THE STUDY

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JAPAN INTERNATIONAL COOPERATION AGENCY

THE STUDY
ON
THE DEVELOPMENT OF MICRO, SMALL AND MEDIUM SCALE METALWORKING INDUSTRIES
IN
THE REPUBLIC OF COLOMBIA

(Volume I)

SEPTEMBER, 1990

JAPAN INTERNATIONAL COOPERATION AGENCY

PREFACE

In response to a request from the Government of the Republic of Colombia, the Japanese Government decided to conduct a study on the Development Plan of Micro, Small and Medium Scale Metalworking Industries in the Republic of Colombia and entrusted the study to the Japan International Cooperation Agency (JICA).

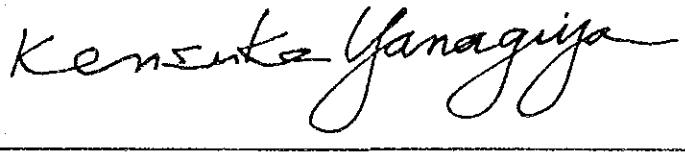
JICA sent to Colombia a study team headed by Mr. Yoshiyasu Mikami of UNICO International Corporation from March 8, 1989, to March 20, 1990.

The team held discussions with the concerned officials of the Government of the Republic of Colombia, and conducted field surveys. After the team returned to Japan, further studies were made and the present report was prepared.

I hope that this report will contribute to the development of micro, small and medium scale metalworking industries and to the promotion of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Republic of Colombia for their close cooperation extended to the team.

September, 1990



Kensuke Yanagiya
President
Japan International Cooperation Agency

Organizations／Abbreviations Used in the Report

ACOPI	ASOCIACION COLOMBIANA POPULAR DE INDUSTRIALES コロンビア中企業連盟
ACOLFA	ASOCIACION COLOMBIANA DE FABRICANTES DE AUTOPARTES 自動車部品製造者連盟
ANDI	ASOCIACION NACIONAL DE INDUSTRIALES 全国産業連盟
BID	BANCO INTERAMERICANO DE DESARROLLO 米州開発銀行
CFP	CORPORACION FINANCIERA POPULAR 国民金融公庫
COLCIENCIAS	FONDO COLOMBIANO DE INVESTIGACIONES CIENTIFICAS Y PROYECTOS ESPECIALES "FRANCISCO JOSE DE CALDAS" 科学技術・開発計画"フランシスコ・ホセ・デ・カルダス"援助基金
COPIME	CORPORATIVA DE INDUSTRIALES METALURGICOS LTDA. 金属業者連盟
CONAMIC	CONFEDERACION NACIONAL DE MICROEMPRESARIOS DE COLOMBIA コロンビア零細企業連盟
CORFAS	CORPORACION FONDO DE APOYO DE EMPRESAS ASOCIATIVAS 企業団体支援基金
DNP	DEPARTAMENTO NACIONAL DE PLANEACION 国家企画庁
DANE	DEPARTAMENTO ADMINISTRATIVO NACIONAL DE ESTADISTICA 国家統計庁
FEDEMETAL	FEDERACION COLOMBIANA DE INDUSTRIAS METALURGICAS コロンビア金属工業連合会
FCE	FONDO DE CAPITALIZACION EMPRESARIAL 企業資本形成基金
FIP	FONDO DE INVERSIONES PRIVADAS 民間投資基金
FNG	FONDO NACIONAL DE GARANTIAS 国家信用保証基金
FFI	FONDO FINANCIERO INDUSTRIAL 産業金融基金

FOMENTAR	FUNDACION FONDO DE GARANTIAS PARA EL DESARROLLO DE LA ECONOMIA SOCIAL Y SOLIDARIA 社会経済開発保証基金
FONADE	FONDO NACIONAL DE PROYECTOS DE DESARROLLO 国家開発計画基金
ICONTEC	INSTITUTO COLOMBIANO DE NORMAS TECNICAS コロンビア規格協会
IFI	INSTITUTO DE FOMENTO INDUSTRIAL 工業開発金融公社
INCOMEX	INSTITUTO COLOMBIANO DE COMERCIO EXTERIOR 貿易庁
PROEXPO	FONDO DE PROMOCION DE EXPORTACIONES 輸出振興基金
PROMIC	FUNDACION PROMOTORA SERVICIOS MICROEMPRESARIALES （財団法人）零細企業振興会
SENA	SERVICIO NACIONAL DE APRENDIZAJE 職業訓練センター
UCONAL	UNION COOPERATIVA NACIONAL 協同組合連合会

Other Abbreviations

PNDM	PLAN NACIONAL PARA EL DESARROLLO DE LA MICROEMPRESA 零細企業開発国家計画
NGO	Non Governmental Organizations 民間団体
LEs	Large Scale Enterprises 大企業
Med－Es	Medium Scale Enterprises 中企業
MEs	Microenterprises 零細企業
SMEs	Small and Medium Scale Enterprises 中小企業
Sml－Es	Small Scale Enterprises 小企業

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I. SUMMARY

I.1 Introduction

I.1.1 Background of the Study

The Social and Economic Development Plan (Plan de Economia Social) announced in August of 1987 by the present administration of Colombia pointed out that the development of the manufacturing industry would play crucial roles in the increases in value added, employment, savings, investment, and technological innovation.

In particular, the plan sets forth the following policy targets for industrial development in the country.

1) Expansion of production capacity
2) Improvement of production structure
3) Technological innovation
4) Fostering of small and medium scale enterprises and microenterprises
5) Active involvement of the central government

At present, Colombia exports primary commodities such as coffee, mineral products, bananas, and flowers, while importing industrial products including capital and intermediate goods. To manufacture industrial products including capital goods for import substitution, the country needs to develop the metalworking and assembling industries, which are supported by a network of subcontractors.

Under these circumstances, the Government of Colombia requested the Government of Japan in February of 1988 to conduct a comprehensive study on the metalworking industry in Colombia for the purpose of developing promotion measures for small and medium scale enterprises (SMEs) and microenterprises (MEs). In November of 1988, the Japan International Cooperation Agency (JICA) decided to conduct the study. This report compiles results of analyses on

the basis of four field surveys carried out between March 1989 and March 1990. The counterpart on the Colombia side was the Department of National Planning (Departamento Nacional de Planeacion - DNP).

I.1.2 Objective and Scope of the Study

(1) Objective of the Study

The study is designed to identify current situation of SMEs and MEs engaged in metalworking business in the Republic of Colombia, factors hindering their development, possible direction of development, and industry types with high growth potential, to develop and analyze measures required for their promotion, and to propose a comprehensive development program.

(2) Scope and items of the Study

For the purpose of the Study, the metalworking industry where SMEs and MEs operate was classified into the following sub-sectors:

7 Metalworking Sub-sectors for SMEs and MEs

1) Casting
2) Forging
3) Plate work/Welding
4) Plating
5) Machining
6) Machine assembly
7) Presswork

As SMEs and MEs play an important role of subcontractors to large scale enterprises (LEs), the study also covered LEs in the following sub-sectors:

4 Sub-sectors for Large Enterprises

1) General machinery industry
2) Electrical machinery industry
3) Transportation equipment industry
4) Furniture industry

To develop promotion measures for SMEs and MEs in the metalworking industry which call for a multi-facet approach, the Study Team examined and analyzed the existing measures in Colombia by investigating the following items:

1) Trends in Colombian economy
2) Roles of the manufacturing and metalworking industries in Colombian economy
3) Existing promotion measures for SMEs and MEs
4) Financial service for SMEs and MEs
5) Existing level of production technology
6) Markets for metalworking industry and promising segments
7) Technical support organization (vocational training, product testing and inspection, technical advice, etc.)
8) Availability and dissemination of industrial standards
9) Industrial parks
10) Distribution system for raw materials and products
11) Production of steel materials

(3) Study areas

1) Bogota
2) Medellin
3) Cali including Palmira
4) Barranquilla
5) Bucaramanga

The Study Team conducted the questionnaire survey in Bogota, Medellin, and Cali. The corporate visit survey was mainly conducted in Bogota, and a limited number of corporate visits and interview with related organizations were carried out in other areas.

(4) Size of enterprises

Size of enterprises was classified based on the number of employees as follows:

Large enterprises : 200 or more employees
Medium enterprises: 50 - 199 employees
Small enterprises : 11 - 49 employees
Micro enterprises : 1 - 10 employees

Note that, since microenterprises consisting of one person are considered to be mostly engaged in commerce or service activities, rather than the manufacturing sector, they are omitted in the questionnaire survey. Accordingly, enterprises with 2 - 10 employees were surveyed as microenterprises.

I.1.3 Survey Schedule and Methodology

The Study Team consisting of 11 members conducted series of field surveys in Colombia as follows:

1) First Preparatory Field Survey (March 8, 1989 - March 22, 1989)

2) Second Preparatory Field Survey (June 13, 1989 - July 27, 1989)

3) Main Field Survey (September 3, 1989 - October 20, 1989)

4) Presentation of the Interim Report and the Supplemental Survey (February 19, 1990 - March 20, 1990)

5) Presentation of the Draft Final Report (July 9, 1990 - July 23, 1990)

The field surveys are divided into two areas, a survey on corporations and a survey on related organizations. The corporate survey examined levels of production technology of SMEs and MEs in metalworking business and identified their problems. On the other hand, the survey on the related organizations analyzed the existing promotion measures for SMEs and MEs, organizations implementing them, and problems.

The corporate survey was conducted in the form of questionnaire survey and corporate visit. The corporate survey was conducted in Bogota, Medellin and Cali. Questionnaires were sent to selected enterprises and were collected by a local research company which visited each enterprise. On the other hand, the corporate visit survey was conducted by technical experts in the Study Team, who visited selected enterprises to examine their production facilities and to interview with owners. A total of 268 enterprises responded the questionnaire survey and 182 were visited.

I.2 Economy and Industry of Colombia

I.2.1 Macro Economy Trends

Major trends in Colombian economy between 1970 and 1989 can be divided into four distinctive periods; 1970 - 1974, 1975 - 1979, 1980 - 1985, and after 1986. In general, Colombian economy has undergone five-year cycles. Up to 1985, the economic cycle was closely associated with coffee prices in international markets. Then, the country has gradually shifted from overdependence on coffee to a more stable economic structure.

Macro-economic trends in Colombia are summarized as follows.

Major Economic Indicators of Colombia (Annual Average for Each Period)

	No. of years	GDP growth rate (%)	Coffee exports (Million US$)	Coffee exports (Share of total)	Trade balance (Million US$)	Consumer price index (Rate of increase)
1970-1974	5	6.5	530	52.4	32	17.0
1975-1979	5	5.0	1,531	57.4	533	23.9
1980-1985	6	2.6	1,685	47.0	-835	22.3
1986-1988	3	5.5	1,999	37.3	1,474	24.4

Note: Uncompound average per year obtained by dividing the sum for the period by the number of years. See Tables 1, 2 and 3 for annual data.

Major moves in Colombian economy and government policies in each period are summarized as follows.

1970 - 1974

During the period, GDP recorded a 6.5% growth (uncompounded average), which was largely driven by exports of non-traditional items, industrial products in particular. Also, gradual devaluation contributed to steady growth of exports. Public investment in infra-

structure also helped boost domestic demand, while the financial program to promote residential construction (UPAC) had a significant effect to stimulate the housing sector. At the same time, however, robust economic growth increased money supply to accelerate inflation; 24.1% in 1973 and 26.4% in 1974. The first oil crisis in 1973 contributed greatly to inflation, while increasing outflow of foreign currencies.

1975 - 1979

This five-year period is characterized by booming economy fueled by skyrocketted coffee prices.
In 1974, the newly elected Lopez administration launched a tight economic policy to control inflation, as inherited from the predecessor, and reformed government finance. As a result, the GDP growth rate dropped to an annual 2.3% in 1975.

Then, Colombia's coffee exports grew rapidly after 1976 because of extensive frost damage in the largest coffee exporter, Brazil, in mid-1975, followed by less severe damages in 1978 and 1979. As a result, coffee regained its importance in Colombian economy. Coffee's share of total export, down from 61% in 1970 to 45% in 1975, jumped to 58% in 1976, 59% in 1977,60% in 1978, 59% in 1979, and 51% in 1980. The value of coffee exports showed record levels of US$2 billion in 1978 through 1980, three times that in 1974.

As a result, GDP grew rapidly at an annual 8.5% in 1978, and trade balance recovered from unstable conditions between 1970 and 1974 and turned into large surplus. At the same time, inflow of revenues from coffee exports caused money supply and domestic consumption to grow rapidly, resulting in inflation. The rate of inflation, which subsided to an annual 17.8% level in 1975, went up again in 1976 and recorded an annual average 25.5% between 1976 and 1980. Then, as the coffee boom ended in late 1980, Colombian economy entered difficulty time.

1980 - 1985

This period saw various problems surface from strains on Colombian economy accumulated in the previous six-year period. In the 1980s, primary commodity prices dropped significantly worldwide. Coffee was no exception to this, and an international export quota system was introduced. In 1981, neighboring oil-producing countries, Venezuela and Equador, devaluated their currencies due to deterioration of economy and caused Colombian exports (non-traditional export items) to decline.

Coffee's share of total export value decreased significantly to an average 47.0% between 1980 and 1985, compared to 57.4% during the previous five-year period. The GDP growth rate slowed down to 2.3% in 1981 and fell down to 0.9% in 1982. The average growth rate between 1980 and 1985 was 2.6%. Trade deficit equivalent to the value of coffee exports was recorded to exhaust foreign currency reserves, and the country had to depend on external debts. At the same time, the rate of inflation remained high at 26.3% in 1981 and 24.1% in 1982.

All in all, Colombian economy, which became overly dependent upon coffee exports during five years of prosperity, faced a major crisis characterized by the increase in unemployement, unstable government finance due to increased public investment for stimulation of economy, weekended capital sources of private enterprises, and deteriorated performance of financial institutions.

The government led by President Turbay, which inaugurated in 1978, implemented economic policies aiming at the tightening of economy and growth of domestic demand, which include redistribution of wealth, expansion of public investment, rise in interest rates, and liberalization of imports. However, the economic crisis after 1981 forced the administration to give up their efforts.

The Betancur administration, inaugurated in 1982, instigated various measures to cope with recession that continued from July 1982 to June 1983. At the end of 1982, the government declared that Colombian economy was in the state of emergency and nationalized several commercial banks in financial crisis to reduce public concerns. At the same time, they imposed import restriction to improve foreign currency reserves and carried out an accelerated devaluation of peso to promote exports of non-traditional goods. Then, in 1984, the value added tax (IVA) was introduced to secure government revenues.

These policies gradually took effect and Colombian economy showed a sign of recover. GDP recorded a 3.4% growth in 1984 and trade balance turned into slight surplus in 1985.

1986 - 1988

The new administration led by President Barco inaugurated in 1986. Various policies continued from the previous administration produced favorable result, partly aided by recovery of coffee prices from the end of 1985 to the beginning of 1986. GDP achieved a 5.8% growth in 1986, followed by a 5.3% increase in 1987 and 1988. Coffee's share of total exports grew significantly to 50.5% in 1986 but plummeted to 31.1% in 1987 and 30.2% in 1988. However, increase in exports of oil and coal compensated for decline in coffee exports to gain large surplus in trade balance. On the other hand, the rate of inflation has gradually picked up from 21.0% in 1986, 24.0% in 1987, and 28.1% in 1988.

I.2.2 Open Economy Policy

In 1990, the Colombian government decided to introduce a new policy emphasizing the opening of economy and restructuring of industry. The Barco administration has made efforts to improve the country's balance of payments

through the export promotion and import restriction. The import restriction policy was implemented by previous examination on import items and high tariff rates, which provided protection for domestic industries.
The protection, however, has rather discourages domestic industries to modernization of their production technology - this means, low rate of capital investment. As a result, the domestic industrial failed to gain international competitiveness and did not contribute to export drives as intended, resulting in economic stagnation. Colombia's exports are still dependent upon primary commodities, 74% of the total, which are subject to climate and fluctuation of international markets, to make Colombian economy vulnerable to external factors. The open economy policy adopted by the Government, therefore, is designed to liberalize the economy step by step through liberalization of imports so as to encourage domestic industries to become competitive in international markets.

Trade liberalization, one of the most important elements of the open economy policy, is carried out step by step to avoid excessive impacts on domestic industries. At the first stage, of 3,090 items subject to previous examination, 861 will be reclassified to free import items, and 744 will be liberalized in the form of auction system within a ceiling of foreign reserves (US$150 million in 1990). Then, the said 744 will be reclassified to free import items. In the process, tariff rates for liberalized items will be modified accordingly. This way, the government intends to reduce tariff rates to planned low levels within five years.

For example, the first phase of trade liberalization took place in February 1990. Import items subject to previous examination were reduced from 3,090 to 2,229, and 861 items were reclassified to free import items which increased from 1,999 to 2,860. As a result, the restricted items' share of total import items (5,143 including 54 items which imports are banned) decreased from 60% to 46%. At the same time, tariff rates on the restricted items were reviewed, and those on 71 items were reduced while those on 122 items were raised, with 668 items remaining

unchanged.

The open economy policy includes financial liberalization. The government will reduce legal reserves applied to commercial banks as well as the forced investment which has been collected as source of the direct credit system. These are intended to induce lower interest rates by increasing the liquidity position of banks and thereby decreasing operating costs. At the same time, the government plans to terminate all subsidies related to interest rates and intend to abolish subsidized low-interest rate loan systems, while introducing new financial programs particularly designed for SMEs and MEs, (a) the increase in long-term loans with grace period, (b) the raising of free limit to omit evaluation procedures, and (c) the introduction of the capitalization program to incorporate a loan interest into a principal.
Finally, the government is encouraging the issuance of convertible bonds to revitalize capital markets.

I.2.3 Macro Economy and Manufacturing Industry

As shown in Table-1, the manufacturing industry's share of GDP rose moderately from 21.4% in 1970 to 23.4% in 1974, however, it remained at a 23% level in the late 1970s. Then, it decreased gradually in the 1980s and stayed at around 21% in the late 1980s. The following table compares the industry's share in selected countries on the basis of the World Bank's World Development Report. (Note: Colombia's figures are slightly different from those indicated here.)

	Colombia	Mexico	Thailand	South Korea
1965	18%	21%	14%	18%
1986	18%	26%	21%	30%

Share of manufacturing industry to total GDP was unchanged over these 20 years or more, thus Colombia's manufacturing industry has not served as a source of economic growth. As shown in Table-4, the sector showed negative growth in the constant value between 1980 and 1984, then it reported

a 3.0% growth in 1985 and recorded a 6.0% increase - the first time to exceed GDP's growth rate of 5.8% - in 1986. However, the growth rates of 5.0% and 2.3% in 1987 and 1988 were below GDP's in the same years. On the other hand, the manufacturing industry's share of total exports increased steadily from 24.3% in 1986, 32.1% in 1987, and 34.7% in 1988.

As for the metalworking industry (CIIU 381 - 385) among the entire manufacturing industry (CIIU 31 - 39), its share of GDP showed slight decline from 3.27% in 1970 to 2.42% in 1986, then turned up to 2.95% in 1987. Exports by the metalworking industry accounted from 1.8% of the total in 1986, followed by slight increase to 2.0% in 1987 and 2.1% in 1988. Thus, the metalworking industry is estimated to represent 2% to 3% of Colombian economy.

Table-1 GROSS DOMESTIC PRODUCTION AT 1975 CONSTANT PRICE

Unit : % 1/2

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
1. Agriculture, Hanting, Forestry and Fishery	25.3	24.1	24.1	23.1	23.0	23.9	23.5	23.3	23.2	23.1
2. Mining and Quarry	2.7	2.5	2.5	2.4	1.7	1.7	1.6	1.3	1.2	1.1
3. Manugacturing Industry	21.4	21.9	22.5	22.9	23.4	23.2	23.1	22.5	22.9	23.0
4. Electricity, Gas and Water	0.7	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	1.0
5. Construction	3.5	3.4	3.3	3.7	3.8	3.3	3.5	3.6	3.2	3.0
6. Commerce, Restaurant and Hotel	12.5	12.9	12.9	13.1	13.3	13.3	13.3	13.2	13.8	13.6
7. Transport, Storage and Communication	7.4	7.8	7.9	8.3	8.5	8.4	8.5	8.9	9.1	9.3
8. Finance, Insurance, Real Estate and Enterprises' Service	14.2	14.6	13.9	13.6	13.6	14.0	13.8	13.8	13.1	12.9
9. Public, Social and Personal Services	11.4	12.0	12.2	12.1	11.9	12.0	12.2	12.5	12.3	12.3
Less: Bank services	-2.8	-2.9	-2.7	-2.6	-2.6	-2.8	-2.7	-2.6	-2.6	-2.5
Import tax and duties	3.3	2.9	2.5	2.3	2.2	2.1	2.2	2.3	2.9	3.0
Gross Domestic Products (GDP)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
- GDP in 1,000 million pesos at 1975 Constant	307.5	324.8	350.8	374.4	395.9	405.1	424.3	441.9	479.3	505.1
- Change to the previous year(%)	-	6.0	7.7	6.7	5.7	2.3	4.7	4.2	8.5	5.4

Source: COLOMBIA ESTADISTICA, 1989

Table-1 (Continuation) GROSS DOMESTIC PRODUCTION AT 1975 CONSTANT PRICE

Unit : % 2/2

	1980	1981	1982	1983	1984	1985	1986	1987P	1988Pr
1. Agriculture, Hanting, Forestry and Fishery	22.7	22.9	22.3	22.5	22.2	21.9	21.4	21.5	21.3
2. Mining and Quarry	1.3	1.3	1.3	1.5	1.7	2.3	3.8	4.6	4.5
3. Manugacturing Industry	22.4	21.3	20.8	20.7	21.2	21.2	21.2	21.2	20.9
4. Electricity, Gas and Water	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1
5. Construction	3.4	3.5	3.6	4.0	4.1	4.4	4.3	3.9	3.8
6. Commerce, Restaurant and Hotel	12.7	12.6	12.7	12.4	12.3	12.1	11.9	11.9	11.9
7. Transport, Storage and Communication	9.3	9.5	9.9	9.6	9.6	9.4	8.9	8.8	8.8
8. Finance, Insurance, Real Estate and Enterprises' Service	14.4	14.6	14.9	15.3	14.3	14.2	13.8	13.6	13.5
9. Public, Social and Personal Services	12.7	13.0	13.2	12.9	13.2	13.2	13.1	13.0	13.2
Less: Bank services	-2.7	-3.1	-3.4	-3.5	-2.7	-2.5	-2.3	-2.4	-2.2
Import tax and duties	3.4	3.5	3.8	3.4	2.9	2.8	2.8	2.8	3.1
Gross Domestic Products (GDP)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
- GDP in 1,000 million pesos at 1975 Constant	525.8	537.7	542.8	551.4	569.9	587.6	621.8	654.9	679.3
- Change to the previous year(%)	4.1	2.3	0.9	1.6	3.4	3.1	5.8	5.3	5.3

Note : P - Provisional
Pr - Preliminary

Source: COLOMBIA ESTADISTICA, 1989

Table-2 BALANCE OF PAYMENT

Unit: million US$ 1/2

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
CURRENT ACCOUNT	-291	-456	-201	-77	-405	-127	189	390	330	512
A. Balance of Trade	-20	-150	116	260	-47	297	560	705	667	537
1. Export (FOB)	776	742	959	1,236	1,455	1,712	2,214	2,674	3,219	3,515
Coffee	472	409	483	612	765	764	1,293	1,577	1,936	2,086
Petreleum	73	69	61	57	108	103	67	86	119	119
Coal	0	0	1	1	3	3	3	9	10	12
Nickel	0	0	0	0	0	0	0	0	0	0
Miscellaneous	225	259	404	566	669	813	839	988	1,090	1,224
Gold	6	5	10	0	0	29	12	14	64	74
2. Import (FOB)	796	892	843	976	1,502	1,415	1,654	1,969	2,552	2,978
Consumer Goods	n.a.	n.a.	n.a.	n.a.	n.a.	170	199	275	459	417
Intermediate Goods	n.a.	n.a.	n.a.	n.a.	n.a.	736	810	1,044	1,302	1,578
Capital Foods	n.a.	n.a.	n.a.	n.a.	n.a.	509	645	650	791	983
B. Balance of Services	-297	-340	-352	-372	-413	-472	-422	-361	-410	-127
C. Tranceference	26	34	35	35	55	48	51	46	73	102
ACCOUNT OF CAPITAL	334	345	227	215	283	112	203	-25	140	983
OTHERS	-25	92	139	64	39	103	241	297	190	92
CHANGE IN NET RESERVES	39	-2	183	202	-83	88	633	662	660	1,611

Source: BANCO DE LA REPUBLICA

Table-2 (Continuation) BALANCE OF PAYMENT

Unit: Million US$ 2/2

	1980	1981	1982	1983	1984	1985	1986	1987	1988P
CURRENT ACCOUNT	104	-1,722	-2,885	-2,826	-2,088	-1,586	565	128	-331
A. Balance of Trade	13	-1,333	-2,076	-1,317	-404	109	2,024	1,461	939
1. Export (FOB)	4,296	3,397	3,282	3,147	3,623	3,782	5,433	5,254	5,366
Coffee	2,208	1,507	1,515	1,443	1,734	1,702	2,742	1,633	1,621
Petreleum	100	34	213	434	445	409	619	1,342	1,002
Coal	10	9	14	17	38	126	201	263	312
Nickel	0	0	0	46	62	55	48	76	180
Miscellaneous	1,668	1,608	1,371	1,030	1,099	1,125	1,363	1,556	1,836
Gold	310	239	169	177	245	363	460	385	413
2. Import (FOB)	4,238	4,730	5,358	4,464	4,027	3,673	3,409	3,794	4,426
Consumer Goods	570	605	675	487	387	345	380	488	541
Intermediate Goods	2,257	2,460	2,711	2,286	2,231	2,163	1,784	1,925	2,355
	1,456	1,665	1,972	1,691	1,409	1,165	1,245	1,381	1,523
B. Balance of Services	-74	-631	-979	-1,673	-1,983	-2,156	-2,244	-2,333	-2,183
C. Tranceference	165	242	169	164	299	461	785	1,001	913
ACCOUNT OF CAPITAL	945	2,041	2,231	1,436	944	2,220	1,084	-43	937
OTHERS	108	-101	-47	-266	-137	-310	-231	-176	-192
CHANGE IN NET RESERVES	1,241	242	-701	-1,723	-1,261	285	1,464	-22	344

Source: BANCO DE LA REPUBLICA
Note : P - Preliminary

Table-3 COFFEE EXPORT AND COLOMBIAN ECONOMY

	GDP Growth Rate(%) (1975 constant price)	Export of Coffee (million US$) (% to tatal export)		Balance of Trade (Export-Import) (million US$)	Change in CPI (%)
1970	-	472	(60.8)	-20	6.6
1971	6.0	409	(55.1)	-150	14.0
1972	7.7	483	(50.4)	116	14.0
1973	6.7	612	(49.5)	260	24.1
1974	5.7	675	(46.4)	-47	26.4
1975	2.3	764	(44.6)	297	17.8
1976	4.7	1,293	(58.4)	560	25.8
1977	4.2	1,577	(59.0)	705	28.7
1978	8.5	1,936	(60.1)	669	18.4
1979	5.4	2,086	(59.3)	537	28.8
1980	4.1	2,208	(51.4)	13	25.9
1981	2.3	1,507	(44.4)	-1,333	26.3
1982	0.9	1,515	(46.2)	-2,076	24.1
1983	1.6	1,443	(45.9)	-1,317	16.6
1984	3.4	1,734	(47.9)	-404	18.3
1985	3.1	1,702	(45.0)	109	22.4
1986	5.8	2,742	(50.5)	2,024	21.0
1987	5.3	1,633	(31.1)	1,461	24.0
1988	5.3	1,621	(30.2)	939	28.1

Note : CPI = Consumer's Price Index
Source: Table-1 and Table-2

Table-4 METALWORKING INDUSTRY IN TOTAL ECONOMY

(Unit : %)

	(1) Share of Manufacturing Sector to GDP	(2) Share of Metalworking Sub-sector to Whole Manufacturing Sector (Value Added)	(3) Share of Metalworking Industry to GDP (1) × (2)
1975	23.2	14.1	3.27
1980	22.4	12.7	2.84
1981	21.3	13.1	2.79
1982	20.8	13.7	2.84
1983	20.7	12.8	2.65
1984	21.2	12.8	2.71
1985	21.2	12.2	2.59
1986	21.2	11.4	2.42

Source:DANE, COLOMBIA ESTADISTICA, 1988

I.3 Trends in Domestic Markets for Metalworking Industry

I.3.1 General

Domestic markets for the metalworking industry, which break down to production, exports and imports, are described as follows. Table-5 shows market trends in market segments according to CIIU codes.

CIIU

381	Metal products except machinery
382	Machinery except electrical machinery
383	Electrical machinery and equipment
384	Transportation equipment
385	Measuring and laboratory instruments, and optical equipment

Note: In Table-5, data on CIIU 382 and 383 are indicated in aggregate as they cannot be separated in statistical data.

Figures in Table-5 are calculated as follows:

Domestic demand ("Demand") = Domestic production ("Production") + imports - Exports

National production rate = Production ÷ Demand

CIIU 381 is considered to be generally associated with consumer goods, CIIU 382 + 383 with capital goods, and CIIU 384 and 385 with durable consumer goods.

The national production rate for consumer goods (CIIU 381) in 1987 is around 50%; 23% for capital goods (CIIU 382 + 383); 65% for transportation equipment (CIIU 384); and 51% for professional equipment (CIIU 385). These figures have remained relatively unchanged in the recent decade. The national products rate for transportation equipment (CIIU 384) is relatively high because automobiles and motorcycles are assembled locally.
The national products rate for consumer goods seems to

reflect government efforts to promote the local production (import substitution). However, it should be noted that, historically, the rate for consumer goods has leveled off or even shows some declining trend. Professional equipment has been maintaining the national products rate of 40% to 50% in the recent decade, but its market size on a value basis is relatively small, 1/5 to 1/7 that for other metalworking products. Finally, the national products rate for capital goods (CIIU 382 + 383) is the lowest among other sub-sectors, indicating that 70% to 75% of demand for capital goods has been satisfied by imports since 1970.

In the metalworking industry as a whole, the nationalization rate has been relatively stable in the range between 40% and 50% since 1970. On the other hand, exports of metalworking products accounted for 9.4% of domestic production, while imports represented 58.8% of demand in 1987.

The following sections describe market trends in each of the sub-sectors.

I.3.2 Market Trends in Sub-Sectors

(1) Agricultural machinery

The agriculture sector is an important sector of Colombian economy, accounting for 20% of GDP. In particular, agriculture holds a significant share of exports, including coffee. For this reason, the government has been making various efforts to foster agriculture. In Colombia, sugar cane and cotton are mainly produced by plantations, while coffee is grown by plantations as well as small farms. While plantation adopt mechanized farming as in the U.S. and use large agricultural machinery, small farms use cattles, horses and/or labor for cultivation.

Of all the agricultural machinery, self-propelled machinery such as tractors, combines, and harvesters are not locally produced.

Annual imports of tractors have been declining recently, 1,000 units in 1985 to 1987, and 500 units in 1988. Similarly the number of possesed tractors decreased from 29,000 units in 1982 to 24,000 units in 1988. This seems to reflect sluggishness of the agricultural sector in the recent few years due to unfavorable weather (excess rainfall) and other factors. Combines and harvesters are all imported as well. These machines are not locally assembled because of small domestic markets which prohibit profitable production.

The following agricultural machinery is locally manufactured, some of which are exported as well:

- Coffee pulpers
- Seeders
- Sprinklers
- Fertilizers
- Implements for tractors and other equipment

(2) Construction equipment

Self propelled construction equipment is imported in the complete form, and no local assembly is carried out. Some of spare parts and accessories are manufactured locally, but they are all small in size. Again, small domestic markets make local assembly unfeasible. At present, there are approximately 20,000 units of construction equipment possessed. All the construction equipment except road roller is free import items. In 1988, Colombia imported 813 units of construction equipment, which are divided as follows:

- Excavator	237
- Bulldozers	182
- Backhoe loaders	131
- Wheel loaders	106
- Motor graders	93
- Road rollers	64
	813

In the past, the central government has been solely responsible for purchasing, keeping, leasing and disposing construction equipment. However, the recently amended Self-Autonomy Law authorizes each local government to purchase, store, lease, and dispose construction equipment at its discretion, and the demand has been growing accordingly. Also, further increase in urban development projects, public works, coal and other mining operations suggests stable growth of construction equipment demand. According to a large construction equipment importer, the demand is expected grow three- or four-fold from the present 800-unit level in the next 3 to 5 years.

(3) Machine tools

At present, 3 enterprises are registered with INCOMEX as lathe manufacturers, with very small production and exports being recorded in statistics. Actually, however, these data represent the repairing of used machines, and no lathe has been manufactured locally since 1982. As for drilling machines, 8 companies are registered as table top machine makers and more than 2,000 units were produced in 1988. Other types of drilling machines are all imported. 4 companies are registered as shearing machine manufacturers, production of which has been increasing steadily. 2 companies are registered to manufacture milling machines but no production is carried out. Only one company is registered as a bending machine maker to produce a small number of units. Hydraulic and mechanical presses, up to 200 tons, are produced at a rate of 2 to 3 units monthly.

As described above, domestic production of machine tools is very limited. Also, steel sheets for frames and steel bars for shafts are imported, while cast parts and components for locally manufactured machines are produced locally.

(4) Transportation equipment

1) Automobiles

Three companies, COLMOTORES, C.C.A., and SOFASA, assemble automobiles domestically. These companies are joint ventures with foreign manufacturers. In 1988, their combined production was 61,000 units, which represented 5% of the number of possessed automobile in the country, approximately 1.2 million units. Automobile demand can be divided according to types as follows: Compact/economical cars (13%); medium sized cars (58%); jeeps (10%); pickup trucks (10%); and commercial trucks and buses (9%). Thus passenger automobiles accounted for 71% of the total demand. At present, these assembling manufacturers have the total production capacity of 84,000 units annually, thus the capacity utilization rate is approximately 73%. Imports of complete cars are restricted, but imports of police cars, ambulances and other special cars, and imports on a barter trade equivalent to coffee exports are permitted. In 1988, approximately 6,000 complete cars were imported.

The assembling manufacturers are not permitted to manufacture parts and components in-house, except engines by SOFASA. Parts and components used for assembly are manufactured by local suppliers or imported as CKD. The nationalization rate for automotive parts and components is 35%. There are 120 to 130 local suppliers or subcontractors, of which the ten largest enterprises supply around 80% of parts for new automobiles to dominate others.

Total demand for automotive parts and components in 1989 was US$862 million, 62% of which were locally produced, and remaining 38% were imported. At the same time, 80% were used for repair, and only 20% for assembly of new automobiles, indicating a dominant share of repair parts. As a result, the demand for parts and components for repair accounts for 4 times more than the new automobiles assembly.

2) Motorcycles

As in the case of automobiles, 4 companies (INCOMOTO, GEMELA, AUTECO, and FANALCA) are authorized to assemble motorcycles under regulations and privileges which are based on the government's policy to encourage the development of assembling industries. These companies are joint ventures with or receive technical assistance from Japanese manufacturers, and procure parts and components from outside sources.

The combined total production was 36,500 units in 1983, then decreased to less than 18,000 units in 1986 and 1987. It increased again to 22,000 units in 1988. Types authorized for production are limited to 200cc or smaller, and as a result. The capacity utilization rate of these factories remained at 35%. Imports of complete motorcycles are restricted other those used for the government and public organizations. Most of assembly pats and components are imported in CKD. Locally produced are batteries, seats, steering wheel bars, emblem, sprocket, mirrors, direction indicators, stand, rubber products, and other smaller parts and components. The nationalization rate ranges between 5% and 10% on a value basis.

3) Bicycles

There are many manufacturers of bicycles throughout the country, mostly small scale enterprises. Production of touring bicycles is stable at 40,000

units annually. Production of racing bicycles decreased from 10,000 units in 1980 to less than 1,000 units in 1987. This is because the government has been imposing little import restriction on bicycles to promote sports bicycling. In 1988, slightly below US$10,000 worth of racing bicycles was exported.

The nationalization rate for assembly parts is around 70%. Frames, brakes, hubs, pedals, wheels, seats, handles, tires, and small parts and components are locally produced.

4) Elevators

Elevators are also designated by the government as one of industries in which local assembly is encouraged.
Annual production of passenger elevators ranged between 30 and 40 units until 1984 and increased rapidly since then to reach 174 units in 1987. This was partly due to construction booms in 1987 and 1988, and partly due to government's incentive for assembly of elevators with capacity of 4 to 10 persons. The incentive also encouraged production of service elevators, which ranged annually between 55 and 70 units up until 1984 (for exception of 240 units in 1984), to reach 127 units in 1987. Imports of elevators reached a peak level in 1986 and declined gradually since then, as a result of the government's policy to encourage local production. On the other hand, a few exports were made in 1985 and 1986.

(5) Electrical household appliances

1) Audio-visual products

Television sets, radios, tape recorders, and stereo sets are locally produced, while video tape recorders are not manufactured. There are 15 major manufacturers of audio-visual products.

In addition to domestic production and imports, domestic demand for audio-visual products is satisfied by smuggling, which is said to be one half the demand.

The nationalization rate for parts and components is 30% for television sets, none for radios and tape recorders, and 50% for stereos.

According to industry sources, production of audio products is excepted to grow at around 10% annually, since domestic products can be purchased on an installment basis and after-sales service is easily available, nevertheless, audio-visual products do not use many metalwork parts and do not offer a large market for the metalworking industry.

2) Electrical household appliances

Electrical household appliances including refrigerators, washing machines, air-conditioners, and cooking ranges, are manufactured by 16 major enterprises. These products use many metalwork parts, and the nationalization rate is higher than that for audio-visual products. They are exported because of price competitiveness.

The nationalization rate for parts is 70% to 95% for refrigerators, 80% for semi-automatic washing machines, 35% for automatic washing machines, 60% for air-conditioners, and 95% for cooking ranges. It should be noted, however, that most of these parts are manufactured by in-house production of the assembling manufacturers, and a subcontracting system is not well developed.

(6) Electric machinery

Electrical machinery, including motors, transformers, power generators, kWh meters, panels, switches, and relays is manufactured by 31 enterprises. 6 companies produce single- and three-phase motors. Shafts, fans, frames, brackets, stators, coils, bolts and nuts are locally produced, with the nationalization rate at 80%. DC motors and three-phase motors with output of

40HP or larger are imported and sold at prices similar to local products. Exports are made in some quantities.

(7) Industrial machinery

Industrial machinery, considered as capital goods, includes boilers, pumps, diesel engines, gasoline engines, industrial compressors, industrial blowers, and hydraulic equipment, which production is described as follows.

1) Boilers

There are five major boiler manufacturers, one of which produces high pressure boilers. They introduce foreign technology and offer high level of technology to serve as one of a few export-oriented industries. The nationalization rate is approximately 85%, while electric controllers, control valves, steel plates and pipes are imported.

2) Pumps

There are many pump manufacturers, 9 of which are large enterprises. Centrifugal pumps are manufactured by introducing foreign technology, and demand for small and medium pumps is satisfied by local products, with some being exported. Large pumps are not manufactured due to small demand, and the imports have accounted for 30% of the total in the recent years. The nationalization rate for assembly parts is very high at 90%.

3) Engines

Diesel engines are designated by the government as a product for which assembly is both encouraged and controled. At present, only one manufacturer, Lister Petter Diesel S.A. is producing diesel engines with output of 35 HP or less. The company has production capacity of 810 units monthly and

serves 50% of the domestic demand. It does not carry out in-house production of parts and uses 30 to 40 suppliers. However, the nationalization rate is not very high and is expected to reach 25% in 1990.
Gasoline engines are manufactured by SOFASA for own assembly, and otherwise complete engines are imported.

4) Industrial compressors and blowers

There are 16 domestic manufacturers which produce mainly 40HP or smaller models which account for 90% of the total, and 18HP models have the largest share. In 1986, imports of compressors accounted for 62% of the total demand on a value basis, while imports of 40HP or larger models represented 91%. While bearings, pistons and piston rings are imported, the nationalization rate has exceeded 90%.

There are five major manufacturers of industrial blowers, one of which introduces foreign technology.

5) Hydraulic equipment

Hydraulic equipment is used for wide applications including agricultural machinery, construction equipment, food processing, steel production, mining, and ships. At present, two companies which are sales agents of foreign makers are selling hydraulic equipment with technical assistance. Although none is produced locally, annual demand for 500 to 600 hydraulic units is expected.

6) Steel furniture

There are many steel furniture producers throughout the country. Only a few of them are large enterprises, while others are SMEs and MEs. Production of steel furniture in 1987 amounted to approximately 650,000 units, which satisfied the domestic demand. This appears to be a result of import

restriction that has been imposed since 1984. Also small quantities are exported. The nationalization rate is around 95%.

Table-5 DEMAND/SUPPLY OF METALWORKING AND ENGINEERING INDUSTRY

(Million pesos in 1975 constant price)

	CIIU Code				
	381	382 + 383	384	385	Total
1965					
(1) Production	10,418	1,634	2,665	2,265	16,982
(2) Import	2,683	4,813	4,297	588	12,381
(3) Export	226	67	3	34	330
(4) Demand	12,875	6,380	6,959	2,819	29,033
(5) = (1) ÷ (4)	0.81	0.26	0.38	0.80	0.58
1970					
(1) Production	6,890	4,029	5,449	245	16,613
(2) Import	6,518	10,705	6,824	1,243	25,290
(3) Export	505	199	30	65	799
(4) Demand	12,963	14,535	12,243	1,423	41,164
(5) = (1) ÷ (4)	0.53	0.28	0.45	0.17	0.40
1975					
(1) Production	8,035	4,000	11,197	694	23,926
(2) Import	6,361	10,226	7,327	1,264	25,178
(3) Export	701	675	221	254	1,851
(4) Demand	13,695	13,551	18,303	1,704	48,253
(5) = (1) ÷ (4)	0.59	0.30	0.61	0.41	0.50
1980					
(1) Production	12,977	5,705	13,808	981	33,471
(2) Import	12,941	20,402	12,351	2,015	47,709
(3) Export	670	1,200	398	547	2,815
(4) Demand	25,248	24,907	25,761	2,449	78,365
(5) = (1) ÷ (4)	0.51	0.23	0.54	0.40	0.43
1985					
(1) Production	8,985	4,850	9,655	1,148	24,638
(2) Import	14,612	14,646	8,334	1,499	39,091
(3) Export	562	645	110	270	1,587
(4) Demand	23,035	18,851	17,879	2,377	62,142
(5) = (1) ÷ (4)	0.39	0.26	0.54	0.48	0.40
1987					
(1) Production	10,204	6,099	16,733	2,014	35,050
(2) Import	10,781	21,859	10,304	2,294	45,238
(3) Export	534	1,101	1,289	386	3,310
(4) Demand	20,451	26,857	25,748	3,922	76,978
(5) = (1) ÷ (4)	0.50	0.23	0.65	0.51	0.46

Note : CIIU

381 Metalworking products except machinery and equipment
382 Machinery and equipment except electric machinery
383 Electric machinery, apparatus, accessaries and supplies
384 Transport equipment and machinery
385 Professional and scientific equipment, measurement and control instrument, optical instrument

Source: DANE, I/O model

I.4 Outline of Questionnaire Survey Results

The questionnaire survey was conducted in Bogota, Cali, and Medellin for the purpose of collecting basic data on SMEs and MEs, as well as LEs to collect their opinions on subcontracting.

The number of questionnaires distributed and responded are summarized as follows:

Comparison of Numbers of Questionnaires Distributed and Responded

Size of enterprise	Bogota		Medellin		Cali		Sum	
	dist.	res	dist.	res	dist.	res	dist.	res
LEs	33	10	9	7	8	1	50	18
SMEs	120	57	77	29	57	29	254	115
MEs	115	64	76	31	61	40	252	135
Total	268	131	162	67	126	70	556	268

Out of the questionnaire survey results for MEs and SMEs, major items essential to furture development of promotion policy for MEs and SMEs are summarized below.

I.4.1 Subcontracting Relations with Customers

(1) Ratio of subcontracting to total sales

The average ratio of subcontracting to total sales diminishes as the enterprises becomes larger; that is from 60% for MEs with 2-5 employees to 5.5% for Med-Es with 150-199 employees. The smaller the enterprises become, the higher the ratio of subcontracting is. At the point that the number of employees exceeds 50 persons, the ratio of subcontracting suddenly becomes lower.

Ratio of Subcontracting to Total Sales

(Unit: %)

	Employees	Average
MEs	2- 5	59.8
	6- 10	41.9
Sml-Es	11- 30	42.2
	31- 49	41.6
Med-Es	50- 99	22.4
	100-149	14.2
	150-199	5.5

(2) Interest in subcontracting business

A total of 80.7% of MEs and 50.0% of SMEs are interested in subcontracting business.

The high interest in subcontract business shown by MEs is understandable in consideration of their need for growth based on stable rate of order booking. The low interest in such business on the part of SMEs, on the other hand, is considered to be due to the fact that many of the enterprises in this category have reached the level of using subcontractors.

Or it may be said that conditions related to subcontracting between SMEs and LEs which have not developed well to form an upstream of SMEs.

The Rate of Interest on Subcontracting

Size of enterprises No. of employees	MEs 2-10		SMEs 11-199		Total	
	(%)	(Nos.)	(%)	(Nos.)	(%)	(Nos.)
Having interest	80.7	(50)	50.0	(48)	62.0	(98)
Having no interest	19.3	(12)	50.0	(48)	38.0	(60)
Total	100.0	(62)	100.0	(96)	100.0	(158)

Reasons for Showing Interest
in Subcontracting

	1	2	3	4	5	6	7	Total
MEs (%)	17.1	22.8	18.7	17.1	14.6	6.5	3.3	100
(Nos.)	(21)	(28)	(23)	(21)	(18)	(8)	(4)	(123)
SMEs (%)	19.4	25.4	14.2	14.9	16.4	7.5	2.2	100
(Nos.)	(26)	(34)	(19)	(20)	(22)	(10)	(3)	(134)

Note: 1. Stability of business by long term contract
2. Sales increase
3. Diversification of products
4. Technical assistance
5. Financial assistance
6. Supply of materials from clients
7. Others

Note that some MEs have not received any subcontracting orders, although they have much interest in such business. Major reasons for this are summarized below.

Reasons 2) insufficient equipment capacity, and 3) lack of investment fund, suggest insufficient financial service for SMEs and MEs.

Reasons for Lack of Subcontracting Work

	1	2	3	4	Total
MEs (%)	31.5	23.6	39.3	5.6	100
(Nos.)	(28)	(21)	(35)	(5)	(89)
SMEs(%)	36.4	14.6	36.4	12.7	100
(Nos.)	(20)	(8)	(20)	(7)	(55)

Note: 1. Have no channel with large enterprises
2. Capacity of equipment is not sufficient
3. Lack of fund for investment to correspond to contractor's requirement
4. Others, specify

Meanwhile, notable points among the reasons mentioned by the enterprises showing no interest in sub-contract business are summarized below. If the enterprises manufacturing the products that cannot be subcontracted are excluded, possibility of interference from other enterprises becomes the largest reason, which well reflects the disposition of the Colombian people attaching importance to independence. This disposition, on the other hand, is thought to hamper development of subcontracting relations or inter-sector connections.

Reasons for Showing no Interest
in Subcontracting Work

	1	2	3	4	Total
MEs (%)	28.6	14.3	47.6	9.5	100
(Nos.)	(6)	(3)	(10)	(2)	(21)
SMEs(%)	38.1	22.2	27.0	12.7	100
(Nos.)	(24)	(14)	(17)	(8)	(63)

Note: 1. Can keep independence from other enterprises
2. Satisfied with the present business situation
3. Dedicated to produce only small products for Colombian markets
4. Others, specify

As shown in the table below, in both MEs and SMEs, those which show interest in subcontracting business expect financial assistance from customers. This tendency is more pronounced in enterprises with fewer employees.

The second reason for the interest in subcontracting business is technical support by customers or contractors for MEs and SMEs.

Expectations for Customers for
Improvement of Subcontracting Relations

	1	2	3	Total
MEs (%)	34.7	57.1	8.2	100
(Nos.)	(17)	(28)	(4)	(49)
SMEs(%)	21.2	44.2	34.6	100
(Nos.)	(11)	(23)	(18)	(52)

Note: 1. Technical support
2. Financial support
3. Others, specify

I.4.2 Production Technology

(1) Methods for quality control

Overall, responses "To check when trouble occurs" accounted for 35% of the total and "First product inspection" 29%, with a combined share of 64%. On the other hand, there are a large number of Med-Es which adopt more sophisticated quality control methods.

The results indicate that importance of quality control is not well recognized and that quality requirement of customers is not high. It is also evident that quality control guidance to SMEs and MEs is not sufficient.

Method of Quality Control

Size / Employees		MEs 2-10 (%)	MEs 2-10 (Nos.)	Sml-Es 11-49 (%)	Sml-Es 11-49 (Nos.)	Med-Es 50-199 (%)	Med-Es 50-199 (Nos.)	Total (%)	Total (Nos.)
Method	1	5	(4)	1	(1)	3	(1)	3	(6)
	2	38	(30)	42	(41)	8	(3)	35	(74)
	3	22	(17)	33	(33)	32	(12)	29	(62)
	4	14	(11)	12	(12)	11	(4)	13	(27)
	5	4	(3)	6	(6)	19	(7)	7	(16)
	6	17	(13)	6	(6)	27	(10)	13	(29)
Total		100	(78)	100	(99)	100	(37)	100	(214)

Note: 1. Non
2. To check when trouble occurs
3. First product inspection
4. Simple check list including sampling
5. Control charts
6. Others

(2) Industrial standards

Most of enterprises adopt some forms of industrial standards. Among MEs and Sml-Es, "customers' standards" and "own standards" showed combined shares of 76% and 68% respectively, which decreased to 48% for Med-Es. On the other hand, the use of generally accepted standards, namely "national standards" and "international standards", increased with increase in enterprise size; 18% for MEs, 39% for Sml-Es, and 49% for Med-Es. To compete with foreign products, the increase in use of international standards is highly desirable.

Industrial Standards

Size / Employees	MEs 2-10		Sml-Es 11-49		Med-Es 50-199		Total	
	(%)	(Nos.)	(%)	(Nos.)	(%)	(Nos.)	(%)	(Nos.)
None	5	(4)	4	(4)	3	(1)	4.2	(9)
Customer's standards	40	(30)	45	(46)	24	(9)	39.5	(85)
Own standards	36	(27)	23	(24)	24	(9)	27.9	(60)
Colombia's national standards	11	(8)	16	(17)	33	(12)	17.2	(37)
International standards	7	(5)	10	(10)	16	(6)	9.8	(21)
Others	1	(1)	2	(2)	0	(0)	1.4	(3)

(3) Methods for technical improvement

Since over 90% of the enterprises responded that they were making efforts in technical improvement, major methods are asked and the results are summarized in the table below.

The methods adopted by the enterprises for their technical improvement are centered on the introduction of new machinery and technical training in both MEs

and SMEs. The employment of qualified persons are seen in MEs and Sml-Es, although its proportion is small. It can be said that most of entrepreneurs are considering that the technology improvement can be accomplished through introduction of new machinery and training of workers.

Method for Technical Improvement

Size / Employees	MEs 2-10		Sml-Es 11-49		Med-Es 50-199		Total	
	(%)	(Nos.)	(%)	(Nos.)	(%)	(Nos.)	(%)	(Nos.)
Introduction of new machine	55	(37)	56	(46)	61	(20)	57	(103)
Technical training	30	(20)	39	(32)	33	(11)	35	(63)
Hiring of qualified technicians	6	(4)	5	(4)	3	(1)	4	(9)
Others	9	(6)	0	(0)	3	(1)	4	(7)
Total	100	(67)	100	(82)	100	(33)	100	(182)

(4) Interest in new merchandise and technology of foreign countries

The enterprises showing interest in new merchandise and technology of foreign countries account for about 90% in both MEs and SMEs, suggesting a need for establishment or reinforcement of organizations to supply technology information on foreign countries.

Interests in New Merchandise and Technology of Foreign Country

Size Employees	MEs 2-10 (%)	MEs 2-10 (Nos.)	Sml-Es 11-49 (%)	Sml-Es 11-49 (Nos.)	Med-Es 50-199 (%)	Med-Es 50-199 (Nos.)	Total (%)	Total (Nos.)
Very much	99	(75)	85	(81)	83	(30)	90	(186)
More or less	0	(0)	6	(6)	6	(2)	4	(8)
None	1	(1)	9	(8)	11	(4)	6	(13)
Total	100	(76)	100	(95)	100	(36)	100	(207)

(5) Information source about new merchandise and technology

As for the method of getting the information about new merchandise and technology, general magazines and specialized technical magazines account for the largest proportion in both MEs and SMEs, followed by exhibitions or fairs. These results show that the "policy for the spread of knowledge" through conveyance of information and publicity activities about new merchandise and technology is an effective means as well as an important factor for the fostering and promotion of MEs and SMEs.

Information Sources about New Merchandise and Technology

Size Employees	MEs 2-10 (%)	MEs 2-10 (Nos.)	Sml-Es 11-49 (%)	Sml-Es 11-49 (Nos.)	Med-Es 50-199 (%)	Med-Es 50-199 (Nos.)	Total (%)	Total (Nos.)
Magazine	42	(30)	49	(48)	55	(21)	47	(99)
Fair exhibition	28	(20)	34	(33)	29	(11)	31	(64)
Others	30	(22)	17	(17)	16	(6)	22	(45)
Total	100	(72)	100	(98)	100	(38)	100	(208)

I.4.3 Financing Aspects

(1) Problems related to financing

Major problems related to financing include insufficient collateral, strict loan terms, complicated procedure, and availability of loan less than the required amount, with some variation according to company sizes.

There is relatively a small number of responses among MEs to point out difficulty in documentation, probably because they mainly apply informal credit which does not require complicated procedure.

Problems Related to Financing

Size / Employees	MEs 2-10		Sml-Es 11-49		Med-Es 50-199		Total	
	(%)	(Nos.)	(%)	(Nos.)	(%)	(Nos.)	(%)	(Nos.)
Insufficient collateral	14.6	32	15.3	29	10.8	8	14.3	69
Difficulty in documentation	4.6	10	7.4	14	9.5	7	6.4	31
Strict loan terms	14.6	32	18.0	34	21.6	16	17.0	82
Insufficient information	10.0	22	11.6	22	18.9	14	12.0	58
Without good relation to banks	18.2	40	14.8	28	9.5	7	15.6	75
Loan below required amount	12.8	28	11.6	22	6.8	5	11.4	55
Inability to secure own funds	4.6	10	5.3	10	4.1	3	4.8	23
Complicated procedure	19.2	42	13.2	25	17.6	13	16.6	80
Others	1.4	3	2.7	5	1.3	1	1.9	9
Total	100	219	100	189	100	74	100	482

(2) Sources of Short-term Loans

The percentage of loans from sources other than financial institutions increases for smaller enterprises. Loans from customers, middle man, friends and relatives, and other sources accounted for 42.3% of all the loans made by MEs, while the percentage is only 12.2% for the Sml-Es and 4.8% for Med-Es.

Use of bank loans increases with increase in enterprise size and represents a majority of loans by Sml-Es. However, the share of bank loans decreases for Med-Es probably because of increase in availability of financial sources and so on.

Sources of Short-term Loans

Size	MEs		Sml-Es		Med-Es		Total	
Employees	2-10		11-49		50-199			
	(%)	(Nos.)	(%)	(Nos.)	(%)	(Nos.)	(%)	(Nos.)
Banks	28.8	15	54.9	45	41.3	26	43.7	86
Trade associations	9.6	5	9.8	8	14.3	9	11.2	22
Cooperatives	0	0	0	0	0	0	0	0
Development finance corporation	3.9	2	0	0	7.9	5	3.5	7
Local governments	7.7	4	13.4	11	15.9	10	12.7	25
Government treasury	7.7	4	9.8	8	15.9	10	11.2	22
Customers	0	0	1.2	1	0	0	0.5	1
Middle man	11.5	6	1.2	1	0	0	3.5	7
Friends and relatives	5.8	3	2.4	2	3.2	2	3.5	7
Others	25.0	13	7.3	6	1.6	1	10.2	20
Total	100	52	100	82	100	63	100	197

(3) Source of Long-term Loans

Use of development banks increases with increase in company size, while loans from friends and relatives, and other informal sources increase for smaller companies.

Sources of Long-term Loans

Size / Employees	MEs 2-10		Sml-Es 11-49		Med-Es 50-199		Total	
	(%)	(Nos.)	(%)	(Nos.)	(%)	(Nos.)	(%)	(Nos.)
Commercial banks	17.4	4	22.9	8	11.5	3	17.8	15
Development banks	13.0	3	22.9	8	57.7	15	31.1	26
Financial corporations	4.4	1	25.7	9	3.9	1	13.1	11
Central bank's credit line	4.4	1	2.9	1	7.7	2	4.7	4
Supplier's credit	0	0	11.4	4	0	0	4.7	4
Customers	4.4	1	5.7	2	3.9	1	4.7	4
Other credit lines	13.0	3	2.9	1	7.7	2	7.4	6
Foundations	13.0	3	0	0	3.8	1	4.7	4
Other banks	0	0	0	0	3.8	1	1.2	1
Friends and relatives	30.4	7	5.7	2	0	0	10.7	9
Others	0	0	0	0	0	0	0	0
Total	100	23	100	35	100	26	100	84

(4) Reasons for Using Informal Loans

For all company sizes, simple procedure is cited as the largest reason for using informal loans. This clearly indicates that the streamlining of loan application is essential in promoting the use of formal financial services for MEs and SMEs. Availability of loans without collateral is cited as another major reason by Sml-Es. This suggests that financial requirements for Sml-Es cannot be covered by their own

assets, indicating a need for loan guaranty and other measures to promote the use of formal credit services.

Note: The number of enterprises who are using informal loans (in the foregoing table) is less than the number of enterprises who responded "reasons for using informal loans". This indicates that many enterprises have once used informal loans though they do not use informal loans at this moment.

Reasons for Using Informal Loans

Size / Employees	MEs 2-10		Sml-Es 11-49		Med-Es 50-199		Total	
	(%)	(Nos.)	(%)	(Nos.)	(%)	(Nos.)	(%)	(Nos.)
Simple procedure	55	11	42.1	16	73.7	11	52.1	38
No collateral	5	1	42.1	16	6.7	1	24.7	18
No loan limit	10	2	0	0	0	0	2.7	2
Upon demand from intermediary	5	1	7.9	3	13.3	2	8.2	6
Others	25	5	7.9	3	6.7	1	12.3	9
Total	100	20	100	38	100	15	100	73

(5) Reasonable interest rate

Present loan rates in Colombia are around 2% per month for low interest institutional loans, 3% for loans from commercial banks, and estimated 5% to 6% for informal loans. The responses to this question suggest that the enterprises cited interest rates slightly below those which are actually applied to their own loans. It is notable that Sml-Es cited 3.5% as a reasonable interest rate, indicating that the enterprise size has the highest financial demand and accepts relatively high interest rates.

Reasonable Interest Rate

(Unit: % per month)

Size	MEs		Sml-Es	Med-Es
Employees	2-5	6-10	11-49	50-199
Short-term loan	3.11	1.79	3.52	2.42
Long-term loan	2.89	2.07	3.54	2.46

I.4.4 Future Plan of Enterprises

(1) Expansion Plans

The enterprises having production expansion plans surpass a half. More than 75% of MEs have expansion plan in the future. In general, most of entrepreneurs are bright prospect in future demand and desire to invest for business expansion. Although it does not appear in the following table, 96% of enterprises which resonsed that they had expansion plan are scheduling to expend their factory within three years.

Production Expansion Plan

Size	MEs 2-10		Sml-Es 11-49		Med-Es 50-199		Total	
Employees	(%)	(Nos.)	(%)	(Nos.)	(%)	(Nos.)	(%)	(Nos.)
Yes	77.5	55	70.9	61	65.7	23	72.4	139
No	22.5	16	29.1	25	34.3	12	27.6	53
Total	100	71	100	86	100	35	100	192

(2) Financial plans

The average investment per enterprise required for their expansion plan is shown below. Capital requirement for such investment is estimated as about 10 million Pesos per enterprise for MEs, 43 million Pesos for Sml-Es and 148 million Pesos for Med-Es. Although the sum of own finance and loan requirement does not agree with the total capital requirement due to inconsistency in responses to the questionnaire, the total capital requirement is planned to be met by 30% equity and 70% loan.

Amount of Total Investment

(Unit: million pesos)

Size	MEs	Sml-Es	Med-Es	Total
Employees (Nos.)	2-10 (55)	11-49 (61)	50-199 (23)	(139)
Total investment	19.91	91.75	1,228.53	1,340.19
Self financing	7.51	24.63	423.12	455.26
Loan	15.91	70.33	796.97	883.21

I.4.5 Government Assistance Expected, etc.

(1) Governmental assistance expected

Governmental assistance most strongly desired by private enterprises is financial support, which was indicated by more than 70% of MEs and more than 60% of SMEs. This is followed by technical assistance and marketing support. As stated in the preceding section, the policy for support through financial service and technical training is essential factor for the rearing and promotion of private enterprises.

Government Assistance Expected

Size / Employees	MEs 2-10		Sml-Es 11-49		Med-Es 50-199		Total	
	(%)	(Nos.)	(%)	(Nos.)	(%)	(Nos.)	(%)	(Nos.)
Financial support	71	53	63	61	59	20	65	134
Technical support	17	13	31	30	20	7	24	50
Marketing support	11	8	4	4	3	1	6	13
Others	1	1	2	2	18	6	5	9
Total	100	75	100	97	100	34	100	206

(2) Interest in industrial park

The smaller enterprises show stronger interest in industrial park. The result accords with the observation obtained through diagnosis survey made by the Study Team. Working environment in factories of MEs and Sml-Es is poor and factory space is not necessarily sufficient for future expansion. This condition seems to be reflected in the responses of MEs and Sml-Es.

Interests in Industrial Park

Size / Employees	MEs 2-10		Sml-Es 11-49		Med-Es 50-199		Total	
	(%)	(Nos.)	(%)	(Nos.)	(%)	(Nos.)	(%)	(Nos.)
Interested	84	61	83	80	53	17	79	158
No interested	16	12	17	16	47	15	21	43
Total	100	73	100	96	100	32	100	201

I.5 Selection of Promising Sub-sector or Products

I.5.1 Selection Criteria

Each sub-sector of the metalworking industry was evaluated in accordance with the following selection criteria. The selection criteria were conceptualized to four major criteria of "Domestic market", "Export increase", "Technological level", and "Contribution to metalworking and other industrial areas", each of which was sub-classified as follows:

(A) Domestic market

a) A product for which domestic market is small at present and cannot be expected to grow significantly in the future (Negative factor);

b) A product for which domestic market is small at present but can be expected in the future so as to require the increase in the number of manufacturers;

c) A product for which the sufficient number of manufacturers operate to satisfy domestic demand, including the future demand (Negative factor); or

d) A product for which demand is big at present and potential supply capacity to satisfy the demand exist, requiring the increase in supply capacity in the future.

(B) Export increase

a) A product which is exported in minimal quantities at present and has less possibility of export increase (Negative factor);

b) A product which is exported in minimal quantities at present but has high possibility through improvement of competitiveness in quality and price;

c) A product which is exported in significant quantities but is not expected to increase exports in the future (Negative factor); or

d) A product which is exported in significant quantities and is expected to increase export in the future too.

(C) Technological level

a) A product which can be manufactured by slightly improving currently available technology in Colombia or introducing some equipment;

b) A product which cannot be manufactured by currently available technology in Colombia but is highly needed to develop domestic production in the future as a country's development policy; or

c) A product which is desirable to continue dependence upon imports because of necessity of highly sophisticated technology (Negative factor).

(D) Contribution

a) A product which highly contributes to the metal-working industry;

b) A product which highly contributes to other industrial areas; or

c) A product which highly contributes to improvement of living standard.

All products subjected to this Study have been classified one by one into the above sub-classified elements of each criterion. The results are shown in Table-6.

As the first step of the selection procedure, each product was examined by the criterion of "(C) Technological level". A product which falls in the negative factor,

namely (C)-c), was removed from the promising products, being market by "X" in the table, even if it satisfies other conditions.

Second, each products was examined by the criterion of "(A) Domestic market". A product which falls in the negative factors, namely (A)-a) or (A)-c), is not prospective in aspect of domestic market, being market by "X" in the table. However, those products which were marked by "X" are not necessarily removed from the promising products because some products might be prospective in the export market.

Finally, each product was examined by the criterion of "(B) Export increase". A product which falls in the negative factors, namely (B)-a) or (B)-c), is not prospective in aspect of the export market. Possibility of the export increase was judged mainly using a measure whether the domestically produced product has competitiveness in international market in quality and price. And then, a product for which negative factors were put in both criteria, "(A) Domestic market" and "(B) Export increase" at the same time, was removed from the promising industry.

Besides, since the criterion of "(D) Contribution" does not have any negative factors in its sub-classified elements, there is no product which was removed from the promising product under this criterion. Products remained after above filtration in terms of technology level and marketability were identified as the promising products.

I.5.2 Promising Sub-sectors/Products Selected

Using the above criteria, sub-sectors/products have been examined and resulted in as shown in Table-6.
As a result, 11 sub-sectors/products were selected as the promising industries in the short-term, and 7 as the promising sub-sectors/products in the medium- and long-term.

The last column of Table-6 shows suitable production capacity for each product. Here, symbols "L", "M", "S" and "ME" stand for large-, medium-, small-, and micro-scale.

Promising industries on the short-term basis

1) Repairing of agricultural machinery and construction equipment, and production of their spare parts
2) Preparing and modification of machine tools
3) Production of small automotive parts for after-market use
4) Production of assembly and repair parts of motorcycles
5) Electrical household appliances
6) Small and general molds (for plastic and press)
7) Electric motors, in particular 40HP or larger output models with 3-phase
8) General-purpose pumps and valves
9) Plastic molding machines
10) Furniture
11) Interchangeable components (Bolts, Nuts, etc.)

Promising industries on the medium- and long-term basis

1) Hand tractors
2) Small- and medium-sized lathes, milling machines, and radial drilling machines
3) Major automotive parts for assembly
4) Large and high precision molds
5) Medium- and large-sized pumps and valves, and high- and medium-pressure pumps and valves
6) Diesel engines
7) Hydraulic equipment components

Table-6 SELECTION OF PROMISING PRODUCTS

		Domestic Market (A)				Export Increase (B)				Technological Level (C)			Contribution to : (D)			Results of Selection		
		a)	b)	c)	d)	a)	b)	c)	d)	a)	b)	c)	a)	b)	c)			
	Present	×	×	○	○	×	×	○	○	○	×	×	Metalwork industry	Other sector	Improvement life	Promising in short term	Promising in medium and long term	Appropriate size of production scale
	Future	×	○	×	○	×	○	×	○	○	○	×						
Negative Factor as Promising Product		×		×		×		×				×						
Agricultural Machinery	Components & Repair		○			×				○				○		○		M, S, ME
	Tractor		○				○				○			○			○	M, S
	Combine/Thresher Harvester	×				×					○			○				M
	Coffee pulper			×				×		○				○				M
	Sowing machine			×		×				○				○				M
	Implements			×				×		○				○				S, ME
Construction Machinery	Components & Repair		○			×				○				○		○		S, ME
	Assembly	×				×					○			○				M
Machining Tools	Repair		○				○			○			○			○		S, ME
	Lathe		○				○				○		○				○	M, S
	Drilling machine		○				○			○			○				○	M, S
	Milling machine		○				○				○		○				○	M, S
	Grinder	×				×						×	○					M, S
	Shearing machine			×		×				○			○					M, S
	Bender	×				×				○			○					M, S
	Press			×		×				○			○					M, S
Transportation Equipment	Automobile ass'y			×		×					○							L, M
	Autobicycle components				○		○				○			○		○	○	M, S
	Autobicycle ass'y			×		×				○								L, M
	Autobicycle components		○				○			○	○			○		○	○	M, S
	Bicycle			×		×				○								L, M
	Elevators			×		×				○				○				M
Audio-Visual Equipment	Television			×		×				○					○			L
	Radio and Tape recorder	×				×					○				○			L, M
	Stereo			×		×				○					○			L, M
	Video recorder		○			×						×			○			L, M
Home Electric Applience	Refrigelator				○		○			○					○	○		L, M
	Washing machines				○		○			○					○	○		L, M
	Air-conditioner				○		○			○					○	○		L, M
	Cooking range				○		○			○					○	○		L, M
Electric Machinery	Electric motor				○		○			○			○	○		○		L, M
	Transformer			×		×				○				○				M
	Generator	×				×					○			○				M, S
	Panel			×		×				○				○				M, S, ME
	kWh meter			×		×				○				○				M, S, ME
	Switch, Relay			×		×				○				○				M, S, ME
Industrial Machinery	Boiler	×				×					○			○				L, M
	Pump & Valve		○				○			○	○			○		○	○	M, S
	Diesel engine		○				○				○			○			○	L, M
	Gasoline engine		○			×						×		○				L
	Compressor			×		×				○				○				L, M
	Blower			×		×				○				○				L, M
	Hydraulic component		○			×					○		○	○			○	M, S, ME
	Plastic injection machine		○				○			○				○		○		M, S
Metal furniture					○				○							○		M, S, ME
Basic Components & Tools and Jigs	Bearing, Oil seal, O-ring				○	×						×	○	○				L, M
	Shaft, Pin, Gear, Spline				○	×				○			○	○		○		S, ME
	Hand tool, Cutting tool				○	×						×	○	○				L, M
	Mould, Die		○			×				○	○		○	○		○	○	S, ME
	Chain, Belt		○			×						×		○				L, M
	Sprocket wheel, V-belt wheel		○			×				○				○		○		M, S

Note: ○ : possible, increasing or effective
× : impossible, not increasing remarkably or not effective

I.6 Promotion Policies for Micro, Small and Medium Enterprises and Related Organizations in Colombia

I.6.1 Measures to Promote Small and Medium Scale Enterprises and Microenterprises

The Socio-Economic Development Plan (Plan de Economia Social) announced by the Government of Colombia in August, 1987 states that the promotion of SMEs and MEs will play a crucial role in Colombia's employment, income and production increases. For the smooth and successful promotion of these enterprises, a series of basic laws and plans to support this objective must be introduced in view of the establishment of more definite legal and implementation systems. Efforts to consolidate the legal system for the implementation of promotion plans have just begun in Colombia and, as of February, 1990, only one act and one plan relevant to the objective, i.e. Law 78 showing the framework for the promotion of SMEs and MEs and the National Plan for the Development of Microenterprises (PNDM), have been introduced. The former was enforced in December of 1988 while the first and second plans for the latter were announced in March of 1984 and May of 1988 respectively. The contents of the Act and Plan are discussed below.

(1) Basic law for the promotion of SMEs and MEs (Law 78)

Enforced on December 21, 1988, Law 78 is a law to promote SMEs and MEs consisting of 15 articles to provide the framework for promotion measures. As of February 1990, the Ministry of Economic Development prepared the enforcement ordinance for the law.

The objectives of Law 78 are as follows:

1) To foster companies of all sizes to grow, i.e. MEs in the informal sector to Sml-and Med-Es, Sml-Es to Med-Es then Med-Es to LEs.

2) To encourage entrepreneurship for individual businesses and MEs, most of which are run by individuals, and to redistribute income and loans to the low income class.

3) To make SMEs contribute to the creation of employment, regional development, reorganization of industries, redistribution of income, formation of national capital and creation of new enterprises by implementing of comprehensive promotion measures.

4) To establish an effective cooperation system for related authorities and organizations by clarifying guidelines for national actions in view of the consolidation of manpower training and utilization efforts which will play an important role in the improvement of productivity.

5) To promote the development of favorable environment for establishment of new SMEs, MEs, as well as better management.

In addition to the above objectives, this law prescribes definition of MEs and SMEs, the role of Ministry of Economic Development, the method of financial support, the creation of Fund for Technical Assistance and Technology Development for MEs and SMEs (Fondo de Asistencia y Desarrollo Tecnologico de la Microempresa y la Pequena y Mediana Industria), the method of technical assistance, and the role of National Fund for Project Development (Fondo Nacional de Proyectos al Desarrollo - FONADE).

The points of the Law 78 are the commissioning of the CFP to act as a financial institution for SMEs and MEs, the establishment of the Technical Development Fund and the assignment of the SENA to promote technological development. Also important are that the CFP is required to allocate 25% of its total loans to MEs and that the IFI is demanded to allocate 7% of its credit to MEs and SMEs.

One problem of the Law is that the definition of MEs differs from the traditional definition used by the DNP. The DNP definition which has been adopted in the present study classifies those enterprises with up to 10 employees as MEs while the corresponding figure in Law 78 is 20. The credit line for MEs adopted by the Inter-American Development Bank also defines MEs as those with 10 employees or less.

(2) The National Plan for the Development of Microenterprises (PNDM)

The PNDM (Plan Nacional para el Desarrollo de la Microempresa) is not a legal decree but is a national plan prepared by the DNP and authorized by the Consejo Nacional de Politica Economica y Social (CONPES).

The PNDM commenced in March, 1984 under the leadership of the DNP and was expanded in May, 1988 under the new PNDM/1988 - 1990. The PNDM has been a movement on a substantial scale to promote MEs, involving not only government organizations but also a number of non-government organizations (NGOs), particularly various types of foundations, labor unions, domestic financial institutions, international financial institutions, especially the Inter-American Development Bank (IDB), and universities.

The basic objective of the PNDM is to support the development of MEs under the recognition that they are an important element in the economic development of the country and in the creation of employment opportunities. In addition, the PNDM intends to advance the living standard of workers by upgrading management, production technologies, productivity and social participation.

The following seven strategies have been introduced in order to achieve the objectives described above. The first three strategies were inherited from the original PNDM which commenced in 1984 while the other four were added for the PNDM/1988 - 1990.

1) Training related to management;

2) Advice related to management;

3) Expansion and consolidation of finance for MEs;

4) Establishment and expansion of marketing organizations (for material procurement and product sales);

5) Organization of MEs into associations and cooperatives;

6) To develop a legal system to promote the development of MEs; and

7) To promote technical development.

Many government organizations have been promoting the PNDM while some 30 NGOs have been participating in training and finance with some 6 financial institutions involved in institutional financing.
Some 150,000 enterprises received a certain kind of assistance under the PNDM with total loans amounting to 7.2 billion pesos in the period between 1984 when the first PNDM commenced, and mid-1989. Assuming the number of MEs in Colombia to be one million, some 15% of the MEs have benefited from the PNDM.

I.6.2 Government Organizations for Promotion of SMEs and MEs

Government organizations preparing and promoting development plans in the industrial sector are the DNP responsible for the preparation of national policies, the Ministry of Economic Development responsible for administration in the industrial sector, the Ministry of Labor and Social Security responsible for vocational training and the Ministry of National Education responsible for the promotion of science and technology.

Those organizations directly involved in the promotion of SMEs and MEs are the DNP and Ministry of Economic Development.

(1) DNP

Two organizations in the DNP are closely related to the present study, i.e. the Industrial Development Unit under the Directorate of Sectoral Development and the Directorate of Social Development. The former is responsible for the preparation of general industrial development policies while the latter is responsible for improving productivity and efficiency of MEs - considered as the weak in the society - and providing benefits of social security to larger population.

The Directorate of Social Development, which is the counterpart of the Study Team and originally proposed the PNDM, has been coordinating the various organizations participating in the PNDM. At present, DNP has no special section responsible for matters related to SMEs. Although it was decided to establish the division on microenterprises and enterprise cooperation (Division de Microempresas y Empresas Asociativas) under Decreto 2410 issued in October 1989, no significant activity is carried out as of July 1990.

(2) Ministry of Economic Development

In Colombia, the Ministry of Economic Development is the administrative organ for industrial and trade affairs and is also responsible for the promotion of SMEs and MEs. The Ministry of Economic Development prepared the draft for Law 78, in which the establishment of a section dealing with SMEs and MEs was stipulated.

Although there exist two sections relating to MEs and SMEs in the ministry; namely Section for Small and Medium Enterprises and Section for Microenterprises, Handicrafts and Informal Sector, only section chiefs were appointed in these sections as of February, 1990.

The ministry has a total of some 100 staffs, most of which is assigned to the jobs relating to general affairs or management and coordination work within the ministry, so that staffs to work for external administrative activities are lacked.

I.6.3 NGO and Microenterprises

There is no legal definition of an NGO in Colombia. Assuming that an NGO is a non-profit private organization established in view of social welfare, however, Colombia has 5,000 - 6,000 NGOs, most of which are foundations established by private enterprises. The importance of NGOs in the promotion of MEs is undeniable and the PNDM cannot succeed without their cooperation.

While NGOs are generally concerned with providing assistance for the poor and the fostering of MEs, each NGO has its own field of work and conducts a wide range of activities with subject fields including the education of the poor, finance, health, culture, sports,low cost housing and various assistance for MEs (training, education and finance and new establishment, etc.) No single NGO covers the entire range of activities but each has its own programmes.

Major functions of those NGOs participating in the PNDM are 1) to identify needs of MEs, 2) to provide training and education for MEs, 3) to make arrangement of finance and 4) to provide advice on management. The advantages of promoting MEs through NGO assistance rather than by direct government involvement are 1) ease in cooperating with entrepreneurs to determine their requirements and solutions to problems, 2) direct contact with entrepreneurs and continuing services for them, 3) better understanding of the local characteristics, 4) ease in establishing a trustworthy relationship with MEs and 5) provision of flexible services without bureaucratic redtape.

I.6.4 Trade Associations by Size of Enterprises

(1) Asociacion Nacional de Industriales (ANDI)

The ANDI was established in Medellin on September 11, 1944 as an association of private enterprises. Its members are leading large and medium scale enterprises in various industrial fields. In addition to the main office in Medellin, it also has offices in such main cities as Bogota, Barranquilla, Bucaramanga, Cali, Cartagena, Pereira, Manizales, Ibague and Armenia.

The 5 main objectives of the ANDI are as follows:

1) To contribute to the improvement of society, economy and production to upgrade the living standard of the public

2) To protect the interests of member enterprises through the provision of various services

3) To contribute to national development by cooperating with the Government

4) To act as a representative of member enterprises in dealings with both the Government and the public

5) To provide data and information to assist member enterprises in dealings with social and economic problems both at home and abroad

(2) Asociacion Colombiana Popular de Industriales (ACOPI)

The ACOPI was established in 1953 by the merger of the Asociacion de Pequenos Industriales de Barranquilla (ADIBA), Organizacion de Pequenos Industriales Colombianos (OPICOL), Asociacion de Pequenos Industriales de Occidente (APIO) and Asociacion Colombiana de Pequenos Industriales (founded in Bogota in 1951).

SMEs are playing an important role in the domestic economy. The ACOPI aims at the vitalization of the

Colombian economy through the creation and fostering of SMEs. Its activities are divided into those which are jointly conducted with other private or public organizations and those based on its own programs.

(3) Confederacion Nacional de Microempresarios de Colombia (CONAMIC)

The CONAMIC was established in Manizales on April 20, 1985. Although many small cooperatives or associations of MEs began to emerge all over Colombia at the beginning of the 1980's, they never reached a size capable of representing MEs in negotiations with the Government or public organizations. Against this background, the SENA and UNICEF believed that the unification of these cooperatives and associations was essential for the promotion of MEs and their efforts resulted in the establishment of the CONAMIC.

Any informal or formal microenterprise is eligible for membership of CONAMIC, but such personal businesses as street vendors and home helpers are excluded from the CONAMIC. The CONAMIC currently has 7 regional groups with some 3,000 members as of 1989.

The socio-economic basis of MEs is weak in all the related aspects, such as productivity, profitability, organizational strength and credit worthiness. The CONAMIC represents these weak MEs in their negotiations with the Government in order to protect their interests and also provides various services for the promotion of MEs.

I.6.5 Metalworking Related Organizations

Both of FEDEMETAL and COPIME play an important role in the metalworking industry. While the former is a federation of metalworking enterprises, the latter is a kind of incorporated trading enterprise engaged in the purchase and marketing of raw materials and machinery. The activities of these 2 organizations are described below.

(1) Federacion Colombiana de Industrias Metalurgicas (FEDEMETAL)

The FEDEMETAL was established on April 4, 1955 as a non-profit private organization and was the first federation of enterprises in Colombia covering specific industries (metalworking industry and steel industry).

The FEDEMETAL has the following objectives:

1) To represent the interests, requirements and demands of member enterprises in relation to government agencies and the general public.

2) To encourage mutual cooperation and joint work between member enterprises.

3) To support the systematic introduction and diffusion of new technologies for the benefit of the industries while also supporting scientific and technical research on related industrial areas.

4) To promote the development of member enterprises by employing measures which can be implemented through own efforts of the industries, industrial organizations or government agencies related to the industries.

5) To collect, systematize and diffuse information and documents relating to the industries and activities of member enterprises.

6) To actively participate in economic agreements or plans agreed by the Colombian government with foreign countries, which relate to the interests of member enterprises or the industry.

7) To plan and execute cooperation with international economic organizations or associations for the benefit of the steel industry and metalworking industry in Colombia.

(2) Cooperativa de Industriales Metalurgicos LTDA (COPIME)

The COPIME is a cooperative (in the form of a limited company) formed by SMEs (approximately 10 - 100 employees) in the metalworking industry situated in the Bogota area. At present, it has 250 members and provides services only for its members. It was established in February, 1963 with the purpose of unifying SMEs in the metalworking industry, protecting the interests of its members and assisting their development.

The main business of the COPIME is to purchase raw materials and machinery for metalworking purposes and resale them to members. In this context, it can be said that the COPIME acts as a trading company with a cooperative character. In addition, the COPIME has a financing function, providing financial assistance for the members. Other services include seminars on production technologies and management techniques and the introduction of new products and new technologies through its bulletins. It has some 40 staff members, half of which are engaged in the transportation and distribution of raw materials while the other half consists of administrative staff which provide various services for members.

I.6.6 Promotion of Subcontracting and Subcontracting Exchange (Bolsa de Subcontratation)

The Colombian Subcontract Service Foundation (Fundacion Servicio Colombiano de Subcontratacion) was created in 1988 to promote subcontracting business in Colombia.
In addition, the Bolsa de Subcontratacion were established as the executing body in Bogota in 1987, Medellin in 1988 and Cali in 1989.

The work of the Bolsa de Subcontratacion is to record data on prospective subcontractors in the computer and to provide this information to those enterprises requiring subcontractors.

An enterprise looking for a subcontractor submits an inquiry to the Bolsa de Subcontratacion and receives a list of possible subcontractors chosen from the databank. On receiving this list, the enterprise (prospective contractor) directly negotiates with the prospective subcontractor and the Bolsa de Subcontratacion is not involved in these negotiations. This matching service is provided free of charge.
The first databank was created for the metalworking industry, followed by the plastics processing industry. The creation of databanks for the sewing industry and the printing industry are currently in progress.

I.6.7 Industrialization Policies

Those systems closely related to the promotion of SMEs and MEs and their implementation conditions have so far been described. Here, industrialization measures which are common for all types of industries and all sizes of enterprises are briefly discussed. Refer to I.7 for the financial system for industrial promotion and I.8 for organizations providing technical assistance.

(1) Export promotion

1) Certificado de Reembolso Tributario (CERT)

This is an export promotion system under which exporters of Colombian products can redeem a certain percentage of the export value (FOB price). This redemption is made in pesos by means of a certificate for tax deduction (CERT) issued by the Central Bank. However, such traditional export commodities as coffee, oil and petroleum products are excluded from the system. The CERT is transfer-

able and can be used to pay income tax, customs duty or commodity tax, etc. at its face value. The rate of redemption depends on the type of product to be exported and is reviewed every year. The highest rate is currently 12% of the FOB price.

2) Plan Vallejo

This is a system to partially or totally exempt the imports of raw materials and capital goods (machinery and others) used for the production of export products from deposits or import tax. In addition, import licences are preferentially granted for the imports of capital goods, raw materials and intermediate products which are required for the production of export products and services.

3) Free Zones (Zona Franca)

A total of six free zones have so far been established and two additional zones are under development to promote exports, domestic and foreign investment and efficient imports.

These free zones are under the control of the Ministerio de Desarrollo Economico and the INCOMEX. There are both industrial and commercial zones in these free zones and bonded warehouses controlled by the ministry are located in the commercial zones.
The act governing the free zones was amended in 1985 by Law 109. In accordance with the law, free zones are exempt from local regulations, meaning that all production and commercial activities in the free zones are treated in the same way as those abroad.

4) Fondo de Promocion de Exportacion (PROEXPO)

The PROEXPO was established pursuant to Decree 444 of 1967 which aimed at the promotion of exports and its activities are a) provision of export credit,

b) promotion of exports and c) surveys on foreign markets. 6% of the 18% special import duty is allocated to the PROEXPO to support its activities.

(2) Programa Bienes de Capital (PBC)

The Capital Goods Program (PBC) was jointly prepared in 1985 by the Colombian government and the UNIDO with a time limit of 5 years to promote the import substitution of capital goods and to correct trade imbalance where 50% of the total demand for intermediate goods and 80% for capital goods were imported.

The PBC consists of the following sub-programmes.

1) Selection of promising industries and feasibility studies on selected industries (MONOGRAFIAS)
2) Promotion of industries (PROIN)
3) Promotion of technologies (PROTEC)
4) Studies on economic means to promote industries (ECONO)
5) Establishment of an information system (INFO)
6) Provision of information on domestic products (SIPNA)

(3) Protection of domestic products

1) Government procurement

Decree 222 of 1983 stipulates the contract method of public works requiring the use of designated domestic products, the use of national labor, etc. The government and public corporations also try to give priority to domestic enterprises under the PBC in view of expanding the procurement of domestic products.

2) Tariff system and import licences

Colombia has a multiple tariff system consisting of general tariffs, LAIA preferential tariffs and ANCOM preferential tariffs. In general, the gener-

al tariff rate on the CIF price, a 10% sales tax and an 18% special duty are imposed on imported goods. The highest general tariff rate is 55% with the exception of a 200% tariff rate which is imposed on importation of automobiles in the complete built-up form.

There are 2 types of import licences,

Free licence (Licencia Libre)
Previous licence (Licencia Previa)

Besides, the import of certain items is prohibited. While tariff rates and import licencing are major means of protecting domestic products, the liberalization of trade has become an urgent issue for the Colombian economy in addition to industrial restructuring. The INCOMEX has expressed its intention to proceed with trade liberalization transferring items from the Licencia Previa category to the Licencia Libre category in the next three years, and to reduce tariff rates in the subsequent two years.

In February 1990, toward trade libralization 861 items were transferred from the Licencia Previa category to the Licencia Libre one, resulting in 2,860, 2,229 and 54 items of the Licencia Libre, Licencia Previa and Prohibido categories respectively.

3) Protection of assembly industry

The Colombian government instructed the Superintendence of Industry and Commerce (Superintendencia de Industria y Comercio) under the Ministry of Economic Development, to introduce restrictive regulations relating to the assembly industry pursuant to Decree 3218 issued on November 22, 1983 in which enterprises manufacturing the following items have been accredited by the Government as assembly enterprises.

Automobiles/motorcycles (including parts), tele phones and switchboards, household electrical appliances, small aircraft, bicycles, engines, mobile electrical machinery, elevators, tractors and electronic equipment

A total of 46 enterprises have so far received the accredition and further 50 have made applications. In the automobile and motorcycle industries, however, only 3 and 4 enterprises respectively have been accredited and no further accredition will be granted in these industries.

An enterprise accredited as an assembly enterprise has the following obligations.

a) To secure technology transfer from abroad
b) To gradually increase the local content
c) To increase exports in stages

In exchange for these obligations, the enterprise has the following benefits.

a) Assurance of a domestic market share due to the lack of excessive competition, in turn due to the limitation of the number of enterprises in each type assembly of industry

b) Advantages in obtaining government contracts due to the status of domestic manufacturers

c) Protection due to tariff protection against the import of similar finished products

I.7 Financing System for MEs and SMEs

I.7.1 Colombia's Financial Systems and MEs and SMEs

Colombia's financial institutions include commercial banks, finance corporations, commercial finance companies, saving and home loan corporations, which are playing important roles under cooperation with the central bank. In addition, there are credit cooperatives which intermediate credit service to associations, as well as private foundations which supply own funds to MEs and poor people. In practical terms, the Colombia's financial market is divided into two segments; while relatively large scale enterprises receive loans from commercial banks, SMEs and MEs raise funds from the directed credit system (institutional finance by the government), program loans using loans from the World Bank and the Inter-American Development Bank (IDB), and informal markets including friends, relatives, and private lenders.

This means, SMEs and MEs are almost not able to borrow funds from the commercial banks. From the commercial bank's side, loans to smaller companies present a high risk due to poor credit rating and require relatively a high percentage of administration cost to reduce the profit margin. From the borrower's side, on the other hand, smaller companies see loans from commercial banks require complicated procedures - many of them cannot prepare required documents - and take a long period of time not to meet urgent need. In addition, they cannot pledge sufficient collateral or guaranty. Thus, Sml-Es and MEs tend not to receive loans from commercial banks. According to our questionnaire survey and interviews with SMEs and MEs, many of them pointed out difficulty in raising funds from commercial banks and were reluctant to apply for loans by commercial banks because of the above reasons. Under this circumstance, SMEs and MEs require a credit system suitable for their needs. Table-7 shows credit systems available to SMEs and MEs.

I.7.2 Directed Credit System for SMEs and MEs - FFI

A directed credit service for the industrial sector provided by the Colombian government is the Industrial Finance Fund (Fondo Financiero Industrial: FFI). FFI's fiscal resource is raised from forced investment which commercial banks and finance corporations are forced to make by the Monetary Board. FFI's loans are directed to SMEs (having total assets of 140 million pesos or less) at preferential interest rates.

Commercial banks and finance corporations are supposed to act as the intermediary institutions for the FFI loans, but they are reluctant to do so partly because of controlled lending rates to reduce the spread, and partly because the strict evaluation procedure requires relatively large time and cost. As a result, although the FFI loans grew at an annual average rate of 17% between 1983 and 1988, a real growth after taking into account inflation rates showed negative figures. This is because the intermediary institutions have given priority to World Bank's SME loans rather than the FFI loans.

Without any doubt, the FFI loans have been playing important roles in supplying funds to SMEs and MEs especially to SMEs. Nevertheless, they have not been fully utilized partly due to strict requirements and complicated procedures and partly due to lack of incentive for the intermediary institutions in terms of low profit margin, although the free limit was raised to 20 million pesos.

The government, however, is moving to abolish the forced investment system and the preferential interest rate in the course of liberalization for financing sytem as a part of overall economic liberalization policy.

I.7.3 World Bank's SME loans

The World Bank has recently completed the fourth round of loans for SMEs (SME4) and is currently negotiating with the Colombian government to start SME5 in 1990. The total amount of the SME5 loans will be doubled from US$40 million in SME4 to US$80 million, thereby to emulate the FFI loans as the directed credit system for SMEs. Compared on a basis of actual loaned amounts, FFI is larger than SME4 and before, with their difference being decreased gradually. Today, the FFI and SME4 loans serve as two pillars of institutional finance system for SMEs. Since lending interest rates for the SME loans are higher than those for the FFI loans, the World Bank is negotiating with the Colombian government to adjust conditions of the FFI loans closer to or the same as those of the SME loans.

Finally, under the SME5 loans, an attempt is being made to increase the number of intermediary institutions (only CFP for SME4) to commercial banks and finance corporations to provide a wider channel of lending.

I.7.4 IDB's Line for MEs

The IDB line provided by the Inter-American Development Bank (IDB) is designed to provide loans only for MEs. Combination of the financial service by the National Microenterprises Development Program (PNDM) and the educational service for business owners, is giving this program unique characteristics. As the interest rate on loans from the IDB to the central bank is only 2%, the 21% spread can be attained while offering a sufficiently low interest rate (23%) to MEs, thereby securing cost for the educational service. Project identification, education and training, and technical advice after lending are left to private foundations and SENA which has a nationwide service network, while loans are issued through credit cooperatives and CFP. Use of private foundations - non-profit service organizations peculiar to Colombia - as the support system makes it possible to provide services suitable for needs of MEs.

On the other hand, this loan scheme has a major disadvantage in fund limitation. [Note: The IDB line amounts to US$10 million, consisting of US$7 million by the IDB and US$3 million of counter fund, compared to US$235 million in total under the SME5 scheme, consisting of US$80 million by the World Bank and US$155 million of counter fund. The FFI loans amounted to US$350 million in 1988.] Another problem is that the scheme is not well known by MEs due to lack of advertisement, as found from results of the questionnaire survey and interviews. The IDB line is still at the experimental stage and can be developed into an effective credit system with further upgrading. Recently in 1990, the government held negotiation with IDB for the continuation of IDB line as the second phase. In the second IDB line, the preferential interest will be abolished on a step-by-step basis to go toward market interest levels. (Note: the above data was as of October 1989)

I.7.5 Credit Guaranty System

FNG provides credit guaranty for SMEs and MEs, while FOMENTAR provides the same for MEs under the BID line incorporated into PNDM. Nevertheless, the credit guaranty system for SMEs and MEs in Colombia is considered to be insufficient and ineffective in terms of both quality and quantity. For instance, FNG's guaranty covers only 80% of loan amount, while FOMENTAR has a limited amount of financial resource and requires an association to be formed by 5 to 20 borrowing companies.

Table-7 SUMMARY OF FINANCING SYSTEM TO SMEs and MEs

Name of Finance	Intermediary Institution	Scale of Beneficial Enterprises	Remark
1. FFI Ordinary Finance	Commercial Banks, Agro. Credit Banks, Finance Corporations	Total assets: less than C$140m (Small & Micro)	Interest rate: 30% in Bogota area Max. Loan size: C$7m
2. FIP Investment Finance	Commercial Banks, Finance Corporations	Total assets: more than C$140m (Medium & Large)	Interest rate: 31% or 32% in Bogota area Max. Loan size: C$553
3. FCE Capitalization Finance	-ditto-	Any scale	Interest, rate: 31% or 32.5% Max. loan size: C$200m, C$600m, C$800m by type
4. PROEXPO Export Promotion Finance	-ditto-	Any scale (For export business only)	Interest rate: 28% for large scale enterprises 26% to 27% for other scale of enterprises
5. Ordinary loan of Commercial Banks	Commercial Banks	Any scale	Interest rate: about 36% Loan for small-and micro-enterprises is few
6. Own Finance of Various Foundations	Foundations themselves	Microenterprises, Poor Individuals	Interest rate: about 23% Interest rate and beneficiaries vary by each foundation
7. Leasing	Leasing Companies	Any scale	Leasing for small-and micro-enterprises is few
8. IDB 800/SF (BID Line)	Application: Foundations and SENA Financing: Intermediate Finance Institutions such as CFP and Credit Cooperatives	Microenterprises (10 or less workers)	Interest rate: 23% Training of a foundation or SENA is a mandatory condition for financing
9. IBRD Loan 2464-CO (SME-4)	CFP	Total assets: less than US$ 790,000 (Micro-, Small-, and Medium-Scale Enterprises)	Interest rate: 31% The fund was fully committed. Fifth SME loan is under preparation

Note : DTF is assumed as 28% for calculation of the above interest rate.
C$ = Colombian Peso
As of October, 1989

I.8 Technical Assistance Organizations for Metalworking Industry

The metalworking industry requires a wide range of technical support for development, as compared to other industries, for the industry uses a number of processes to shape a raw material into a finished product, and each of the processes requires reliable and high technological levels to assure quality of final products. Moreover, the quality of each process is often determined by skills of workers. Furthermore, the metalworking industry is characterized by high degree of division of labour, i.e., one factory seldom handles an entire production process, so that unified industrial standards need to be established and enforced to ensure smooth flow of work between processes.

Given these characteristics, to develop metalworking industry requires organizations to provide technical support at a national level. Such technical support organizations should be vested with the following functions:

- To conduct vocational training service to produce competent workers for the industry,
- to promote development of industrial standards and to support quality control activities, and
- to carry out research, inspection, and testing upon request from industries.

In Colombia, there is no organization designed to provide technical support specifically for the metalworking industry, but there are some organizations which partly serve such purpose. These organizations are outlined as follows.

I.8.1 Vocational Training Institutes

The following organizations are leading vocational training institutes which are described in the following sections:

- National Training Service (SERVICIO NACIONAL DE APRENDIZAJE-SENA)
- Don Bosco Technical School (CENTRO DON BOSCO)

(1) National Training Service (Servicio Nacional de Aprendizaje: SENA)

The National Training Service (SENA) is the only one and largest national vocational training institute. SENA has been playing an important role in industrial development of the country, and is expected to further expand its roles and upgrade services.

1) Background and objective of establishment

SENA was established in 1957 under Decree No.118 as a government-operated public corporation supervised by the Ministry of Labour and Social Security. A primary purpose of SENA is to implement the government's social policies by means of human resource development and vocational training. In particular, SENA is responsible for the following:

a) To develop Colombians, through vocational training, to competent and responsible professional workers possessing moral and cultural values in addition to technical skills and knowledge to become a leader of the country's development.

b) To assure sustainable industrialization and socioeconomic development process as a national organization to provide vocational training.

c) To apply technical, technological, educational and methodological systems. These systems are to meet the requirement of Colombian industry and are useful for improving living standards of poor people.

2) Subjects of SENA's vocational training

a) All economic sectors, including agriculture, livestock farming, manufacturing, commerce, and service, as well as the informal sector which accommodates most of unemployed workers and

part-time employees.

b) Youths and adults who join labour force for the first time.

c) Workers who are willing to improve or perfect their skills and knowledge.

d) Business owners who need advice and assistance for successful growth.

3) Operating funds

SENA receives most of operating funds from companies, both public and private, in an amount equivalent to 2% of wages and salaries paid to employees, and from the government officials in an amount equivalent to 0.5% of salaries.

In addition, SENA has financial resources from 1) compensation for services rendered to private industries, 2) revenues from sales of products manufactured in the course of training, 3) revenues from vocational training projects contracted with public organizations and private companies, and 4) penalties imposed on violation of labour laws and regulations.

4) Results of activities

Endowed with stable financial resource (56.1 billion pesos in 1988), large work force (8,204 employees in 1987), a nationwide branch network (20 in 1990) and training facilities (95 in 1989), SENA has been conducting a wide range of activities.

The number of persons who received SENA's vocational training amounted to 840,000 nationwide in 1988. Compared to 360,000 in 1983, the figure grew at an annual average rate of 18.5%.

5) Training facilities for manufacturing and Metalworking industries

Of 95 vocational training centers operated by SENA (as of 1989), 24 are specialized in industry fields. In metalworking fields, metalworking centers are located in Bogota and Antioquia, and casting centers in Bogota and Santander. In addition, the industrial center divisions in regional branches have metalworking sections.

Training areas related to metalworking are machine tools, automobiles, diesel engines, welding, plate working, electricity, electronics, casting, piping, refrigeration, industrial testing, heat treatment, quality control and robots.

(2) Don Bosco Technical School (Centro Don Bosco)

Centro Don Bosco, established in 1957 as a missionary school, is a private technical school located in Bogota. Its primary purpose is to provide 6-year vocational training for young people between 16 and 20 years old, who have completed its 5-year primary education program. The school offers training programs in the following areas. At present, approximately 1,600 students are enrolled and around 250 are graduated annually to join work force.

1) Metalworking and assembly
2) Plating
3) Welding
4) Casting and pattern making
5) Electricity
6) Printing and bookbinding
7) Furniture and woodworking
8) Technical arts and ornamentation

In addition, it provides the following paid services:

1) Nighttime vocational training for general public

2) Processing and operations requested by private companies
3) Testing and inspection (e.g., plating, welding) requested by private companies
4) Technical assistance requested by private companies

I.8.2 Organizations to Promote Standardization and Quality Control Activities

The following organizations are classified in this category:

- Colombian Standards Institution (Instituto Colombiano de Normas Tecnicas: ICONTEC)

- Quality Control and Metrology Center (Centro de Control de Calidad y Metrologia: CCCM)

(1) ICONTEC

ICONTEC was originally established in 1963 as a non-profit private organization. In 1984, it was authorized as a national organization to promote standardization under Decree No.2746. Today, ICONTEC is involved in activities related to standardization and quality control.

1) Standardization

CONTEC coordinates development of draft industrial standards under participation of the government and industries. Industrial standards are approved and issued by the National Council on Standards and Qualities (Consejo Nacional de Normas y Calidades: CNNC) under the Ministry of Economic Development, organized by representatives of ministries.

According to the 1988 catalog (Catalogo de Normas Tecnicas Colombianas), around 2,500 standards have been completed to this date. Industrial areas encouraged for establishment of standards are

agriculture and livestock farming, metalworking, electrical products, civil engineering and architecture, safety and hygiene and chemical industry.

2) Quality control

In quality control areas, ICONTEC is engaged in activities to promote use of industrial standards and to improve quality levels of Colombian products.

ICONTEC issues certificates to companies which products comply with applicable standards. The companies are authorized to affix "ICONTEC" stamp to products upon shipment. ICONTEC conducts field inspection on companies which manfacture the certified products and evaluates whether appropriate quality control is practiced.

ICONTEC also provides assistance and advice to companies which intend to obtain the certificate. Furthermore, ICONTEC publishes monthly reports (Boletin Informativo) and periodical magazines (Normas y Calidad) to make information on standards and technologies avail to public.

ICONTEC employs approximately 120 persons, including 30 engineers. The number of members totals to approximately 1,500 organizations, which are mainly large companies, universities and colleges, and associations, but not many SMEs and MEs.

ICONTEC has only one office in Bogota at present, however, it is applying for increasing branches in Medellin, Cali and Barranquilla. Also, it does not own any testing laboratory and uses outside organizations for testing on product certification:

(2) Quality Control and Metrology Center (CCCM)

CCCM was established in 1977 under the technical assistance from West Germany and is supervised by the

Superintendence of Commerce and Industry of the Ministry of Economic Development. CCCM provides legal services related to regulation of metrology to protect consumers, and technical services for manufacturers. It has various prototypes for metrology and conducts testing and calibration with charge, for requests from private companies.

I.8.3 Organizations Providing Services to Private Companies in Areas of Research, Inspection, and Testing

Colleges and research institutes listed in Table I-8 conduct tests requested by private companies and issue certificates.

I.8.4 Industrial Parks (Parques Industriales)

(i) Industrial park development policy (Decree 2143/1979)

Colombia has established a national policy for development of industrial parks, as set forth in Decree 2143 of 1979, entitled "For Promotion of Establishment of Industrial Park Corporation".

Underlying concept of this decree is to foster industries and create employment opportunity in regional cities for the purpose of slowing down population migration into three largest cities of Bogota, Cali, and Medellin. In other words, development of industrial parks is envisaged as means of regional development through decentralization of industries.

In Colombia, industrial parks are developed by private companies or cooperatives, instead of the government or public corporation. The public sector participates in incorporation of a private company to construct and manage the industrial park, followed by equity participation in some cases. Thus, Decree 2143/1979 intends to promote development of industrial parks by granting financial and tax incentives to

private developers.

(2) Current situation of industrial parks

To this date, the following 9 industrial parks have been certified by the Ministry of Economic Development under Decree 2143/1979.

Name	Year certified
Bucaramanga	1980
Cucuta (Oriente)	1982
Quindio (Calarca)	1980
Manizales	1981
Malambo (Barranquilla)	1980
Duitama	1981
Pereira	1980
Popayan	1983
Guarne	1981

Since the government has not carried out the follow-up study on these industrial parks after 1985, quantitative analysis based on latest data is not possible. Results of interview with people associated with industrial parks, however, revealed general agreement in that the certified industrial park program was failure; all the parks except Manizales and Bucaramanga could not attract tenant industries and are left vacant. Some of the parks have not started site development due to lack of tenant industries, and even in the parks which have been developed and sold, no tenant industries have not settled. Also, no industrial park has been certified after 1985. To improve the situation, official investigation to identify problems related to these parks will be conducted and a meeting to plan necessary actions will be held under participation of representatives from related organizations.

Table-8 INSTITUTIONS OF R & D, INSPECTION AND TESTING FOR METALWORKING INDUSTRY

	Institutions	Location
A. Public		
1)	UNIVERSIDAD NACIONAL DE COLOMBIA INSTITUTO DE ENSAYOS E INVESTIGACIONES (IEI)	BOGOTA
2)	INSTITUTO DE INVESTIGACIONES TECNOLOGICAS (IIT)	BOGOTA
3)	EMPRESA DE ENERGIA ELECTRICA DE BOGOTA (EEEB)	BOGOTA
4)	INSTITUTO COLOMBIANO DE HIDROLOGIA, METEOROLOGIA Y ADECUACION DE TIERRAS (HIMAT)	BOGOTA
5)	INDUSTRIA MILITAR (INDUMIL)	BOGOTA
6)	UNIVERSIDAD NACIONAL DE COLOMBIA - SECCIONAL MEDELLIN	MEDELLIN
7)	UNIVERSIDAD DE ANTIOQUIA	MEDELLIN
8)	EMPRESAS PUBLICAS DE MEDELLIN (EEPP DE MEDELLIN)	MEDELLIN
9)	SERVICIO NACIONAL DE APRENDIZAJE (SENA)	MEDELLIN
10)	UNIVERSIDAD DEL VALLE	CALI
11)	CENTRO DE DESARROLLO TECNOLOGICO - REGIONAL VALLE - ASTIN - SENA	CALI
12)	UNIVERSIDAD INDUSTRIAL DE SANTANDER (UIS)	BUCARAMANGA
13)	UNIVERSIDAD FRANCISCO DE PAULA SANTANDER	CUCUTA
14)	UNIVERSIDAD PEDAGOGICA Y TECNOLOGICA DE COLOMBIA	TUNJA
15)	UNIVERSIDAD DE NARINO	PASTO
16)	SERVICIO NACIONAL DE APRENDIZAJE (SENA)	BARRANQUILLA
17)	UNIVERSIDAD DE CARTAGENA	CARTAGENA
B. Private		
18)	UNIVERSIDAD DE LOS ANDES	BOGOTA
19)	ESCUELA DE ADMINISTRACION Y FINANZAS Y TECNOLOGICAS (EAFIT)	MEDELLIN
20)	SIDERURGICA DE MEDELLIN S. A. (SIMESA)	MEDELLIN
21)	UNIVERSIDAD PONTIFICICA BOLIVARIANA (UPB)	MEDELLIN

Source: DIRECTORIO NACIONAL DE LABORATORIOS Y CENTROS DE INVESTIGACION.
SECTOR ELECTRICO COLOMBIANO.

II. CONCLUSION AND RECOMMENDATION

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This part concludes observations and recommends promotion measures for the small and medium scale enterprises and microenterprises in the metalworking sector, developed on the basis of analyses of the questionnaire survey, the diagnoses of enterprises, interviews with related organizations, and experiences of the Study Team. The metalworking industry in Colombia is still in the developing stage and needs to clear many problems prior to modernization. More precisely, the metalworking industry has a wide range of problems related to three major factors of development; (1) markets; (2) technology; and (3) finance.

It should be noted that problems associated with these factors, that are closely related to each other, are hindering healthy development of the metalworking industry. For instance, modernization of production technology entails replacement of the existing obsolete equipment, which then requires a significant amount of funds. At the same time, modern production equipment is designed to produce high-quality products in large quantities which would pay off when there is high purchase price. Volume production needs to be supported by a growing market having a sufficient size.

In Colombia, however, the metalworking industries are characterized by obsolete production equipment which constitutes an important part of production technology. Furthermore, institutional financing, needed to encourage modernization by the SMEs and MEs is not widely available. Finally, the industries do not have enough of a market to recover the investment for modernization.

Based on these understandings, this part sets forth a series of recommendations to address the present problems based upon the concluded observations. Naturally, they do not make up a plan to solve problems addressing the above three factors all at the same time. Rather they are designed to be implemented with patience in consideration to priorities and difficulties.

The Study Team believes that the best approach to solve the existing problems is to implement these promotional measures on the basis of the long-term viewpoint. In particular, it is strongly be emphasized repeatedly that the metalworking industry

serves as a foundation of industrial development and requires considerable time and expenditure for modernization.

Table-9 summarizes a general structure of recommendations made in this part and illustrates their roles in general framework of promotion measures for SMEs and MEs. The column "General Promotion Measures for SMEs and MEs" in the table constitutes a comprehensive policy package for promotion of SMEs and MEs, which was designed on the basis of the small business promotion policy in Japan - considered to be best prepared - and in consideration of local conditions peculiar to Colombia. Then, "Current Situation of Metalworking SMEs and MEs in Colombia and Their Problems" points out what lacks in the country. Finally, "Proposals and Recommendations" describes policies, projects and programs which need to be implemented with high priority.
Details of the recommendations are described in II.1 through II.8.

Table-9 RATIONALIZATION OF PROGRAMS AND PROJECTS RECOMMENDED IN THIS REPORT

Item	General promotion measures for SMEs and ME's	Current situation and problems of SMEs and ME's engaged in metalworking	Proposals and recommendations (programs and projects to be implemented with priority)
Securing and expansion of market	Securing of opportunity for government procurement Coordination of business activities with large companies Protection of domestic products and nationalization Fostering and protection of subcontracting enterprises Government assistance for export promotion Market information service Government assistance for sales promotion (e.g., sponsoring of trade fairs)	Markets for metalworking and machinery industries are too small. The assembly industry is not developed to generate enough demand for outside manufacturing, which is then monopolized by a few enterprises. Tariff protection has resulted in lack of international competitiveness to prevent the enterprises from entering the international market.	To develop environment for export promotion
Technological innovation	Government assistance in research and development Consultation and advice on production technology Implementation of testing and analysis on a contract basis Technical information service Training and education for engineers Promotion of industrial standardization and quality control	Poor quality of raw materials results in poor quality of final products Obsolete production equipment Insufficient production control Insufficient quality control Lack of technical support organizations	To establish the metalworking development center. To upgrade and bolster SENA's organization and service based on analysis of current situation To establish data banks for international industrial standard
Financial assistance	Establishment of government or semi-government financial institutions for SMEs and ME's Provision of loans under preferential conditions Credit service by loan guaranty and insurance Equipment leasing Provision of working calital by investment corporations	Shortage of financial resources for SMEs and ME's Poor advertisement on directed credit service Complicated loan application with strict requirements Lack of collateral Lack of credit	To establish a loan system for SMEs and ME's in metal-working (including equipment leasing and credit service)
Assistance for improvement of management	Support to organize SMEs and ME's into cooperatives and unions Support for creation of new enterprises Diagnosis and assistance related to management Promotion of modernization for designated industry groups Promotion of industries in designated areas Rationalization and collective siting of enterprises Tax incentive	The national program for development of ME's is underway. Lack of comprehensive plan and policy for SMEs Lack of tax incentive for SMEs and ME's	To develop industrial parks designed for the metalworking industry.
Preparation for implementation of promotion measures	Strengthening and improvement of government organization for promotion of SMEs and ME's Development and improvement of laws and regulations related to promotion of SMEs and ME's Establishment of department(s) and organization(s) specialized in promotion of SMEs and ME's Integration of development policies	Shortage of government staffs specialized in SMEs and ME's, and lack of government leadership Undeveloped legal system Insufficient government assistance without consistency and integrity	To improve comprehensive measures for promotion of SMEs and ME's Recommendations on development policy for metalworking industry