to formulate new policies
(4) To effectively use investment funds
(5) To enable strict and thorough FS regarding projects, business plans and public investment to rectify the current approval system for business start-up based on inadequate FS (learning and dissemination of FS know-how is crucial)

< Contents >

(1) There has been much wasteful investment despite the poor future growth prospects at the time of reforming state enterprises. A more effective reform program should be considered.
(2) Duplicated investment must be avoided. Many projects and business plans have been unable to proceed because of a funding shortage.
(3) SMEs undergoing successful reform and promising projects should be actively introduced to financial institutions. A specific subsidy should be provided for SMEs and projects with a particularly good performance.
(4) Training on FS know-how should be provided.

Expected Effects	(1) Increased funding by financial institutions for all industries and projects (2) Fund raising through bonds and listing on the stock market and increased investment by venture capitals (3) Increased number of bank loans for SMEs (4) Improved image of the creditability of local SMEs in general (5) Enlargement and development of Shenyang's economy
Anticipated Problems for Implementation	(1) Time-consuming process of training experts to provide guidance (2) Strengthening of the authority f the top management to reform the business (state enterprises) (3) Sense of values which resists a different corporate culture from the past (state enterprises) (4) Conflict of interests between different departments and enterprises
Budget	Some subsidy will be required.

Schedule	Short-Term	Medium-Term	Long-Term	Major Promoter	Various municipal government offices, including the SME Office; SME Credit Guarantee Fund; cooperating banks; FIC; Federation of SMEs (launched under the 10th Five Year Plan); Science and Technology Committee
	O	O	O		

< Basis for Recommendation >

To alleviate the SMEs' financing difficulties, three parties (the financial institutions, the credit guarantee centers, and SMEs) should make effort respectively. Balanced development of the three parties would be required for sustainable growth of them.

Serious contradiction is observed on the corporate finance in Shenyang; SMEs have funding difficulty, while financial institutions have financing difficulty to SMEs.

The most important measure required at present is to support the self-help efforts of SMEs to overcome their financing obstructions such as lack of creditability, low profitability and unhealthy corporate finance, etc.

It is essential for SMEs to formulate a business plan and to learn know-how on the evaluation of FS and others relating to a business project. No improvement can fully achieve its intended effects if the management and financial conditions of SMEs remain unchanged. Unless bold measures are introduced to proceed with the reform of SMEs to foster a certain number of excellent SMEs, there could be a shortage of SMEs subject to lending. This is the reason why a certain number of excellent SMEs must be fostered as soon as possible even if it means the forced introduction of advanced management and financial techniques. The success of this measure will lead to increased profit for lenders as well as development of the local economy and an increase of employment. The implementation of this measure is strongly recommended on the grounds that it is the highest priority measure regarding SME finance.

7-1	Technological Development and Creation of Business Start-Up System, etc. for Environmental Protection Industry

< Purpose >

Environmental protection is given the status of a basic national policy in China together with population control. The market for the environmental protection industry is fundamentally determined by the environmental protection policies of the state government. This is a major difference between the said market and that of other industries.

Environmental protection policies tend to require the development of new technologies because of their aim. As the development of such technologies and the creation of new businesses relating to environmental protection are both time-consuming and costly, it is not easy for SMEs, particularly private SMEs, to enter this market unlike large enterprises which enjoy financial and manpower strength. However, SMEs are generally more versatile than larger enterprises and may be able to achieve the quicker and more efficient development of new technologies by making the best use of IT, etc. than large enterprises.

It is, therefore, desirable to provide real support for the development or new business start-up of SMEs which have effective technologies and willingness to implement environmental protection policies of the state government regardless of their type of ownership through the establishment of a specific fund. This fund will make the implementation of such environmental protection policies a reality and will greatly contribute to the development of SMEs which have suitable technologies and will. (The relationship between the "white pollution prevention policy" and the "green ring of private enterprises" referred to in the Study is a case in point.

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(1) Development of the environmental protection industry
(2) Development of technologies by SMEs
(3) Establishment of a business start-up support fund

Expected Effects	(1) Realistic prospect of environmental protection policies being implemented to achieve the policy objectives in a shorter period of time (2) Enhanced will of SMEs to develop technologies and new businesses, resulting in the great promotion of SMEs
Anticipated Problems for Implementation	(1) Conveyance of the real effectiveness of the policies to the relevant SMEs (2) Availability (quality and quantity) of consultants on the fund operation side who conduct the technical and economic verification of the technologies, will and feasibility, etc. of the relevant SMEs (3) Availability of funding sources
Budget	The framework to accommodate the recommended fund must be established in the existing government budget.

Schedule	Short-Term	Medium-Term	Long-Term	Major Promoter	SMETC; Science and Technology Committee; international aid organizations
	O	O			

< Basis for Recommendation >

The environmental protection industry has only a short history and the roles to be played by SMEs and large enterprises have not yet been clearly defined. According to the Environmental Protection Industry Office of the SMETC, 122 enterprises belong to this sector in the city although it is unclear whether or not this figure actually covers all of the relevant enterprises. Although the following business areas are classified in the environmental protection industry, it is inconceivable for the policies addressing these areas to have a common feature. In 1999, the total production value and profit of these 122 enterprises were reported to be RMB 2.9 billion and RMB 420 million respectively, an increase of 96% and 62% respectively on the previous year.

(1) Environmental protection equipment: this area accounts for 65.7% (RMB 1.93 billion) of the total production value of the environmental protection industry. Out of this, sewerage treatment equipment accounts for 80%. Tehuan Corporation practically monopolizes the market with a production value of RMB 1.43 billion. The production value of air pollution-related equipment in the fields of dedusting, desulphurization and denitration is relatively low.
(2) Technical services: production value of RMB 90 million (a 300% increase on the previous year)
(3) Integrated utilization: RMB 490 million
(4) Nature protection: RMB 6.91 million

The market share of each of the above areas is expected to significantly change in the coming years and SMEs will assume an increasingly important role.