THE STUDY REPORT
ON
THE NATIONAL STANDARDIZATION AND INDUSTRIAL QUALITY CONTROL IMPROVEMENT PROGRAM
IN
THE REPUBLIC OF THE PHILIPPINES

(MAIN REPORT AND ANNEXES)

JANUARY 1990

JAPAN INTERNATIONAL COOPERATION AGENCY

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PREFACE

In Response to a request from the Government of the Republic of the Philippines the Japanese Government decided to conduct a study on the National Standardization and Industrial Quality Control Improvement Program and entrusted the study to Japan International Cooperation Agency (JICA).

JICA sent to the Philippines a study team headed by Mr. Masayasu Sakanashi of UNICO International Corporation on two occasions; from March 6 to March 23, 1989 and from June 4 to July 29, 1989.

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

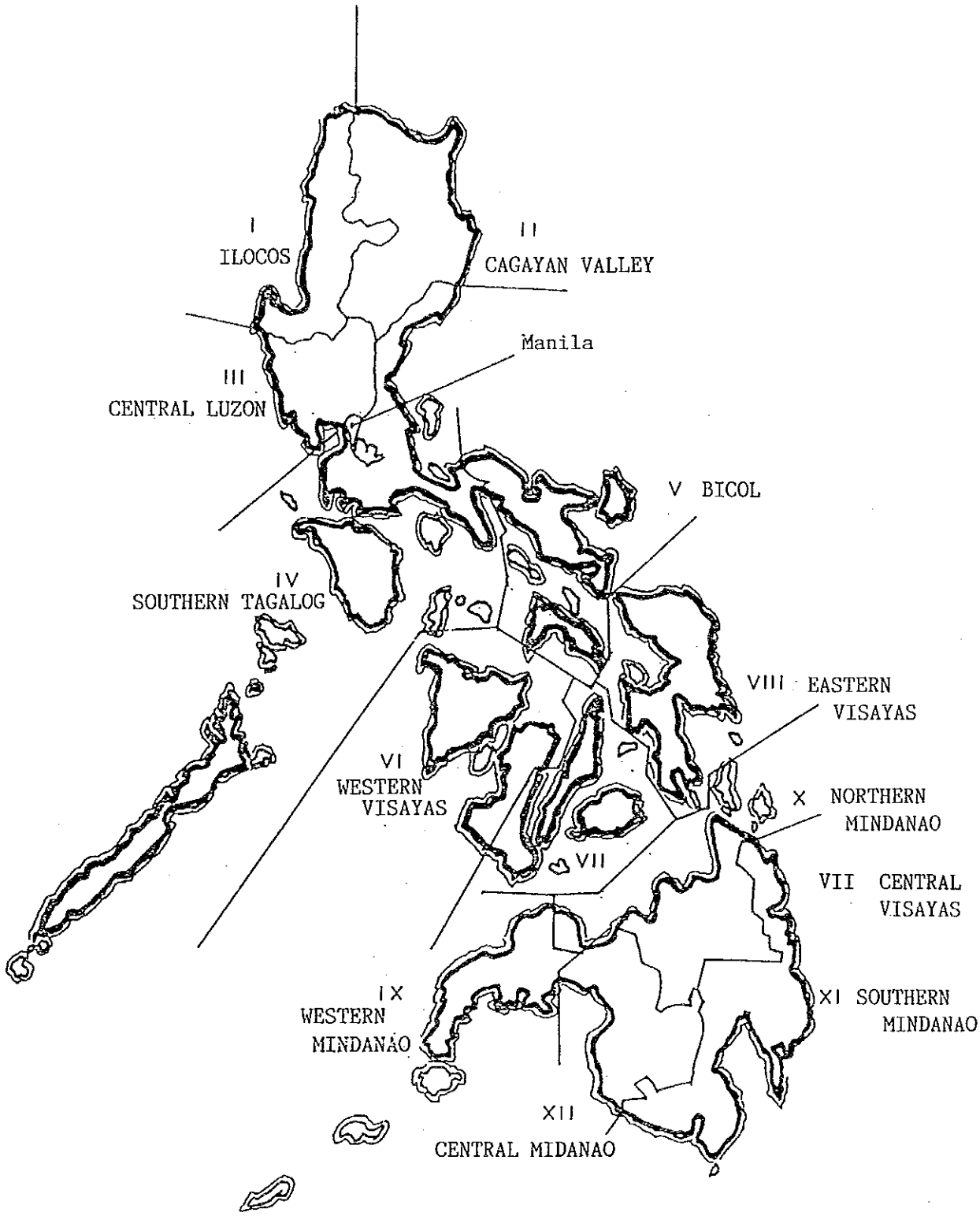
I hope that this report will contribute to national standardization and industrial quality control improvement and to the promotion of friendly relations between our two countries.

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

January, 1990

Kensuke Yanagiya

Kensuke Yanagiya
President
Japan International Cooperation Agency



MAP OF THE PHILIPPINES

LIST OF ABBREVIATIONS

Organization, Economic Terms

AGE	AG & E Allied Services Co.
AMTEC	Agricultural Machinery Testing and Evaluation Center
ANSI	American National Standards Institute
APCIQC	Asia-Pacific Industrial Quality Control
AS	Standards Association of Australia
ASEAN	Association of South-East Asian Nations
ASEPHIL	Asephil Manufacturing Corporation
ASTM	American Society Testing and Materials
ATTC	ASEAN Timber Technology Center
AUV	Asian Utility Vehicle
BEI	Bureau of Export Inspection
BETP	Bureau of Export Trade Promotion
BFAD	Bureau of Food and Drug
BOC	Bureau of Customs
BOF	Bureau of Forestry
BOI	Board of Investments
BPMM	Buy Philippine Made Movement
BPS	Bureau of Product Standards
BPSL	BPS Laboratory
BRS	Building Research Service
BS	British Standards Institution
BS	Bureau of Standards
BSMBD	Bureau of Small and Medium Business Development
CAD	Computer Aided Design
CC UNSON	C.C. Unson Company, Inc.
CCL	Cement Central Laboratory
CCP	Chamber of Commerce of the Philippines
CFIP	Chamber of Furniture Industries of the Philippines
CGAP	Compressed Gas Association of the Philippines, Inc.
CIAP	Construction Industry Authority of the Philippines

CIGI	Consolidated Industrial Gases, Inc.
CITC	Cottage Industry Technology Center
CITEM	Center for International Trade Expositions and Missions
CME	CME Engineering and Consulting Services
COA	Commission on Aupit
CRL	Chemistry Research Laboratory, Ataneo de Davao University
DAO	Department Administrative Order
DBM	Department of Budget and Management
DCI	Department of Commerce and Industry
DECS	Department of Education, Culture and Sports
DOF	Department of Finance
DOH	Department of Health
DOST	Department of Scienceano Technology
DOT	Department of Transportation
DPWH	Department of Public Works and Highways
DTI	Department of Trade and Industry
EO	Executive Order
EPZ	Export Processing Zone
FDC	Food Development Center
FEIC	Filipinas Electro Industrial Corporation
FIDA	Fiber Inspection and Development Authority
FIRESTONE	Philtread Tire & Rubber Corporation
FPRDI	Forest Products Research and Development Insitute
FTI	The Food Terminal Incorporated
GBAP	Garments Business Association of the Philippines
GDP	Gross Domestic Product
GMP	Good Manufacturers Practice
GOJ	The Government of Japan
GOODYEAR	Goodyear Philippines Inc.
GOP	The Government of the Philippines
GVA	Gross Value Added

DIN	Deutsches Institut Fur Normung
DND	Department of National Defense
ICA	International Cooperation Agency
ICC	Immaculate Conceptions College
ICC	Import Commodity Clearance
IEC	International Electrotechnical Commission
IFI	Industrial Fastner Institute
IIII	Industrial Inspection (Int'l) Inc.
IMF	International Monetary Fund
IP	The Institute of Petroleum
ITP	Industrial Tree Plantation
ISO	International Standardization Organization
ITDI	Industrial Technology Development Institute
ITG	International Trade Group
ITM	Industrial Test Master, Inc.
IWS	The International Wool Secretariat
JICA	Japan International Cooperation Agency
JIS	Japanese Industrial Standards
KFW	Industry Modernization Loan Program of the Federal Republic of Germany
LABTEST	Labtest Philippines, Inc.
LCV	Light Commercial Vehicle
LOI	Letter of Instruction
LPG	Liquefied Petroleum Gas
MIAP	Metalworking Industries Association of the Philippines
NCR	National Capital Region
NEC	National Economic Council
NEC	National Engineering Center
NEDA	National Economic and Development Authority
NEPA	National Economic Protectionism Association
NFA	National Food Authority
NHRC	National Hydraulics Research Center
NIST	National Institute of Science and Technology
NMC	National Metrology Center
NMYC	National Manpower and Youth Council

MIRDC	Metals Industry Research and Development Center
MTI	Ministry of Trade and Industry
NQC	National Quality Campaign
NSTL	National Standards and Testing Laboratory
OHP	Overhead Projector
OQCY	Outstanding Quality Control of the Year
OSTREA	Ostrea Mineral Laboratories
PAMCOR	Philippine Automotive Manufacturing Corporation
PARES	Philippine Airconditioning and Refrigerating Eng.
PASC	Pacific Area Standards Congress
PCCI	Philippine Chamber of Commerce and Industry
PCMP	Progressive Car Manufacturing Program
PD	Presidential Decree
PDC	The Productivity & Development Center of the Development Academy of the Philippines
PDDCP	Product Development and Design Center of the Philippines
PEA	Philippine Electroplaters Association
PHILACOR	Philippine Appliance Corp.
PHILCEMCOR	The Philippine Cement Manufacturers Corporations
PHILIPS	Philips Electrical
PHILSA	Philippine Standards Association, Inc.
PHILTREAD	Philtread Tire & Rubber Corporation
PHTRC	Postharvest Horticulture Training and Research Center
PICPA	The Philippine Institute of Certified Public Accountants
PIE	Philippine Integrated Exporters
PIP	Packaging Institute of the Philippines
PIPAC	Philippine Institute of Pure and Applied Chemistry
PLPGA	Philippine Liquefied Petroleum Gas Association, Inc.
PNI	Filipinas Nissan
PNS	Philippine National Standards
PPIAI	The Philippine Plastic Industrial Association, Inc.
PPM	Philippine Productivity Movement, Inc.
PS	Philippine Standards
PSO	Procurement Service Office

PSA	Philippine Standards Agency
PSME	Philippine Society of Mechanical Engineers
PSQC	Philippine Society for Quality Control, Inc.
PTC	Philippine Technological Council
PTNMA	Philippine Toy and Novelty Mfrs. Association, Inc.
PTRI	Philippine Textile Research and Development
PTTC	Philippine Trade Training Center
PWPA	Philippine Wood Products Association
QMI	Quality Management Institute
R&D	Research and Development
RA	Republic Act
RAMCAR	Ramcar Incorporated
RCP	Refractories Corporation of the Philippines, Inc.
RSTC	Regional Standards and Testing Center
SAE	Society of Automotive Engineers
SAO	Standards Administrative Order
SC	Sub-Committee
SGE	Superior Gas & Equipment Co. Inc.
SGS	SGS Far East Ltd., Philippines
SI	Systeme International Q' Unites (International System of Units)
SIME DARBY	Sime Darby Philippines Inc.
SPB	System and Procedures Bureau
TC	Technical Committee
TCAGP	Training Center for Applied Geodesy and Photogrammery
TMAP	Textile Mills Association of the Philippines
TPAP	Textile Producers Association of the Philippines
TTC	Transport Training Center
U.N.	United Nations
UDC	Universal Decimal Classification
UL	Underwriters' Laboratories
UM	University of Mindanao
UNIDO	United Nations Development Program
USCL	University of San Carlos Laboratory
XU	Xavier University

Unit

m	Meter	
kg	Kilogram	
S	Second	
A	Ampere	
°k	Kelvin Temperature	
cd	Candela	
mol	Mole	
pcs	Pieces	
mg	Milligram-Weight	
mm	Milimeter	
tf	Ton Force	
kgf/cm2	Kilogram Force	
mmHg	Millimeter of Mercury	
V	Voltage	
Ω	Ohm	
MHz	Megaherts	
GHz	Gigahertz	
KHz	Kilohertz	
°C	International Practical Temperature (Degree of Centigrade)	
%	Percentage	
ppm	Parts per Million	
μm	Micrometer	
L	Liter	
mV	Millivoltage	
μA	Micro Ampere	
MΩ	Mega Ohm	
g	Gram	
μV	Micro Voltage	
psi	Pound per Square Inch	1.0 psi = 0.07031 kg/cm2
lbs	Pounds	1.0 lb = 0.45359 kg

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MAIN REPORT AND ANNEXES

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MAIN REPORT

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BACKGROUND AND OBJECTIVES OF THE STUDY

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1-1 Background of the Study

In the Philippines, the public administration for the industrial standardization has been centralized to the Bureau of Product Standards (BPS) of the Department of Trade and Industry (DTI). BPS has been devoting to the intensive promotion of the national industrial standardization. At the present time, there is a total of 954 standards consisting of the Philippine National Standards (PNS) established by BPS and the international and foreign standards adopted by BPS. At the same time, a certification system based on these standards (PS Certification Mark System) has been enacted.

BPS is intensively pursuing the development of standards with the cooperation of industrial communities. For the deliberation of standards, there are a number of the Technical Committees (TC) which have been formed with the representatives of relevant industries and consumers, professionals and experts, and government officials concerned in the respective field. The testing and inspection for the PS Mark license are undertaken by the BPS's testing laboratory or others accredited by BPS. At present, there are 23 accredited laboratories which are managed by public or private organizations. For the extension and promotion of quality control in industry, the National Quality Campaign (NQC) is carried out under the initiative of the Philippine Productivity Movement (PPM) with the cooperation of private associations and the government organizations, while on the other hand, the government is preparing to restrict government procurement to PS marked standard products, thus the movement for standardization and quality control is intensifying as a whole.

However, the administrative capacity of BPS and also the quality and the number of the testing laboratories are situated in insufficient conditions, and the preparation and extension of standards are in an inadequate state. Also, the increased interest in quality control in the industry is limited to the large manufacturers or the leading exports manufacturers, and the small- and medium-scale manufacturers who serve the domestic market have a strong tendency to go to cost reduction by sacrificing quality in order to meet the low-price-oriented domestic market.

The Medium-Term Development Plan (1987-1992) which is the current national economic development plan of the Philippines aims at achieving an immediate economic recovery by means of 1) expansion of opportunities for productive employment in urban and rural areas, 2) alleviation of poverty, and 3) pursuance of equality and social justice, which can found the bases for ensuring sustained economic growth to be attained in the medium term. It calls for restructuring the economic structure so that the planned development can be achieved with harmonious economic balance. In this context, it is important to

take measures, first, for fostering export industries and thus promoting exports which lead to increases in foreign exchange earnings, thereby compensating for the outlay of foreign exchange derived from increases in the imports of capital goods, raw materials and intermediates which would arise along with the expansion of the national economy; and, secondly, for promoting the domestic production of those products for import substitution so as to minimize such imports to a possible extent. The domestic production for such import substitution, as long as it is economically feasible, could contribute not only to foreign exchange savings but also the creation of employment opportunities and the expansion of local markets which form the bases for the promotion of regional industry.

Nevertheless, such restructuring of the economic structure is not easy. It is essential to develop the manufacturing industry which is internationally competitive in terms of costs and quality, particularly with the upgrading and modernization of manufacturing technology and production management in the small- and medium-scale industry. The manufacturers who are engaged in the manufacturing of export goods or those manufacturing high quality goods even for the domestic markets use imported raw materials, intermediates and component parts because of unreliable quality of those supplied from the domestic manufacturers. It has impeded the development of linkages between the mainstream industry and their peripheral industries, resulting in expanding imports and adversely affecting the balance of payment.

In order to increase the export of industrial products from the Philippines and also in view of the above situation, it is of urgent importance to take necessary measures for improving the quality of locally produced industrial products so that the raw materials, intermediates and component parts having assured quality can be supplied from the domestic manufacturers as required, while taking measures for raising the confidence of the quality of Philippine made products in the international markets. Thus, the strengthening of the national setup for the extension of industrial standardization and quality control in the industry of the Philippines is immediately required. Under such a background, the Government of the Philippines (GOP) decided to formulate a program for industrial standardization and quality improvement in the Philippines, and in June, 1988 the GOP requested the Government of Japan (GOJ) to provide technical assistance for conducting the study on the National Standardization and Industrial Quality Control Improvement Program in the Republic of the Philippines (hereinafter referred to as "the Study"). In response to the request, the Japan International Cooperation Agency (JICA), the official agency responsible for the implementation of the technical cooperation program of GOJ, dispatched a preliminary study team to the Philippines in October, 1988, and the Implementing Arrangement for the Study was agreed on and signed between JICA and DTI.

1-2 Objective and Scope of The Study

The objective of this study is to formulate the master plan for pursuing 1) the promotion of industrial standardization, 2) improvement and extension of quality control of industrial products, and 3) improvement, upgrading and/or strengthening of testing and inspection required for standards development and products certification.

The scope of the Study is prescribed in the aforesaid Implementing Arrangement for the Study dated October 27, 1988.

Chapter 2

PRESENT SOCIOECONOMIC SITUATION OF THE PHILIPPINES AND THE PROGRAM FOR INDUSTRIAL STANDARDIZATION AND QUALITY IMPROVEMENT

Chapter 2 PRESENT SOCIOECONOMIC SITUATION OF THE PHILIPPINES AND THE PROGRAM FOR INDUSTRIAL STANDARDIZATION AND QUALITY IMPROVEMENT

2-1 The Current Socioeconomic Conditions, and Main Issues for Industrial Development

(1) Profile of the Philippines

The Philippines is an archipelago consisting of some 7,000 islands, including the Luzon and the Mindanao which are the main islands, and the socioeconomic spheres may be divided into three major areas, Luzon, Mindanao, and Visayas which encompasses a number of islands scattered between those two main islands. The administrative divisions, as shown in Figure 2-1-1, are composed of the National Capital Region (NCR) and twelve regions which have 71 provinces as subdivisions.

The socioeconomic indicators are shown in Table 2-1-1.

The GDP of the Philippines is lower than Thailand which has a population of about the same level, and is the lowest among the ASEAN nations. In view of the composition of the GDP by sector, it is characteristic that the agriculture, forestry and fishery sectors and the wholesale and retail sectors hold a major share of the GDP.

The external trades of the country are also extremely low compared to Thailand and Indonesia.

(2) Overview of the Economy

1) Economic growth and industrial structure

The economic growth of the Philippines rapidly decelerated on entering the 1980s. The real GDP in 1972 constant price recorded 99,920 million Pesos in 1983 having a growth less than 1% compared to the previous year, and with a negative growth in 1984 and 1985, it decreased to 89,803 million Pesos in 1985, falling to the level of 1979 (Table 2-1-2). Since the start of the Aquino administration in 1986, however, the real GDP tended to recover and recorded 101,534 million Pesos with a growth of 6.4% in 1988. On the other hand, the population of the Philippines continued an increase of an annual average of 2.5%, due to which the per capita real GDP showed only a slight rise during the 12 year period from 1,679 pesos in 1976 to 1,949 pesos in 1982, followed by a decline thereafter to 1,729 pesos in 1988, a level comparable to 1976.

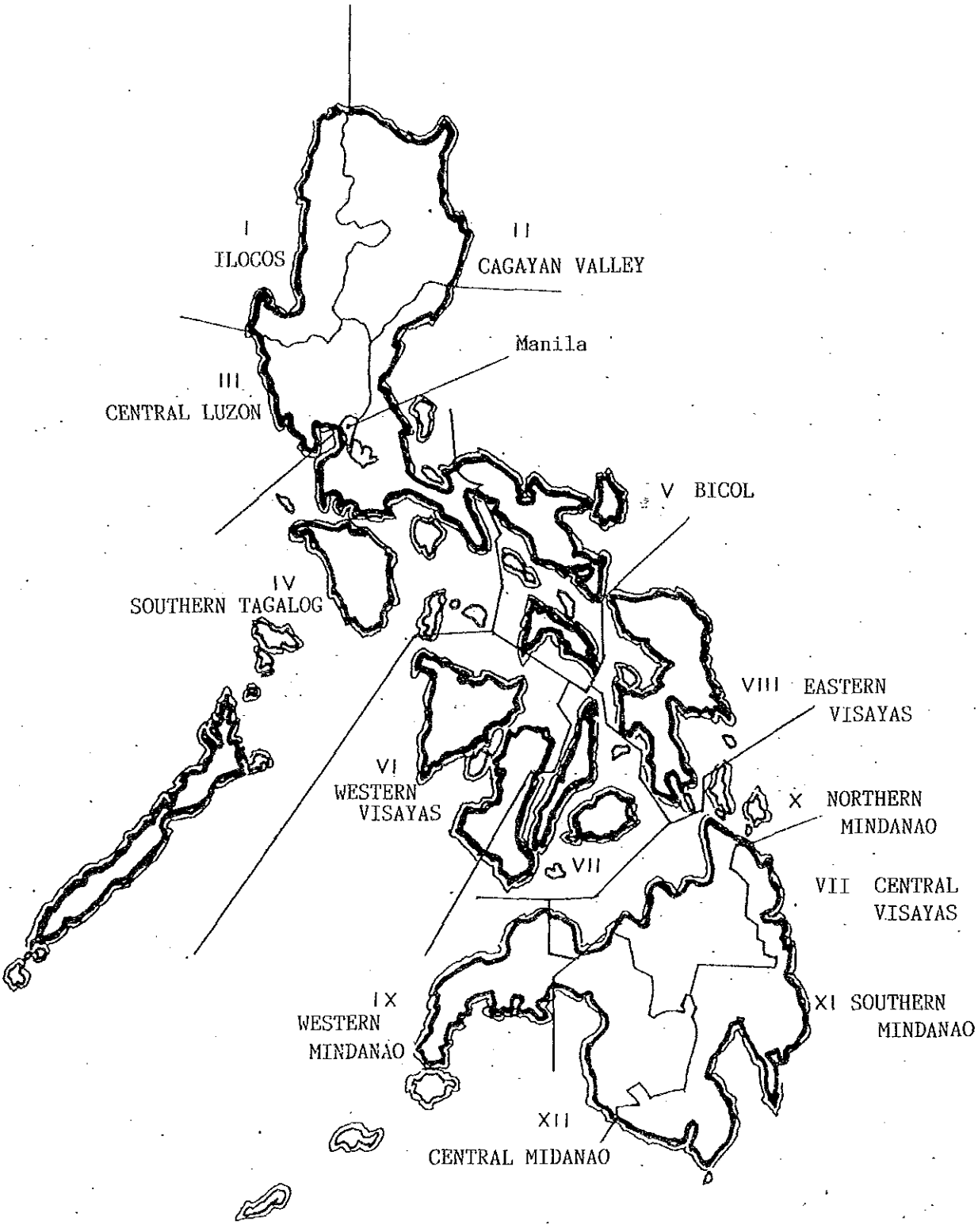


Figure 2-1-1 REGIONAL MAP OF THE PHILIPPINES

Table 2-1-1 SOCIAL AND ECONOMIC INDICATORS, THE PHILIPPINES

Indicators	Unit	Philippines	Reference			
			Indonesia	Thailand	S.Korea	Japan
1) Land Area	1,000 sq.km	300.0	1,904.6	513.1	99.0	377.8
2) Population (a) *1	million	58.7	175.6	54.5	42.0	122.6
Ratio of Urban Population to Total Population *2	%	5.7	8.5	10.1	40.4	20.6
Population Density	persons/sq.km	196	92	106	424	325
3) GDP (b) *3	billion US$	32.8	86.5	38.3	86.2	1,345.6
Per Capita GDP (a/b)	US$	559	493	703	2,052	10,976
Percent of GDP by Sector:						
- Agriculture, Fishery and Forestry	%	26	24	17	14	3
- Mining and Manufacturing	%	28	31	25	33	34
- Construction	%	4	5	5	8	7
- Wholesale and Retail	%	21	15	22	13	14
- Transporte and Communication	%	6	7	9	8	6
- Others	%	15	18	22	24	36
4) Foreign Trade *4						
- Exports	billion US$	17.0	48.2	37.3	143.7	643.4
- Imports	billion US$	21.0	32.8	45.4	125.2	462.7

Notes: *1 Estimates of mid-year population, 1988
*2 Urban population means the population in cities with population more than one million.
*3 In 1985
*4 In 1988

Table 2-1-2 GROSS DOMESTIC PRODUCT BY SECTOR, THE PHILIPPINES

(Unit: in 1972 million pesos)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
1. Agriculture, Fishery and Forestry	19,671	20,646	21,620	22,595	23,732	24,608	25,378	24,845	25,409	26,252	27,110	26,834	27,771
2. Industrial Sector	24,904	27,554	29,598	32,343	33,471	34,963	35,714	35,955	32,282	29,000	28,396	30,590	33,205
1) Mining & Quarrying	1,491	1,742	1,809	2,134	2,236	2,175	2,016	1,966	1,755	1,768	1,574	1,574	1,615
2) Manufacturing	17,481	19,532	21,108	22,239	23,175	23,959	24,535	25,108	23,319	21,541	21,717	23,618	25,251
3) Construction	5,254	5,568	5,913	7,121	7,139	7,830	8,079	7,689	5,866	4,258	3,382	3,967	4,344
4) Electricity, Gas and Water	678	712	768	849	921	999	1,084	1,192	1,342	1,433	1,723	1,908	1,995
3. Service Sector	28,387	29,790	31,579	33,408	35,503	36,636	37,907	39,120	36,236	34,551	35,674	38,039	40,558
1) Transportation	3,875	4,235	4,501	4,613	4,827	5,040	5,165	5,266	5,032	4,953	5,105	5,251	5,487
2) Trade	14,999	15,838	16,861	18,085	19,345	19,695	13,103	13,930	14,073	14,066	14,337	15,153	15,832
3) Finance & Housing	9,513	9,717	10,217	10,710	11,331	11,901	7,252	7,578	5,134	3,985	4,831	5,832	6,200
4) Services	-	-	-	-	-	-	12387	12346	11997	11547	11401	11803	13039
4. Total Gross Output (1+2+3) (Gross Domestic Product)	72,962	77,990	82,797	88,346	92,706	96,207	98,999	99,920	93,927	89,803	91,180	95,463	101,534
Per Capita GDP (pesos)	1,679	1,746	1,804	1,876	1,919	1,943	1,949	1,920	1,761	1,643	1,628	1,665	1,729
Population (thousand)	43,456	44,673	45,888	47,104	48,317	49,526	50,783	52,055	53,351	54,668	56,004	57,348	58,727

Source: National Accounts Staff, Statistical Coordination Office, NEDA

The composition of the GDP by sector in 1988, as shown in Table 2-1-3, comprised 27% accounted for by the agricultural sector, 33% by the industrial sector and 40% by the service sector. The share of the service sector showed no noticeable change, continuing a share of around 40% since the 1950s. The share of the industrial sector increased until the end of the 1970s, while the agricultural sector relatively declined. Since 1980, however, the industrial sector was stagnant resulting in a diminished share, and the agricultural sector increased.

The employment in the agriculture sector still accounts for nearly 50% of the whole. This fact indicates inadequate employment capacity of the industrial sector and the presence of a potential unemployment in the rural areas. Thus, it is essential that the work force retained in the agricultural sector is employed in productive activity to enhance the purchasing power and to expand the domestic market in order to realize a sustained expansion of the domestic industrial activity in the future and to form the foundation of a modernized industry expected to result from it.

2) International balance of payments and external trades

The economic collapse encountered during the period between the beginning to the middle of the 1980s is attributed to the development of inefficient industries enforced since 1970s with protective measures which have been heavily dependent on imported machinery, materials and parts. It led to a chronic excess of imports over exports and the deterioration of the international balance of payments, while stagnating the domestic production because of difficulties in importing the required raw materials and parts under the stringent conditions of foreign exchange.

The recent state of the international balance of payments and the external debts is shown in Table 2-1-4. The policy of economic expansion previously adopted was relied on external debts such as the financing by IMF, etc. since the 1970s. As a result, the external debts increased out of proportion to the scale of the domestic economic activities. Entering the 1980s, the Philippines' economy was adversely affected by several external factors, including the rise of the oil price, high interest rates in the Euro-market, stagnation of the world economy and the fall of the prices of the primary products, and with the deadlock of the negotiation to defer the external debts in 1983, the country was forced to implement a tight economic policy. Also, the switch to the floating exchange rate in 1984 further intensified the economic crises.

The international balance of payments of the Philippines has continued, since the first oil crisis, a pattern of covering the trade deficits and the invisible trade deficits with inflow of the loan and capital transfer. Up to 1983, the deficit of the overall balance of payments continued to increase year after year amounting to 2 billion US

Table 2-1-3 SHARE OF GDP BY INDUSTRIAL SECTOR, THE PHILIPPINES

(Unit: %)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
1. Agriculture, Fishery and Forestry	27.0	26.5	26.1	25.6	25.6	25.6	25.6	24.9	27.1	29.2	29.7	28.1	27.4
2. Industrial Sector	34.1	35.3	35.7	36.6	36.1	36.3	36.1	36.0	34.4	32.3	31.1	32.0	32.7
1) Mining & Quarrying	2.0	2.2	2.2	2.4	2.4	2.3	2.0	2.0	1.9	2.0	1.7	1.6	1.6
2) Manufacturing	24.0	25.0	25.5	25.2	25.0	24.9	24.8	25.1	24.8	24.0	23.8	24.7	24.9
3) Construction	7.2	7.1	7.1	8.1	7.7	8.1	8.2	7.7	6.2	4.7	3.7	4.2	4.3
4) Electricity, Gas and Water	0.9	0.9	0.9	1.0	1.0	1.0	1.1	1.2	1.4	1.6	1.9	2.0	2.0
3. Service Sector	38.9	38.2	38.1	37.8	38.3	38.1	38.3	39.2	38.6	38.5	39.1	39.8	39.9
1) Transportation	5.3	5.4	5.4	5.2	5.2	5.2	5.2	5.3	5.4	5.5	5.6	5.5	5.4
2) Trade	20.6	20.3	20.4	20.5	20.9	20.5	13.2	13.9	15.0	15.7	15.7	15.9	15.6
3) Finance & Housing	13.0	12.5	12.3	12.1	12.2	12.4	7.3	7.6	5.5	4.4	5.3	6.1	6.1
4) Services	-	-	-	-	-	-	12.5	12.4	12.8	12.9	12.5	12.4	12.8
4. Total Gross Output (1+2+3) (Gross Domestic Product)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Table 2-1-2

Table 2-1-4 BALANCE OF PAYMENT AND FOREIGN EXCHANE RESERVES, THE PHILIPPINES

(Unit: million US$)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
1. Trade Balance (1)-2))	-1,060	-764	-1,307	-1,541	-1,939	-2,224	-2,646	-2,482	-679	-482	-202	-1,017	-1,085
1) Exports of Goods	2,574	3,151	3,425	4,601	5,788	5,722	5,021	5,005	5,391	4,629	4,842	5,720	7,074
2) Imports of Goods	3,634	3,915	4,732	6,142	7,727	7,946	7,667	7,487	6,070	5,111	5,044	6,737	8,159
2. Services (Net)	-259	-248	-107	-311	-399	-309	-1,040	-730	-855	26	783	0	-77
1) Inflow	871	1,085	1,484	1,655	2,222	2,896	2,983	3,127	2,619	3,288	3,791	3,454	3,606
2) Outflow	1,130	1,333	1,591	1,966	2,621	3,205	4,023	3,857	3,474	3,262	3,008	3,454	3,683
3. Transfer (Net)	269	260	312	355	434	472	486	472	236	379	441	573	789
1) Inflow	280	273	322	369	451	485	498	483	237	388	445	575	791
2) Outflow	11	13	10	14	17	13	12	11	1	9	4	2	2
4. Current Account Balance (1+2+3)	-1,050	-752	-1,102	-1,497	-1,904	-2,061	-3,200	-2,740	-1,298	-77	1,022	-444	-373
5. Long-term Loans (Net)	1,040	662	891	1,151	1,032	1,332	1,548	1,392	539	2,787	815	159	-329
1) Inflow	1,407	1,242	1,850	2,110	1,579	2,072	2,533	2,336	1,308	3,962	2,545	2,598	2,372
2) Outflow	367	580	959	959	547	740	985	944	769	1,175	1,730	2,439	2,701
6. Direct Invetments (Net)	144	216	100	20	-102	175	17	112	-7	-9	114	326	986
1) Inflow	185	236	134	146	119	248	194	255	121	124	186	439	1,077
2) Outflow	41	20	34	126	221	73	177	143	128	133	72	113	91
7. Short-term Capital (Net)	-332	-172	-90	-458	310	-219	-56	-618	623	-1,731	-814	80	-205
8. Errors and Omissions	37	210	115	145	126	-214	-207	-387	251	638	-101	-144	40
9. Non-monetary Account Balance (5+6+7+8)	889	916	1,016	858	1,366	1,074	1,302	499	1,406	1,685	14	421	492
10. Monetization of Gold	-	-	32	41	128	400	277	183	150	221	279	365	314
11. Allocation of SDR	-	-	-	28	29	27	-	-	-	-	-	-	-
12. Revaluation Adjustments	-	-	-	-	-	-	-	-	-	560	-68	-78	83
13. Overall Balance (4+9+10+11+12)	-161	164	-54	-570	-381	-560	-1,621	-2,058	258	2,389	1,247	264	516
Foreign Exchange Reserves	1,596.8	1,479.4	1,763.0	2,249.7	2,846.1	2,065.9	887.8	746.9	602.1	614.9	1,728.2	1,959.0	2,059.0
Debt Service Ratio (%) *1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	35.0	32.3	30.8	26.0
Official Rate of Foreign Exchange (Peso/US$)	7.38	7.35	7.31	7.32	7.45	7.83	8.46	11.13	16.57	18.54	20.39	20.57	21.09

Sources: Philippine Statistical Yearbook 1987, NEDA
*1 World Debt Table 1987-88 Edition, IBRD

dollars in 1983, with the trade deficit of 2.5 billion US dollars. Since 1984, the trade deficit decreased by the control of imports, resulting in a surplus of the overall balance of payments. Since 1987, however, imports started to increase again with the recovery of business, and the overall balance of payments have decreased.

The mainstream of the Philippines' exports has changed from such traditional primary products as sugar, coconut, copper concentrates, etc. to non-traditional manufactured products such as semiconductors and other electronic parts, garments, etc. In 1986, the export of electronic parts and garments accounted for 25% and 21% of the total export amount respectively. These, however, are mostly exports of consignment-based manufactures which are based on the raw materials and parts supplied from abroad by the foreign buyers of the final products. Among other exports, phosphoric acid and phosphate fertilizers, food, toys, handicrafts, etc. follow.

In imports, raw materials and intermediates account for 50% of the total imports. Of this, the consignment-based imports of raw materials and intermediates account for a majority.

3) Centralization of the economic activities in Metro Manila

More than 50% of the gross value added in the manufacturing sector and also more than 50% of the employment are concentrated in the Metro Manila region. Such concentration phenomena has been derived from the economic superiority of the location of the region, consisting of such factors as the presence of an international port, relatively well established infrastructure, easy access to the central organizations and the biggest domestic market supported by the residents accounting for 10% or more of the total population. The government has currently been pursuing the regional development focusing on the promotion of regional industries utilizing local resources with the development of export processing zones or industrial estates in the regions and also with the provision of BOI's incentives to the industrial investments in the regions. In recent years, the industrial investments in the Cebu region show a substantial increase, followed by the regions of Cagayan de Oro and Illigan in the North Mindanao and Davao in the South Mindanao where the industrial investments have gradual increases. In general, however, the regional markets are situated in limited conditions. Even for the firms located in the regions, their main market is limited to the Manila area. Thus, the location of operation in the regions has an economic disadvantage.

4) Medium-term economic development plan

Under the Medium-Term Development Plan (1987-1992) adopted after the start of the new administration in 1986, the government has been pursuing a reform of economic policies. In this Medium-Term Development Plan, the development of the agricultural sector is given the top priority, aiming at creating productive job opportunities for surplus workers in the rural areas to eradicate the poverty and further to enhance the purchasing power in the rural areas. The industrial sector is also given the important role following the agricultural sector. The Plan calls for the pursuance of immediate measures for regional dispersion of industry and the development of the regional industries, aiming at the effect, in the short range, to eradicate the poverty and further to raise the purchasing power in the rural areas, together with the development of the agricultural sector.

The Medium-Term Development Plan, as shown in Table 2-1-5, targets a growth of real GNP averaged at 6.4% per year to restore the per capita GNP to the highest level recorded in the past by 1991. The increase of investments is set at 10.2% per year in real terms, with the ratio of the nominal total investment to GNP set at an average of 16.6%, centered on private investments with public investments accounting for 5-6%. The Plan also aims at expanding consumption expenditures to gear the restoration of economic activities as discussed before, putting a growth target for the private consumption expenditure at an annual average of 5.6% in real terms and the government consumption expenditures at an annual average of 6.1% in real terms.

These targets, as shown in table 2-1-6, reveal a strong desire of attaining a substantial growth of the economy far over the actual growth recorded in the period of 1983-87.

Thus the Plan tasks to take immediate steps to achieve a balanced growth between agriculture and industry and between the metropolitan region and other regions, while aiming to eradicate social unrest, in order to expand the domestic market and form the foundation to develop a modern industry in the future.

(3) Overview of Industrial Development

1) Changes in economic policies and industrial development

The Philippines is a country which has launched into industrial development relatively early among the ASEAN countries, which is characterized by industrialization promoted with various protective measures.

Table 2-1-5 OUTLINE OF MID-TERM ECONOMIC DEVELOPMENT PLAN (1987-1992), THE PHILIPPINES

(Unit: Annual Growth Rate in %)

	1987	1988	1989	1990	1991	1992	Average, 1987-1992
GNP, Real	6.0	6.0	6.5	6.5	6.5	7.0	6.4
Per Capita GNP (pesos)	1,651	1,709	1,779	1,852	1,928	2,020	1,823
- Private Consumption Expenditure	4.7	5.3	5.7	5.7	5.7	6.2	5.6
- General Government Consumption Expenditure	6.0	6.5	6.5	6.5	6.5	6.5	6.4
- Total Consumption Expend.	10.6	9.7	9.7	9.9	10.6	10.6	10.2
Exports	6.0	6.5	7.0	7.0	7.3	7.9	7.0
Imports	5.0	7.0	7.0	7.0	8.0	9.0	7.2

Source: NEDA

Table 2-1-6 GROWTH RATE OF GROSS VALUE ADDED BY SECTOR AND FOREIGN TRADE, THE PHILIPPINES

(Unit: % p.a.)

	1987-1992, Planed	1983-1987, Actual
1. Agriculture, Fishery and Forestry	5.0	-0.3
2. Industrial Sector	8.8	1.9
1) Mining & Quarrying	4.2	0.0
2) Manufacturing	7.6	2.1
3) Construction	16.5	4.1
4) Electricity, Gas and Water	8.4	2.6
3. Service Sector	6.6	1.6
4. Export	14.1	9.5
1) Manufacturing	12.5	9.9
2) Re-export	10.4	-10.6 *1
5. Import	14.8	7.1 *1
1) Capital Goods	17.2	10.8 *1
2) Raw Materials	15.2	12.2 *1
3) Consumer's Goods	14.5	18.2 *1

Source: NSO
Note: *1 Growth rate between 1984 and 1987.

The initial development of industry was started with the coconut oil industry and the sugar refining industry based on coconut and sugar cane, the main agricultural products, which were developed under the protection of U.S.A., as export industries aiming at U.S.A. In exchange, however, for the exports of sugar and coconut, the Philippine market was opened to the U.S.A., and the other industries made almost no development until the 1950s.

But, as the imports of consumer goods increased, the international balance of payments deteriorated and the government adopted a policy for industrialization of import substitution in the 1950s. Thus, the industrialization for import substitution was promoted with the provision of preferential taxation and lending of concessional loans for industrial investments while putting import restriction, particularly regulating the imports of consumer goods. Supported by the import regulation, the prices of consumer goods were maintained at a high level in the domestic market and the imported inputs were available at low prices by the over-valued foreign exchange rate and the import duties specially reduced for investment incentives. Under such circumstances, the investment of domestic capital and foreign capital, mainly U.S., was put on the domestic production of consumer goods for import substitution.

Entering the 1960s, the import substitution industry formed to serve the domestic demand of a limited scale hit the ceiling because the demand did not grow. As the fixed foreign exchange rate was adopted during this period, the competitiveness of export products such as coconut, sugar, copper products, etc. diminished. On the other hand, as the imports of consumer goods drastically decreased, import restriction lost its effect and thus it was relaxed, while the foreign exchange rate was depreciated to ensure competitiveness in the export trade. These measures resulted in expanding the export-oriented agriculture with a shift from even rice production, causing an increase in imports of rice. On the other hand, in the industrial sector, many of the foreign capital which had been engaged in the production for the domestic market withdrew from their operation in the Philippines, losing their interest in continuing the operation because of the relaxation of the import restrictions. Thus at the end of the 1960s, another foreign exchange crisis had to be faced.

Under such circumstances, the government, on entering the 1970s, adopted a development policy emphasizing on the intensive promotion of agriculture centered on rice production and also the development of the heavy and chemical industries in the public sector. Under this policy, the development of heavy and chemical industries was carried out by the public corporations with the borrowing of foreign loans and also under various measures taken by the government for protection and encouragement; those including 1) protection of domestic industry producing intermediates, 2) lowering of the tariffs on imports of raw materials, 3) regulation of entry into industries which have

excess capacities, and 4) provision of concessional loans to the strategic industries. Thus, there were active investments in specified industries. The capital deepening, as shown in Table 2-1-7, substantially advanced in the fields of food industry and heavy and chemical industries such as 1) food processing, 2) beverages, 3) chemicals, 4) cement, 5) iron and steel, 6) metal products, 7) transportation equipment, etc. But in spite of such large scale investments in the intermediates and capital goods industries, the only industries that improved in labor productivity were the chemical industry and the iron and steel industry. Furthermore, in the industrial fields other than those discussed here, there was those that even declined in the capital intensity.

As seen in Table 2-1-8, the strategic industries mentioned before have not been developed as export industries except for the food industry but were developed as the basic industries to serve the domestic market. In other words, as these industries, as discussed before, could not become export industries because they were fostered with the measures for protection and encouragement, they turned out to depend solely on the domestic market cut off from international competition, so that they were compelled to continue the production even with low capacity utilization if the domestic market is inadequate to absorb their products. Because of such circumstances, they have not been able to renovate their manufacturing facilities to respond to the innovations of technologies, resulting in production with obsolete technologies and deteriorated manufacturing facilities and further removal from international competition.

Apart from the development of the heavy and chemical industries initiated by the public corporations, there was development of the garment industry and the electronic parts industry as export industries. Majority of these industries are consignment-based processing for exports which were developed by the private sector along the incentive measures of the government provided for the export industries such as exemption of import duties on imported raw materials for export production. These industries have made no noticeable advancement in the capital deepening because they were developed with interest to utilize labor forces available at comparatively cheap costs.

Entering the 1980s, as the result of 1) increase of import value due to the rise of the oil price in 1979, 2) stagnation of growth of export value due to the stagnant low price of the primary products, 3) increase in the payment of interests due to the increased international interest rate, etc., the international balance of payments deteriorated extremely, forcing import restrictions and cutbacks of industrial production based on imports of materials and parts. But, the labor-intensive export-oriented light industries which did not make progress in capital deepening, such as garment, electronic parts, furniture etc., have increased their production.

Table 2-1-7 COMPARISON OF MANUFACTURING INDUSTRY CHARACTERISTICS, THE PHILIPPINES, 1960 AND 1980

(Unit: 1,000 Pesos)

Code	Industry Group	1960		1980	
		FA/L	VA/L	FA/L	VA/L
311/312	Food	6.52	9.88	10.98	7.40
313	Beverages	5.41	15.20	12.31	14.63
314	Tobacco	2.70	6.53	3.12	18.85
321	Textiles	6.99	4.17	8.80	4.17
322	Wearing Apparel except Footwear	1.33	2.44	1.26	2.03
323	Leather and Leather Products	4.01	4.78	3.13	2.67
324	Footwear	1.48	2.55	1.78	1.57
331	Wood Products	4.77	4.01	5.11	13.98
332	Furniture and Fixtures	1.75	2.72	1.52	1.83
341	Paper and Paper Products	14.12	10.11	17.88	11.09
342	Printing, Publishing	3.61	5.29	5.59	4.60
351	Industrial Chemicals	17.56	7.82	23.48	30.08
352	Other Chemical Products	6.29 1)	16.72 1)	6.46	14.34
353	Petroleum Refineries	62.62	132.18	68.89	207.00
355	Rubber Products	9.35	11.27	5.24	8.11
356	Plastic Products	4.72	6.04	4.90	4.73
362	Glass and Glass Products	8.54	9.77	8.96	5.79
368	Other Non-metallic Mineral Prd.	12.97	8.76	16.29	8.82
371	Iron and Steel Basic Industries	9.34	7.48	14.67	35.35
372	Non-ferrous Metal Basic Ind.	6.77	6.77	5.69	9.13
381	Fabricated Metal Products	0.06	7.56	3.35	4.10
382	Machinery except Electrical	1.95	9.074	5.43	4.45
383	Electrical Machinery	4.17	8.40	3.26	6.02
384	Transport Equipment	4.95	9.07	8.05	9.09

Notes: 1. FA/L: Value of fixed assets per employee
VA/L: Census value added per employee
2. The 1980 data have been deflated by an index of 700% which is the approximate price increase for manufactures between 1960 and 1980.
1) In 1962

Sources: Hooley, 1985

Table 2-1-8 EXPORT RATE OF TOTAL OUTPUT BY SECTOR, THE PHILIPPINES, 1983

(Unit: million pesos)

Sector Code	Description	Export (a)		Total Output (b)
		Value	% (a/b)	
1	Agricultural Crops incl. Agricultural Services	2,388	4.1	57,648
2	Livestock and Poultry	21	0.1	25,555
3	Fishery	222	1.0	21,546
4	Forestry and Logging	686	7.4	9,215
5	Metallic Mining	6,143	81.7	7,515
6	Non-metallic Mining	54	2.2	2,505
7	Food Manufactures	12,665	10.7	118,324
8	Beverage and Tobacco	87	0.6	14,913
9	Textile and Leather Products	7,139	25.9	27,526
10	Wood and Wood Products	3,790	28.5	13,309
11	Paper, Publishing and Printing	155	2.7	5,823
12	Chemicals & Chemical Products except Petroleum	913	3.5	26,007
13	Petroleum Products	1,607	4.1	38,884
14	Non-metallic Mineral Products	212	2.9	7,347
15	Basic Metal Industries	295	2.9	10,324
16	Metal Products and Machinery	10,163	30.7	33,135
17	Miscellaneous Manufactures and Scrap	1,516	40.2	3,774
18	Construction	912	1.7	54,465
19	Electricity, Gas and Water	0	0.0	15,037
20	Transportation, Storage and Communication	2,945	6.7	44,205
21	Wholesale and Retail Trade	8,587	10.3	83,662
22	Finance, Insurance and Real Estate	326	0.9	35,659
23	Government Services	0	0.0	17,539
24	Private Services	16,441	34.6	47,476
	Total Produced Inputs	77,267	10.7	721,392

Source: The Interindustry Accounts of the Philippines: 1983 Update, NEDA

After the start of the Aquino administration in 1986, there was a drastic change in policies, under which the excessive governmental intervention and guidance were stopped, and a direction towards an industrial policy based on private sector-lead free competition principle was launched.

2) Problems of industrial structure

As stated above, as a result of implementation for many years of the government's policy of intervention and protection across a broad spectrum of activity in the economic sector, the following structural defects have developed in the industrial sector.

1. The basic industries such as steel and petroleum refining were established at the initiative of the government contributed to substitute for the imports. But because they were originally developed under conditions of a protectionist policy, they have not attained the economies of scale needed to have international competitiveness. Moreover, because almost no policy incentives were provided to develop them as export industries, they have not been able to develop as such, and have continued inefficient production with low capacity utilization only for the supply to the limited domestic market. These circumstances have prevented the industries from attaining enough ability to keep up with technological innovation, so they are below international levels in terms of technology, quality, productivity and cost competitiveness.

2. The garment and electronic parts industries now have important positions in terms of their contributions to the value of exports. However, almost all production is done on a consignment basis, whereby there is direct importation of materials and parts, resulting in little linkage with other parts of domestic industry.

3. In many industries with the exception of chemical industry and part of the food industry, there has not been progress in capital formation, and industrial production has continued to rely on traditional labor-intensive means, without acquiring new technology. Therefore not only have these industries not been developed to produce competitive products for export but also they are not adequate in terms of technology and productivity to produce materials and parts in quality and volume required for other modern industry currently established in the country.

Thus, each of the basic industry, the export industry even including non-traditional export industry, and other industry has structural defects which may cause the lack of balance in the process of industrial development.

(4) Issues Tasked for Industrial Development

1) Target of the Medium-Term Development Plan for industrial development

The Medium-Term Development Plan (1987-1992), announced in July of 1986, as stated earlier, tasks to take necessary steps for economic reconstruction over the short-term and for maintaining sustained economic growth over the medium-term.

For the the industrial sector, the Plan aims at mobilizing surplus, idle manpower in the cities and villages for engaging them in productive work and thereby expanding domestic demand, and in this context calls for the promotion of regional dispersion of industry and the development of regional industries, focusing on the promotion of small- and medium-scale industries. Through such efforts, a modern industrial structure is to be formed and developed based on the thus sustained growth of the domestic market over the medium-term.

At the same time, the expansion of exports has become an urgent task, because of the deterioration of the balance of payments in recent years. The government has launched on an intensive promotion for the development of export industry with the provision of incentives including special treatment of taxation. Further, in order to accelerate these economic development processes, the government is active to invite foreign investment with the incentives provided in accordance with the Omnibus Investments Code of 1987 enacted in July, 1987 and also the special condition that allows foreign investors to have 100% ownership of the establishments which are engaged in export-oriented manufacturing. In response to these government measures for the foreign investment promotion, the foreign investment in the Philippines remarkably increased in and after 1987, turning off from decreases in 1985 and 1986.

2) Issues tasked for the manufacturing sector, and identification of priority industries for promotion of industrial standardization and quality improvement

Any consideration of the tasks set in the Medium-Term Development Plan, that is, swift achievement of the economic reconstruction over the short term and the medium-range formation of a modern industrial structure that is to serve as a basis for sustained growth of the domestic market, in view of the structural problems of the Philippines' manufacturing sector as analyzed above, must place the strategic development targets on the promotion of the industries satisfying the following conditions.

1. Those that will lead to increase of exports with little trickling effect on increase of imports accompanying such exports.

2. Those that will lead to import substitution of materials and parts with little trickling effect on increase of imports accompanying such substitution.

3. Those that will have trickling effects on the industries in the regions.

The first requisite, or increase of exports, is an urgently needed subject, and industries which already have certain possibility as export industries and have a prospective future as export industries are desirable. Also, from the aspect of minimum increase of imports accompanying such exports, it is desirable that indigenous resources are used. Furthermore, as seen in past experiences in the industrial development of the Philippines, the capital intensive industries have a tendency to lead to increased imports of capital goods and intermediates accompanying the expanded production.

In the case of the Philippines, there is the low cost labor forces as an indigenous resource with comparative advantage at the present time. Wages have started to rise in Korea, Taiwan, Hong Kong, etc. and industries relying solely on low cost labor have already become difficult in these countries. Thus, these countries are moving towards the production of technology-intensive commodities and fashion commodities, and at the same time towards international specialization seeking locations where low cost labor is available. It is still possible to obtain comparatively low cost labor in the Philippines and in this respect there exists a groundwork to organize labor-intensive export industries. Also, the labor-intensive industries are able to take more responsive actions to the changes in the trends of demand in the market, compared to the capital-intensive industries. Furthermore, it has a large employment generating effect and can more easily link directly to expansion of the domestic demand through personal consumption.

When the industry can combine indigenous resources with such low cost labor, then the economic growth effect is higher. Table 2-1-9 shows labor intensity of the Philippine industries and Table 2-1-10 shows exportable surplus of the industries. The consignment-based garment and electronic parts manufacturing, which are the major export industries in the Philippines, are labor-intensive but they depend on imported raw materials and supplies. Sewn toys are also similar to these. On the other hand, such industries as the food processing, wooden furniture and woodworks, ceramics, and handicrafts, which are labor-intensive, have high potentiality to grow as export industries which can utilize indigenous resources.

Nextly, the second requisite, or the industries that lead to substitution of imports of materials and parts will be studied. It is difficult to judge this solely on the basis of the present inter-industry structure of the Philippines. The reason is that, as discussed before, the present industrial structure of the Philippines does not have a

Table 2-1-9 COMPOSITION OF GROSS VALUE ADDED (GVA), THE PHILIPPINES 1979 AND 1983

(Unit: % of Total GVA)

Sector	Compensation of Employees		Operating Surplus	
	1979	1983	1979	1983
Agricultural Group	41.9	49.9	58.1	50.1
1. Crops	44.6	53.9	55.4	46.1
2. Livestock and Poultry	44.1	46.8	55.9	53.2
3. Fishery	37.7	39.6	62.3	60.4
4. Forestry and Logging	27.8	52.2	72.2	47.8
Industry Group	28.8	30.2	71.2	69.8
5. Metallic Mining	25.4	29.1	74.6	70.9
6. Non-metallic Mining/Quarrying	32.2	49.6	67.8	50.4
7. Food Processing	31.2	31.6	68.8	68.4
8. Beverage and Tobacco Mfr.	20.8	22.2	79.2	77.8
9. Textiles and Leather Products	40.0	41.1	60.0	58.9
10. Wood and Wood Products	40.0	38.7	60.0	61.3
11. Paper, Publishing and Printing	29.3	26.4	70.7	73.6
12. Chemicals & Chemical Products	25.4	30.4	74.6	69.6
13. Petroleum Products	2.7	3.5	97.3	96.5
14. Non-metallic Mineral Products	27.0	24.7	73.0	75.3
15. Basic Metals	15.4	16.5	84.6	83.5
16. Metal Products and Machinery	38.8	41.7	61.2	58.3
17. Miscellaneous Manufactures and Scrap	37.2	52.2	62.8	47.8
18. Construction	32.2	31.5	67.8	68.5
19. Electricity, Gas and Water	22.5	32.4	77.5	67.6
Commerce-Services Group	40.5	41.7	59.5	58.3
20. Transportation, communication and Storage	41.0	45.6	59.0	54.4
21. Wholesale and Retail Trade	36.2	31.8	63.8	68.2
22. Finance, Insurance and Real Estate	0.0	0.0	0.0	0.0
	17.4	18.1	82.6	81.9
23. Government Services	100.0	100.0	0.0	0.0
24. Private Services	39.1	51.0	60.9	49.0
All Sectors	37.1	40.1	62.9	59.9

Source: Compiled from "The Interindustry Accounts of the Philippines: 1983 Update", NEDA.

Table 2-1-10 DEGREE OF SELF-SUFFICIENCY BY SECTOR

(Unit: %)

Sector	1979	1983
Agricultural Group	102.3	99.4
1. Crops	101.7	97.6
2. Livestock and Poultry	99.8	99.9
3. Fishery	101.0	101.0
4. Forestry and Logging	117.6	106.5
Industry Group	91.2	90.4
5. Metallic Mining	334.6	535.3
6. Non-metallic Mining/Quarrying	12.3	11.0
7. Food Processing	111.8	107.9
8. Beverage and Tobacco Manufacture	99.1	99.1
9. Textiles and Leather Products	105.8	108.9
10. Wood and Wood Products	161.8	139.3
11. Paper, Publishing and Printing	80.0	80.7
12. Chemicals and Chemical Products	75.0	72.3
13. Petroleum Products	89.9	93.7
14. Non-metallic Mineral Products	94.8	97.1
15. Basic Metals	67.7	71.7
16. Metal Products and Machinery	51.7	59.8
17. Miscellaneous Manufactures and Scrap	76.5	79.3
18. Construction	100.3	101.5
19. Electricity, Gas and Water	100.0	100.0
Commerce-Services Group	107.0	108.4
20. Transportation, Communication and Storage	109.1	106.6
21. Wholesale and Retail Trade	110.1	111.4
22. Finance, Insurance and Real Estate	103.7	100.2
23. Government Services	100.0	100.0
24. Private Services	105.8	121.1
All Sectors	97.1	96.9

Source: The Interindustry Accounts of the Philippies: 1983 Update, NEDA

balanced structure. Table 2-1-11 compares the ratio of heavy industry, which is expressed in terms of ratio of the value added of the metals and machinery industries to the value added of the total manufacturing industry in the Philippines, with that in Thailand, Malaysia, and Korea. The ratio of heavy industry is higher in countries where the value added of the total manufacturing industry is high. The Philippines is, as discussed before, dependent largely on imports for the supply of capital goods and intermediates, and the lagging of the domestic metals and machinery industries behind the overall industrial development is indicated. Figure 2-1-2 depicts the degree of inter-industry relationship. The blanks in the machinery industry sector, which should have a strong supply position to all industries, are conspicuous, indicating that they depend on imports rather than on the domestic sectors. Also, blanks in the metals-related industries comprising the nonferrous metals, metal products, iron and steel, etc., which should produce raw materials or intermediates for the machinery industry, are conspicuous except the iron and steel industry. The iron and steel industry is fulfilling its role as a supplier industry because the machinery industry is immature on one hand and as it was developed under protectionist policies, on the other, as discussed before. Table 2-1-12 shows the forward and backward linkage effects of major industrial sub-sectors. According to this, the industries that have strong trickling effects on other industries are concentrated in the food processing and the heavy and chemical industries when the utility services are excluded. As seen in Table 2-1-10, however, the self-sufficiency rates of the chemicals, machinery and metals industries are extremely low compared to other industries.

Thus, the deficiency of the materials and parts supply sectors is obvious in the statistics too. The development of the supply sectors of materials and parts can be expected not only to bring import substitution effects but in the future the following:

1. By responding to the expanded demand for parts and materials accompanying the progress of industrialization and economic growth which would be accelerated by the promotion of foreign investments, the environment for investment in industry will be improved. In other words, it will contribute to the creation of the export industries.

2. As a link in the international specialization which is in progress, the parts and materials industries themselves will be promoted as export industries.

3. By the growth of the parts and materials industries, a foundation for the modernization of the upstream key industries can be established.

4. As many of the materials and parts supplying industries are shouldered by the small and medium enterprises, the generation of employment may be expected from the future

Table 2-1-11 SHARE OF HEAVY INDUSTRY IN MANUFACTURING SECTOR IN THE PHILIPPINES AND THE SELECTED COUNTRIES

			The Philippies (million pesos)	Thailand (million Bahts)	Malaysia (million Ringgits)	S.Korea (billion Won)
1982	Value added	Manufactur'g Sector Total (a)	10,759	261,604	9,382	17,306
		Metal Ind. & Machinery (b)	2,268	27,327	2,810	5,711
	(b)/(a) (%)		21.1	10.4	30.0	33.0
1983	Value added	Manufactur'g Sector Total (a)	10,431	n.a.	10,587	20,912
		Metal Ind. & Machinery (b)	2,329	n.a.	3,273	7,266
	(b)/(a) (%)		22.3	n.a.	30.9	34.7
1984	Value added	Manufactur'g Sector Total (a)	12,599	335,133	12,299	24,656
		Metal Ind. & Machinery (b)	2,565	42,454	3,673	9,093
	(b)/(a) (%)		20.4	12.7	29.9	36.9
1985	Value added	Manufactur'g Sector Total (a)	14,478	n.a.	12,115	26,737
		Metal Ind. & Machinery (b)	2,573	n.a.	3,434	9,984
	(b)/(a) (%)		17.8	n.a.	28.3	37.3

Source: Industrial Statistics Yearbook 1986, U.N.

Figure 2-1-2 INTERINDUSTRY RELATIONSHIP IN THE PHILIPPINES, 1983 (1)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	31	26	27	28	29	30	32	33	34	35	36
Agriculture, Fishery & Forestry							o	o					■	o		o		■	o	o	X			o			o									
Mining & Quarrying																																				
Food Manufacture							o	o							o	o	o		o	o	X	o	o													o
Textile & Textile Goods																								■	■											
Wearing Apparel & Footware																									o											
Wood and Cork Products																											o	o	o							
Furniture & Fixtures																																				
Paper, Publishing & Printing					o																		o							■	■		o		
Leather & Leather Products																									■	X										
Rubber & Plastic Products																							o	X	o							■				o
Drugs & Medicines							o	X																								■				
Chemicals and Chemical Products	■	o		o	o	o			o		o					o								X			o			o	o	X	o	o	o	X
Petroleum Products									o	o	o		o			o					o			o			o									
Cement Manufacture																																				
Other Non-metallic Mineral Prd.																						o										X			o
Basic Metal Industries											o																									
Metal Products											o						X				o															
Mechinery except Electrical																																				
Electrical Machinery																																				
Transport Equipment									o																											
Miscellaneous Mfr. incl. Scrap	o										o	o												o			■					o	o			
Construction																																				
Electricity, Gas & Water								o			o		o			o		o			o			o	o		o			o		o		o		
Transport, Communication & Storage									o												o															
Services																					o															

Legend: % of the total output of the sector

■	10% or above
X	5 - 10%
o	1 - 5%
Space	less than 1%

Note: Sector code 1 through 66, 71 and 72: See attached Explanatory Table.

Source: Compiled from "Interindustry Accounts of the Philippines: 1983 Update" (NEDA)

Figure 2-1-2 INTERINDUSTRY RELATIONSHIP IN THE PHILIPPINES, 1983 (2)

	37 38 39	40 41 42 43 44	45	46	47 48 49	50 51 52 53 54 55 56 57	58 59 60 61 62 63 64 65 66	71 72
Agriculture, Fishery & Forestry							o	o o
Mining & Quarrying	■ o X	X		■				■ ■
Food Manufacture							o	X o
Textile & Textile Goods								■ ■
Wearing Apparel & Footware							o	■ o
Wood and Cork Products				■			o	■
Furniture & Fixtures								■ o
Paper, Publishing & Printing	o			o		o o	■ X o o o X	o ■
Leather & Leather Products							o	■ ■
Rubber & Plastic Products		o o o	o	o		o o o	X o o	o ■
Drugs & Medicines							o	o ■
Chemicals and Chemical Products	o	o o o	o	■	o		o o o	o ■
Petroleum Products	o	o		o	■	X o X o o	o o	o ■
Cement Manufacture	X			■			■ o	o
Other Non-metallic Mineral Prd.	X	o		■	o		o	o ■
Basic Metal Industries		■ ■ ■ o o		■				o ■
Metal Products	o	o X X o		■	o		o o o	■ ■
Mechinery except Electrical		X					o	o ■
Electrical Machinery		■		X	o	o o o o		■ ■
Transport Equipment		■				■ X ■	o	X ■
Miscellaneous Mfr. incl. Scrap	o	o o	X	o			o o X	■ ■
Construction							o	o
Electricity, Gas & Water		o o o		X	o o		■ o o X o	
Transport, Communication & Storage	o	o		o		o o o	X o o	X o
Services	o			o			X o o o	■ o

Legend: % of the total output of the sector

■	10% or above
X	5 - 10%
o	1 - 5%
Space	less than 1%

Note: Sector code 1 through 66, 71 and 72: See attached Explanatory Table.
Source: Compiled from "Interindustry Accounts of the Philippines: 1983 Update" (NEDA)

Explanatory Table to Figure 2-1-2 INTERINDUSTRY RELATIONSHIP IN THE PHILIPPINES, 1983

Classification of Sector/Sub-sector

Sector	Code	Sub-sector
Agriculture, Fishery and Forestry	01	Palay
	02	Corn
	03	Coconut incl. copra (in farm)
	04	Sugarcane
	05	Banana
	06	Other crops incl. agricultural services
	07	Livestock
	08	Poultry
	09	Fishery
	10	Forestry and logging
Mining and Quarrying	11	Metallic mining
	12	Non-metallic mining
Food Manufacture	13	Rice and corn milling
	14	Sugar milling and refining
	15	Milk and other dairy products
	16	Crude coconut, vegetable and animal oils and fats incl. copra cake and meal
	17	Refined coconut and vegetable oil and margarine
	18	Meat and meat products
	19	Flour and other grain mill products
	20	Animal feeds
	21	Other food manufactures
	22	Beverage industries
	23	Tobacco manufactures
Textiles and Textile Prod.	24	Textiles and textile goods except wearing apparel
	25	Wearing apparel and footwear
	31	Leather and leather products
Wood and Cork Products	26	Lumber, plywood and veneer
	27	Other wood, cork and cane products
	28	Furniture and fixtures
Paper, Publishing & Printing	29	Paper and paper products
	30	Publishing and printing
	32	Rubber and plastic products
Chimicals and Chemical Prod.	33	Drugs and medicine
	34	Basic industrial chemicals
	35	Fertilizer
	36	Other chemicals and chemical products
Petroleum Prod.	37	Products of petroleum and coal
Non-metallic Mineral Prod.	38	Cement
	39	Other non-metallic
Metal Prod. and Machinery	40	Basic metals
	41	Fabricated metal products
	42	Machinery except electrical
	43	Electrical machinery
	44	Transport and equipment
Miscellaneous Manufactures	45	Miscellaneous manufactures
Construction	46	Construction
Electricity, Gas and Water	47	Electricity
	48	Gas and steam except LPG
	49	Waterworks and supply
Transport, Communication and Storage	50	Busline operation
	51	Other land passenger transport
	52	Road freight transport
	53	Water transport services
	54	Air transport services
	55	Services incidental to transport
	56	Communication services
	57	Storage and warehousing
Services	58	Wholesale and retail trade
	59	Finance and Insurance
	60	Real estate and ownership of dwellings
	61	Government services
	62	Private education services
	63	Private health services
	64	Hotels and restaurants
	65	Other private services
	66	Notionsl industry
	71	Exports
	72	Imports

Table 2-1-12 COMPARATIVE FORWARD AND BACKWARD LINKAGE EFFECTS, THE PHILIPPINES 1979 AND 1983

Sector	Forward Linkage (A)		Backward Linkage (B)		(A) + (B)	
	1979	1983	1979	1983	1979	1983
1. Crops	1.196	1.096	0.731	0.680	1.927	1.776
2. Livestock and Poultry	0.804	0.794	1.051	1.077	1.855	1.871
3. Fishery	0.611	0.684	0.752	0.742	1.363	1.426
4. Forestry and Logging	0.926	0.890	0.704	0.684	1.630	1.574
5. Metallic Mining	0.669	0.646	0.818	0.856	1.487	1.502
6. Non-metallic Mining/Quarrying	1.630	1.628	0.710	0.799	2.340	2.427
7. Food Processing	1.176	1.276	1.202	1.191	2.378	2.467
8. Beverage and Tobacco Manufacture	0.693	0.690	1.138	1.091	1.831	1.781
9. Textiles and Leather Products	0.845	0.810	1.168	1.132	2.013	1.942
10. Wood and Wood Products	0.682	0.690	1.167	1.120	1.849	1.810
11. Paper, Publishing and Printing	1.072	0.904	1.271	1.250	2.343	2.154
12. Chemicals and Chemical Products	1.689	1.594	1.209	1.246	2.898	2.840
13. Petroleum Products	1.851	2.017	1.014	1.066	2.865	3.083
14. Non-metallic Mineral Products	0.677	0.664	1.116	1.109	1.793	1.773
15. Basic Metals	1.621	1.306	1.444	1.397	3.065	2.703
16. Metal Products and Machinery	0.889	1.029	1.261	1.272	2.150	2.301
17. Miscellaneous Manufactures and Scrap	0.638	0.666	1.233	1.137	1.871	1.803
18. Construction	0.610	0.581	1.091	1.046	1.701	1.627
19. Electricity, Gas and Water	0.610	0.949	1.127	1.206	1.737	2.155
20. Transportation, Communication and Storage	0.901	1.081	0.945	1.002	1.846	2.083
21. Wholesale and Retail Trade	1.635	1.811	0.690	0.733	2.325	2.544
22. Finance, Insurance and Real Estate	0.840	0.713	0.675	0.690	1.515	1.403
23. Government Services	0.540	0.521	0.549	0.521	1.089	1.042
24. Private Services	0.986	0.990	0.934	0.951	1.920	1.941

Source: The Interindustry Accounts of the Philippines: 1983 Update, NEDA

operation of those small and medium enterprises, thus expansion of the domestic demand may be expected.

Such operations may have to be limited to the larger cities and the core cities and their vicinities for the time being, but it is conceivable that, with further development and improvement of the infrastructure, such as roads, tele-communication, etc., the dispersal of industry into the regions may be expected.

The DTI has identified the following nine sectors as being of strategic importance for promoting export industry, small- and medium-scale industry, and regional dispersion of industry.

1) Fishery (marine products and aquaculture)
2) Textile and apparel
3) Computer service
4) Gifts and household sundries
5) Processed food, beverages and spices
6) Furniture and wooden products
7) Semiconductor and other electronic parts
8) Ceramics
9) Iron and steel, metallic products and machinery

Of these, if priority should be given to the industries satisfying the foregoing conditions and also those being effective for standardization and quality improvement with public support, it would be appropriate to select 1) furniture, wood-working and wooden housing materials industry, 2) food processing industry, and 3) the garment industry as indigenous resource based export industries, and 1) metal working industry, 2) plastic processing industry, and 3) packaging materials industry, as the industries that will enhance inter-industry linkages and can promote the substitution of imports at the level of materials and parts.

The subsequent sections of this chapter deal with setting of targets for these priority industries, and investigation of necessary measures to be taken for the improvement and upgrading of technology and quality in these industries, in light of the present level of their technology and quality.

2-2 Needs of Standardization and Quality Improvement Program for The Target Industries

(1) Metalworking Industry

1) Issues tasked for the future improvement of the metalworking industry

Metalworking is defined here as including (1) casting, (2) forging, (3) sheeting and press work, (4) welding, (5) plating, and (6) machining.

The metalworking industry in the Philippines has the structural problems as summarized below:

1. Most of the major metalworking firms had closed their operation, and the foreign capitals engaged in this field had also withdrawn, because the stagnation of the economic activities including the industries in the Philippines continued during the last few years. Hence, majority of the existing metalworking industry comprises small metalworking shops engaged in the processing of low quality and simple metal products which are produced in a small quantity based on job order. Under such situation, the firms engaged in the modern machinery assembling which require a timely supply of high quality materials and component parts are dependent on those imported, discouraging the local firms producing metal products in a small-scale for the local market from improving or upgrading their technologies and product quality.

2. Most of the small- and medium-scale firms engaged in the metalworking produce low grade metal products for the local markets. Since price-oriented preference prevails among buyers or users, those metalworking firms are devoted to reducing the costs rather than improving their technologies and product quality.

3. The metal and machinery manufacturers in the Philippines use technologies acquired from foreign firms. The foreign firms who were licensers of technologies supplied those Philippine manufacturers with all equipment and shop drawings required for manufacturing the licensed products, and the Philippine manufacturers manufacture those products with technical guidance of the licensers and also based on specific component parts supplied by them. Under such type of licensing arrangements, the foreign licensers did not disclose to the Philippine engineers any details of design concept adopted for the development of those products nor any details of technical examinations made with respect to the quality and standards of the products and component parts by the licensers' engineers at the stage of design and engineering and also during fabrication.

In view of the present situation of the development of the economy and industry of the Philippines, and the desired future development thereof, urgent development is required for the following two points:

1. Develop the metalworking industry which can produce small items of high quality parts meeting an internationally acceptable level of quality as required by the modern machinery assembly industry such as automobile and electric appliance manufacturing as well as the industries manufacturing components for them which will be developed in the Philippines in the near future.

2. Develop the engineering industry so as to support the repair, maintenance and adjustment of equipment and machinery used in the various fields of the industries in the Philippines, so that the acquired technologies can be assimilated for their own innovation.

2) Measures to be taken for attaining the targets tasked for the improvement of the metalworking industry

a) Improvement of quality consciousness through the standards and certification system

The consumers' or users' preference placed on prices rather than quality prevails in the market. This market environment may presumably change because they should become to prefer to use higher quality products as their income level would rise in the future. Nevertheless, in order that both producers and customers can realize that quality has a direct relationship to their profits, there is need for creating a system whereby it is clear that any given part or product is of good quality or inferior quality.

To attain this, it is necessary to enhance a standards and certification system related to metals and metal products, to increase the number of companies that buy certified products, and through such means help producers to realize it in their best interest to improve quality and thereby meet industrial standards.

b) Acquirement of overall technologies for improvement and upgrading of metal products

As suggested above, in this industry, Philippine engineers, while holding a high level of technology for individual processes, are weak with regard to overall technologies, such as how the quality of the raw materials, or the processing of metal products, influences the quality of the final product, so that if the only step taken is to adopt quality regulations it does not result in an improvement of technology and quality. It will become increasingly important to acquire basic

technologies, and apply it in managing production while at the same time making independent advances based on it. It is therefore necessary to prepare opportunities for Philippine engineers to acquire such basic technologies and also establish the national system for supply of technological guidance to individual firms, so that through the acquirement of technology, each firm will become able to analyze problems arising in their own manufacturing processes, and feed back the information gained thereby to the related processes for improvement.

c) Improvement of the testing and inspection system for purchased materials and products

Most of small- and medium-scale metalworking enterprises, at present, use raw materials mixed with different materials and scrap, and the intermediates, parts or final products manufactured by using such mixed materials are sold without specifying the nature of their composition. Buyers, lacking facilities to check the materials and constituent ratios of them, often merely accept what their vendors provide and use it. In order to improve and upgrade the quality of metal products, it is indispensable for manufacturers to conduct proper checks on the composition and qualities of materials, and quality control in the manufacturing processes, and for that reason it is essential for them to have appropriate testing and inspection systems. In the case of small- and medium-scale enterprises, however, as their financial and technical weakness would make it difficult for them to have their own testing and inspection facilities, it is desirable to enhance public services for testing and inspection which are rendered to them.

d) Improvement of mold making technology

In the case of large-scale firms or joint venture firms, who manufacture high-quality parts and products, it is common for them to have a high degree of technology regarding molds, and almost all molds for parts and products they use are made by themselves. But small- and medium-scale firms, lacking this ability, must rely on a commercial maker of molds, who is not necessarily in possession of adequate technical capability, and often will provide molds of inferior precision. This lowers the precision of products made by the firms using those molds. Of the large firms who have a high degree of mold making technologies, there is few firms that accept orders on making molds from others. Therefore it is essential that efforts should be made to improve the technology and level of precision of molds, of commercial mold manufacturers. For this reason, establishment of a mold technology center is desirable.

e) Development of engineers/technicians who have expertise for repair and adjustment of equipment

Many of the machinery and equipment being used in the Philippines are those imported in a used state or those used long time. In many instances wear and tear have reduced the precision that these machines are capable of. However, by using relatively uncomplicated tools and devices, it is possible to adjust for problems, such as wear, and thereby improve the precision of used equipment. There are, nevertheless, few engineers/technicians with ability to do this work, and development of human resources in this areas is desirable. Similarly, repair technicians are not available in adequate number, and action should be taken regarding this too.

f) Starting measures to prevent pollution foreseeable as a consequence of development of metalworking industry

The volume of waste oil and liquid produced by the metalworking industry will increase in keeping with the sector's growth. Pollution problems are expected as one side effect. Not only are there many small-scale firms in this sector, but they are concentrated in and near cities. In an extreme case, careless disposal of waste from a plating vat can poison and kill people due to contamination of heavy metals. At the same time, processing of this waste in order to recover materials from it can contribute to the conservation of resources. It is desirable to promote the installation of such facilities to meet an urgent need.

(2) Plastic Processing Sector

1) Issues tasked for the future improvement of the plastics processing industry

A large number of plastics are used to make a much larger number of parts and containers essential for modern society. It is believed that the use of plastics in the Philippines is growing faster than that of competing materials for these applications. The Philippine plastic processing industry consists of only a limited number of medium-scale processors possessing relatively high levels of technology and a considerable number of small-scale processors. Only a limited number of medium-scale processors are capable of manufacturing high quality plastic products requiring precision such as plastic parts for electric appliances. In the case of detergent and beverage manufacturers, those with well-established brand names have container production facilities in their own plants. Plastic containers and wares for kitchen use show a preference for imports for higher-quality products. Almost all small-scale processors are engaged either in film processing or forming of low-quality, low-precision products. It may be confidently expected that in keeping with the growth and development of the

Philippines' industry and economy, demand for better-quality, higher-precision plastic products will increase. It is therefore an urgent need to develop the capabilities of processors in order to meet this change and growth of demand.

2) Measures for improvement of the plastics processing sector

a) Existing in a market where price is more important than quality has served to impede efforts by medium-scale processors to improve quality. However, this is not to say that as long as such a market environment exists it will serve to constrain production. What is important is to ensure that the producers producing high quality products can be secured with reasonable profit; this is to be accomplished by establishing and promoting use of a system of standards for containers and household wares, supported by a certification system whereby the market-place can easily distinguish between products of inferior and superior quality. Further, scrap is used in great quantities for the production of containers, but this has an adverse influence on product strength. It is necessary to require that the percentage of recycled plastics used can be identified in the labeling of these products, by including this within the certification system.

b) Need exists to improve the precision of molds used in the industry by acquisition and improvement of technology for making, repair and improvement of molds, and thereby developing a large number of small-scale processors who are capable of making the parts required for high-precision applications in electric appliances and automobiles.

c) Technical guidance is needed so that by improved maintenance, repair and adjustment of production equipment to meet the gradually escalating and increasingly complex requirements of plastics processing, the individual processors are enabled to succeed in efforts to improve quality and performance.

d) Need exists to provide a supply of information and arrangements for technical guidance so that each processor can acquire new technology, improve technological levels, and have better knowledge of the market.

e) A serious problem which confronts the plastics processing industry, aside from the questions of technology and product quality, is that the high tariff rate for resin imports has made the Philippine processors unable to compete with plastic products imported from Hong Kong, Taiwan and other neighboring countries. Adoption of a more suitable tariff level deserves the attention of the government.

(3) Packaging Materials

1) Issues tasked for the future improvement of the packaging materials sector

Packaging materials used in the Philippines may be classified into two different material grades. The large manufacturers producing export products use high quality packing materials either imported or made in-house to meet the standards required by importers. Even in the case of small- and medium-scale manufacturers, they use imported packaging materials for export products, if buyer's specifications require to use such high quality packaging materials. Unless such requirement is made by buyers, however, as most of small- and medium-scale manufacturers have used locally produced low quality packaging materials even for exports, there have often arisen problems after exportation of the goods. This has especially been the case for the export of processed food. Even in the domestic market, there have been virtually no problems regarding products sold by large manufacturers because they use high quality packaging materials either imported or made by themselves. The products produced for the domestic market by small- and medium-scale manufacturers have often quality problems because they use locally produced low quality packaging materials. Nevertheless, because the domestic market demands lower price rather than higher quality, there is not an inherent problem here at the present.

The situation as seen according to the type of packaging material is summed up as follows. Corrugated cartons are made by large-scale producers and there are no problems here. There have been problems in that the inner coating of cans for canning foodstuffs has not been of consistency thickness, but in the case of large-scale food processors, cans are made in their own plants and there is no problem of quality. Problems have been identified regarding bottles for foods and beverages in that the cap and mouth have not always enabled airtight closures, but here too at large companies bottles are made in-house and there is no problem. In the case of plastics, sacks and bags for general use show no particular problems of quality, but there have been closure defects of containers for foods, and pinhole problems. Regarding other materials than these, there is need for improved design of labels, and study of the improvement of printing technology.

Domestic-made packaging materials include those made in-house by large companies, so the scale of the general market has remained small. In addition, companies buying in that market pursue the goal of lower costs rather than better quality, so there have been few stimuli to improve the technology and quality of packaging materials made for that market. But it is expected that there will be arrival in that market of new customers seeking new packaging materials, while the existing users also will no more wish to make their own because of increased requirement; this would be one consequence of accelerated growth of the economy. For this reason, it is necessary to improve the domestic

packaging materials industry for supply of good-quality packaging materials. That is, it is necessary to swiftly improve the arrangements for supply of cans for canning foodstuffs, jars and bottles, and sealable plastic containers.

2) Measures for improvement of packaging materials and relevant technologies

a) Standardization of packaging material quality and testing methods; establishment and promotion of a product certification system

Packaging materials are suitable by nature for standardization and the application of a certification system. In particular, extension of the practice for testing the strength of sealable containers, as well as issuance of inspection certificate for pinholes and coatings can have powerful effects in improving economic efficiency.

b) Establishment of a packaging technology center for the purpose of collection and supply on new technology and markets

Packaging materials and packaging methods are areas where there is rapid ongoing development. Moreover, marketing requirements now often demand the adoption of new packaging materials and packaging technologies, and failure to make the application of such materials or technologies can result in losing buyers' credit on the quality of the sold products or losing markets because of inferiority of packages even though the quality of the products is acceptable. There is at present no place in the Philippines where basic guidance and advice on packaging is available. It is necessary to create an arrangement whereby guidance regarding specialized aspects of packaging is provided.

(4) Wood Products, Furniture and Wooden Housing Materials

1) Issues tasked for the future improvement of the wood products, furniture and wooden housing materials

The statistics indicate that there are at present in the industry a total of 2,400 companies, generally classified according to whether they make "housing materials" such as plywood and veneer, doors, flooring, and wall panels, "furniture", particularly wooden furniture and "sundries" including toys and sculpture. These companies employ 130,000 persons. The actual number of enterprises and employees belonging to this sector is assumed to be several times these numbers, because there exist a considerable number of cottage-type clusters engaged in these works which are not included in the statistics. Though the furniture industry, in general, includes rattan furniture together with wood furniture, herein, reference to the wood products, furniture and

wooden housing materials industry or sector takes in the manufacturing of wooden furniture, wooden housing materials and wooden toys made from wood materials, excluding rattan, and also including the parts of those products.

Wooden furniture manufacturers include cottage-type clusters, who are widely scattered throughout the nation to make furniture to be supplied to local markets, medium-scale producers who are in the vicinities of Manila and Cebu and sell mostly to those urban markets, and large- and medium-scale producers located in the Metro Manila and its vicinity that either export or supply high-grade furniture to the Manila market. There are also some manufacturers making medium to high-grade furniture for sale to the U.S. military forces and related civilian population. Since the ban on export of logs in July, 1989, lumber manufacturers have shown strong interest in diversifying downstream into wooden furniture and housing materials production.

Major issues for the future comprise (1) prevention of shipping of inferior products for exports by enhancing quality control, (2) promotion of specialization and the division of labor in furniture and housing materials which have superior growth prospects, and (3) diversification and expansion so that the export market presently concentrated to the North American may be expanded to Japan, Europe and other markets.

Products now being supplied to the export market are highly valued for their design and sculptured effects, but because the materials are not well dried, they tend to warp and crack after shipping. Further, not enough effort is made to provide a good finish to the wood. At present, quality control for furniture is confined to inspection by means of a visual examination of the final product at the time of shipping, and there are no tests of moisture content of the wood, quality tests of ancillary materials, and strength tests of the final product.

In order to make it possible for even small-scale manufacturers to produce parts of furniture and housing materials for shipment in knock-down form, it is essential to improve the precision of work of those companies. Many of these small-scale companies are using equipment which is old and has lost its precision in operation over time. Tools and attachments are in some cases not adequate, and deficient in precision. Moreover, the domestic market demands low price rather than high quality, so manufacturers have not been very interested in improving product quality as compared to reducing costs.

About 65% of export shipments of Philippines' furniture goes to the United States, the major market for the industry. Second is Japan but it is a market for these products that is very small compared to the export to the United States, accounting for only about 6% of total. In order to expand the export market, it is necessary to secure a

continual supply of information about the market as well as production technology; for instance, it is valuable information that there are difference in consumer preferences in furniture between the United States and Japan.

2) Measures for improvement of wood products, furniture and wooden housing materials

a) Incentives for improvement of quality

At present there is a Good Design Mark system, and furniture judged to be good can have this mark applied to it. This is, however, not a certification of the manufacturer, but of the product. For the time being, such certification would bring little benefit for the manufacturers who supply the products to the domestic market. Nevertheless, such system would provide some incentives for improvement of quality at small-scale manufacturers, since in the near future large- or medium-scale companies will begin to seek qualified subcontractors and they will select such subcontractors from among small-scale companies having certificates.

b) Support for quality and technological level improvement

To improve the quality of products, it is necessary (1) to undertake moisture content checks of wood when it is purchased or do the drying in-house, (2) improve finishing equipment, and (3) install quality control schemes spanning the entire manufacturing process and including the inspection of metal parts and ancillary products before purchase and use in production. Because the investment cost for such inspection facilities would be a great burden for smaller-scale manufacturers, study should be made of the possibility of joint acquisition of such facilities. Further, it is necessary to develop the human resources needed to adjust the old equipment now in use, in order to improve the precision of the final products.

c) Facilitating a production scheme for standard products

In addition to improving precision, starting quality control schemes, and improving delivery schedule performance, in the production of furniture parts and housing materials in the future it will be necessary to proceed with standardization of the manufacturing process, as well as division of labor and development of a subcontracting scheme. To make this possible, it is an urgent necessity to (1) standardize products and parts, (2) standardize paints and finishes, metal parts and ancillary parts, and (3) standardize the production process itself.

d) Supply of market and technological information

At present, the Philippine Trade Training Center (PTTC) is supplying market and technical information to manufacturers as part of its training activities, but since this organization was set up as a training center it is not furnished with an adequate means of collecting and disseminating information. The Center for International Trade Expositions and Missions (CITEM) also supplies some market information but there without a connection to technical guidance. Therefore, having coordination with these agencies, it is necessary to establish a system for providing small- and medium-scale companies with necessary information constantly in a systematic manner.

e) Production modernization through joint activity among manufacturers

Many of the measures recommended above, in the case of small-scale companies, cannot be easily realized, because of (1) insufficient investment fund, (2) limited capacity to accept orders which makes them difficult to expand beyond the presently-served local market, and (3) as a result of the foregoing, little incentive for them to improve technological level or quality. It is thought that joint efforts among manufacturers are a viable method of overcoming these problems and establishing modern production methods. That is, by joint efforts in a specific area, it would become possible for each cooperating company to take on more business, and by joint investment the limited ability to invest capital would be overcome. Further progress could be in the form of developing a joint brand, agreement to use the same parts, and perhaps division of labor or specialization. If it becomes possible through such efforts to become a sub-contractor to foreign or domestic companies, it will thereby become possible to acquire technology from those companies, and with it would come enhanced ability to modernize production unaided.

(5) Food Processing Industry

1) Issues tasked for the future improvement of the food processing industry

The food processing industry in the Philippines consists of a modern processing sector and a traditional food sector. The former comprises large-scale firms engaged in the processing of food either for export or the domestic market, while the latter comprises small-scale firms for the most part.

In 1988 the export of processed food accounted for 3% of the total export in terms of export value, of which 51% was by processed marine products, 27% by processed vegetables and fruits, and 5.5% each by four items of cocoa, tea, pepper, etc. and other foodstuff.

Of the export of processed vegetables and fruits, the export of canned pineapple accounts for about 80%. As this product is manufactured by two multinational companies, there is no problem in technology and product quality. Of the export of processed marine products in 1987, frozen shrimp accounts for 58%, followed by frozen or canned tuna accounting for 26%. As the large-scale canners or freezers of marine products have modern processing facilities, including cold storages and also adequate testing and inspection equipment, and perform the processing with careful sanitary control, there arose no trouble in the export markets during the last few years.

In the case of small-scale processors, they have many problems in marketing and quality control. The most instance is the export of indigenous foodstuff for the Philippine people living abroad which have, some times, trouble for quality contaminated by foreign matters or bacteria, or inferior quality of cans used for canning. Some frozen marine products exported by small-scale processors had been contaminated by bacteria. Such trouble has occurred only seldom, but it brought the Philippine products into disrepute. It is necessary to take immediate measures to recover the confidence on the Philippine products, including those to prevent inferior products.

The food processing industry is one of the prospective export industry utilizing agricultural and marine resources available in the country, but it is situated only in primary processing. There are some items of fruits which are not for exports but which can be exported by developing appropriate processing technologies. Efforts for developing such technologies should be one of the issues tasked for the food processing industry.

2) Measures for improvement of the food processing industry

a) Introduction of export inspection system in order to prevent inferior products

Only a few items of foodstuff exported, as discussed above, had trouble in the export markets. Nevertheless, even such a few items, once trouble arises, result in losing confidence of the Philippine food in the export markets. The export inspection system would be effective to improve the quality of such items of products by testing quality and regulating the export of inferior products. However, it is virtually important that individual manufacturers perform quality control to prevent the production of inferior products. As most of the manufacturers which are subjected to the export inspection are small-scale firms, they are inadequate in processing facilities and technologies to perform necessary quality control. It is essential to establish a system to support the improvement of their operation along with the introduction of the export inspection system.

b) Preparation and dissemination of Good Manufacturing Practice (GMP) to be used for quality control by manufacturers

Most of small-scale food manufacturers are inadequate even in basic knowledge of sanitary control. In order to guide them, BPS has started to prepare GMP in association with the Food Development Center (FDC) with respect to the processing of selected items of foodstuff. It is necessary to extend the preparation of GMP for a wider range of food items and to provide manufacturers with technical guidance on quality control according to the prepared GMP. Moreover, it is important to establish a system for supporting the manufacturers which make efforts for improvement of quality, including a system for issuing a certificate of "excellent manufacturers" to those operating in conformity to GMP.

c) Enhancement of assistance for improvement of technologies and facilities

In order to enact quality regulation and extend quality control in the food processing industry, as discussed earlier, it is essential to establish a system for providing the manufacturers with necessary assistance in setting up equipment required to enhance quality control. It is desirable that such equipment will be installed by manufacturers for their own uses. Some equipment requiring a large amount of investment, however, can be jointly acquired by a few manufacturers for common uses. In order to promote the installation of such equipment either by individual manufacturers or joint investment, it is desirable to establish a special taxation and financing scheme.

d) Improvement of public testing laboratories in the regions

In the Metro Manila region, FDC has adequate facilities for testing processed food. In the regions, however, there is few laboratories; a limited scope of testing services is provided only at the DOST's regional offices.

e) Improvement of packaging materials and technologies

It is seen, as stated earlier, that inferiority in packaging materials used often has caused to lower the quality of foodstuff itself. Needs exist for the improvement of packaging materials used by small-scale food processors from a viewpoint of enhancing marketing. Thus, it is desirable to establish an institution which can function as a center to provide food manufacturers with technical guidance and information with regard to packaging materials and technologies. Particularly, there are urgent requirements for improving technologies with respect to cans for canning food and

sealable plastic containers. For the future, the enhancement of research and technical guidance for improving and developing packaging materials is required for strengthening marketing activities.

f) There are several items of agricultural or marine products which have been commercialized yet for exports, although having high prospects for exports, because there are no appropriate technologies available for processing or preservation. For instant, there are several items of fruits which can be exported if appropriate technologies are developed for juicing. It is desirable to establish institutional activities for R & D with regard to the food processing industry.

(6) Garment Industry

1) Issues tasked for the future improvement of the garment industry

There are a number of export garment manufacturers which have been established by joint venture with foreign capital, including the companies in which the ownership of foreign capital is more than 50% of its equity share, and there are some companies fully owned by foreign capital. On the other hand, there are local small-scale manufacturers engaged in making garment for exports, using subcontract workers who are engaged in hand-made embroidery or other hand work.

There are also a number of small-scale manufacturers engaged in making garment to be supplied to the domestic market. Most of the local consumers prefer low price garment rather than high quality ones. The market for those low grade garment exists separately from that for high grade garment either imported or manufactured by large-scale manufacturers, without competing each other.

Almost all of the export garment manufacturers use imported materials in order to ensure the quality of manufactured garment, while the manufacturers for the domestic market use local made materials.

Majority of garment manufactured for exports is consignment-based manufacturers, in which buyers commission to manufacture the garment by using the materials supplied from abroad by them and also on the basis of design and specifications provided by them, and all of the manufactured garment are taken off by them. In this case, no inferior products are shipped, because buyers make inspection at the time of shipment. The most important issue for the consignment-based export garment manufacturing is how to meet the delivery time as ordered. In order to meet the delivery time indicated by buyers, manufacturers are compelled to keep a large volume of material inventory before the materials are supplied by buyers, causing to increase their costs. Some manufacturers

have jointly acquired modern equipment for common use by which processing time can be reduced. Some buyers request the manufacturers to submit a third-party inspection certificate instead of their own inspection. As the inspection institutions are located only in Metro Manila, exporters located in the regions complain against inconvenience that it takes long time to obtain such inspection certificates. Urgent needs exist for solving these problems in order to expand the garment exports.

In the future it is important to expand the general export of garment, diversifying the presently practiced consignment-based garment export. For this end, it is necessary to enhance institutional activities which carry out market research and collection of technical information, while acquiring technologies for quality control and production control which are to be extended to manufacturers.

2) Measures for improvement of the garment industry

a) Enhancement of testing and inspection institutions in the regions

It is desirable to enhance the testing and inspection institutions in the regions as like as those operated in Metro Manila, so that the manufacturers in the regions can be facilitated with those testing and inspection.

b) Facilities for joint sizing

The sizing process is the most suitable process for mechanization, and a mechanized sizing can contribute to a shortening of delivery time. As the installation of the sizing equipment causes a heavy cost burden for a small-scale manufacturer, however, it is desirable to set up such a sizing facility jointly by a few manufacturers. The best arrangement is to install it with a bonded warehouse.

c) Preparation of standards on clothing sizes and testing/measuring methods

The export garment are manufactured according to clothing sizes indicated by buyers. As the applicable sizes are different depending on buyers, the manufacturers should have mutual understanding with buyers as to what form of sizes are applied every time when they get orders. It is indispensable to apply a different form of clothing size to meet the requirement in destined market. Nevertheless it is useful to develop standards on the method of expressing clothing size encompassing all of different forms of size actually used by the export manufacturers. Moreover, it is desirable to prepare standards on testing or measuring methods. These measures are essential to expand the general export of garment in the future.

d) Assistance for enhancing the function of market research and collection of technical information

Enhancing the function of market research and collection of technical information is essential for developing the general export of garment and thereby diversifying the export market from the United States being the main market to other markets. Though such function should be basically developed by the individual manufacturers, it is desirable to enhance the function of public institutions to undertake such activities so as to assist small- and medium-scale firms and thereby promoting the expansion of their exports.

Chapter 3

THE PRSENT STATUS AND THE PROBLEMS OF THE APPROACHS TO INDUSTRIAL STANDARDIZATION AND IMPROVEMENT OF QUALITY

Chapter 3 THE PRESENT STATUS AND THE PROBLEMS OF THE APPROACHES TO INDUSTRIAL STANDARDIZATION AND IMPROVEMENT OF QUALITY

3-1 Outline

(1) Standardization Activities by the Government

It was since 1964 that national standards have come to be methodically and systematically formulated in the Philippines. In other words, a foundation for the standardization movement as a nation was provided with the Republic Act No.4109 enacted on June 20 of that year.

The national standardization activity of the Philippines was mainly directed toward the regulation of exports and imports of goods in the initial stage, but in 1982 the Letter of Instruction No.1208 was issued by the President for prevention of fires in residences and a standardization activity leaning toward consumer protection was started. This direction continued till 1986.

It was since the Executive Order No.133 (Reorganization to the Bureau of Product Standards) and the DTI Department Administrative Order No.10 (Establishment of the Standards Council), both issued in 1987, that the policy came to be enforced to formulate and disseminate national standards to fulfill the function as the base for industry which forms the foundation of the national economic development. Subsequently, regular standardization activity has developed through the announcement of the government procurement guidelines of the PS Mark products and the formulation of the basic standardization program and the formulation and implementation of the annual action program.

The industrial standards system of the Philippines is administered on the basis of three pillars, namely, the establishment of the Philippine National Standards (PNS), the Philippine Standards Certification Mark System (PS Certification Mark System) and the Import Commodity Clearance (ICC) system. There were 954 standards which have been established by the end of 1988, consisting of 916 voluntary standards and 38 mandatory standards. The mandatory standards are the standards that are the objects of the mandatory certification enforced under the PS Certification Mark System. (There are 11 mandatory standards which have been additionally established by June, 1989.)

The PS Certification Mark System consists of voluntary certification and mandatory certification. The mandatory certification is designated from the standpoint of safety of the consumers and the maintenance of fair trade, and it is based on a part of the

product standards of PNS, the PNS other than the product standards designated by BPS such as code of practice and labeling methods, and the product standards other than PNS designated by BPS.

ICC is a system to prevent the distribution in the country of inferior imported goods, and at present designated as target articles are electric wires, electrical materials, electrical parts, electrical products, fire extinguishing equipment and systems, fire extinguishing accessories and some of the articles which are the objects of the mandatory certification under the PS Certification Mark System. These object goods are inspected to check whether they meet PNS, or in the absence of PNS the international or foreign standards adopted by BPS, before clearing customs, and ICC is issued to only goods which meet those applicable standards.

The center of the standardization activities by the Government is the Bureau of Product Standards (BPS) in the Department of Trade and Industry (DTI). BPS is mainly in charge of 1) development of standards, 2) testing and certification of products, 3) technical assistance and consulting, and 4) dissemination of standards and the metric system.

The work of BPS in the regions is carried out by the Industrial Development Division of the Regional Offices of DTI.

As the organization which is to deliberate important matters to be recommended to the Secretary of DTI pertaining to standardization policies, the Standards Council was established in 1987. The Council is constituted by seven standing committee members who are representatives of the relevant government organizations and seventeen temporary committee members from the private industrial circles, meeting roughly bimonthly and have been active ever since its establishment.

In addition, the Technical Committee for Standards Formulation is active with the participation of many people from the industrial circles.

(2) Activities of the Private Sector

There is a broad difference in the extents of approach to standardization and improvement of quality by the private sector. In the case of industries which produce products for consumption within the country and the industries which supply raw materials and intermediates to such industries, there is a tendency for the producers to opt to reduce cost sacrificing the quality because the market is drawn to low-priced goods due to the low income level of the consumers.

In contrast to such, in the case of the second group consisting of the industries that produce export goods and the industries that supply raw materials and intermediates to such industries, efforts are made to maintain required quality or upgrade quality. But, as the quality and standards of most of the products are determined according to the specifications of the buyers, the standards and specifications indicated by the buyers prevail rather than the national standards of the Philippines.

As the third group, there is a strata of enterprises centered around the large-scale local enterprises that use technology transferred from abroad and the enterprises of foreign capital that sell products under the brands and company names that have received a certain level of evaluation in the domestic market. This group strives to maintain or upgrade the quality of their products and take a positive stance to the government activities to standardization.

Although the groups of enterprises are basically classified into three groups mentioned above based on the market and industrial structures, there is a fourth group which has come to recognize the need for modernization of the local industry in recent years, anticipating activated investments from overseas as the economy stabilizes, and have started to make positive approach to the improvement of technology and quality based in the central and regional Chambers of Commerce. Among such strata of enterprises, there are strata of the third group and the strata of the second group referred to above which are redundant with the strata of joint ventures with larger local stores, but, in addition to above, the strata of enterprises which previously belonged to the first group have also started to show interest.

The approaches by the enterprises to standardization and improvement of quality are varied in degree, but it appears that activity is increasing centered around the third and the fourth groups. The approach to standardization and improvement of quality in the private sector consists of the following:

1. Approach at a level of individual enterprises to promote quality control within their organization, utilizing the outside training courses for such purpose.

2. Approach at a level of industry, participating in such activities as discussions with BPS on the administration of standards, joining the Technical Committee for Standards Formulation, the planning and implementation of programs for improvement of technology and quality.

3. Approach at a regional level, such as the promotion to establish the regional testing and inspection centers, and the implementation of regional programs attached to the programs for the improvement of technology and quality which are pursued in the the Metro Manila region.

4. Approach based on the quality control promotion organizations as cores at the central level.

   In many cases, the strata of enterprises that join industrial associations is limited to the large- and medium-scale enterprises, and therefore the approach at the industrial level is centered on the strata of such enterprises. On the other hand, the strata of small-scale enterprises is active through the industrial associations of the regions and the regional Chambers of Commerce. In the case of cottage industry, no approach is made generally to quality control or only at an enterprise level at best.

   The quality control promotion organizations at the central level are; 1) Philippine Standards Association, Inc. (PHILSA), 2) The Productivity & Development Center of the Development Academy of the Philippines (PDC), 3) Philippine Society for Quality Control, Inc. (PSQC), 4) Philippine Productivity Movement, Inc. (PPM), 5) Buy Philippine Made Movement (BPMM), each operating promotional activities of its own for quality control.

3-2 Standards and Certification Systems

(1) Organization of the Systems and the Implementing Organization

1) BPS

BPS of DTI, at present, is in charge of the administration of the national standards in the Philippines. BPS was organized in DTI by the Executive Order No.133 concerning the reorganization of DTI enforced on July 26, 1987 in which it is explicitly stated that BPS should be engaged in the promotion, implementation and coordination of the national standardization activities. The major points of the policies of BPS are the following four items:

1. Improvement of the quality of the products of the Philippines so as to be competitive in the domestic and international markets.

2. Protection of the health and safety of the general public.

3. Promotion and improvement of the production efficiency to improve quality and enhance productivity.

4. Extension of the understanding of standards and quality to the people of the Philippines.

To achieve the above objectives, BPS is carrying out the activities focused on the following four subjects:

1. Development of standards

2. Product tasting and certification

3. Technical assistance and consulting

4. Extension of standards and the metric system

The central organization of BPS is composed of the following four divisions. Although the number of staff allocated is 87 persons including the director, deputy director, division chiefs, officers and clerks, the number of staff actually seated are 58 persons at the present time. (Refer to Attached Information 1 of Annex 2. All of "Attached Information" referred to in this Section 3-2 are in Annex 2.)

1. Standards Development Division (Allocated number of staff: 28 persons, Actually seated staff: 16 persons)

2. Standards Promotion Division (Allocated number of staff: 17 persons, Actually seated staff: 11 persons)

3. Quality Control Assistance Division (Allocated number of staff: 15 persons, Actually seated staff: 9 persons)

4. Standards Conformity Division (Allocated number of staff: 23 persons, Actually seated staff: 19 persons)

In the regions, the activities of BPS is executed by the 13 regional offices and 73 provincial offices of DTI. In general, the Industrial Development Division of the regional or provincial offices is in charge of the activities of BPS, although it is handled by other division in some offices depending on their work volume and organizational structure. The number of employees of the regional and provincial offices total 98 persons.

2) The Standards Council of the Philippines

By the DTI Department Administrative Order No.10 (1987) promulgated on December 2, 1987, the council was established to advise the Secretary of DTI on important matters pertaining to the national standardization policies and has been engaged energetically in the deliberation of national tasks from a national viewpoint since its establishment. (Refer to Information 2.) The function of the Standards Council will be further strengthened by the participation of the Provincial Standards Councils to be organized in the near future in addition to the Regional Standards Councils and will manifest intensified roles as an advisory organization to the Secretary of DTI.

(2) Establishment of Standards

1) The direction of activity for standardization

BPS formulates an Action Program for Standardization annually and performs the necessary activity systematically according to it. The annual action program is formulated by BPS by taking into consideration the opinions of the Standards Council, relevant government organizations, major industrial associations, experts, consumer organizations and other parties concerned. (Refer to Attached Information 3.)

The fiscal 1988 Program focuses on providing intensive training to the staff of DTI to enhance their capability to provide such services as consulting and training on standards, testing and certification to manufacturers, traders, consumers, institutions and other relevant organizations, aiming at contributing to the promotion of investment, expansion of exports, regional development, fostering of small- and medium-scale industry, and the strengthening of base of industry which are the main objectives set by DTI for the promotion of trade and industry.

In the fiscal 1989 Program, the basic objectives of the preceding fiscal year were succeeded and the current issues were grasped again in the following manner to apply measures:

a) Establishment of standards

1. Lack of standards : As countermeasures, 1) introduction of the fast track method to formulate standards, and 2) structuring a cooperative system between BPS and relevant organizations and associations (structuring of a network system)

2. Defining the criteria for mandatory standards and voluntary standards : As measures, selective establishment based on such criteria as 1) health and safety, and energy preservation, 2) requirements made by foreign countries, and 3) important effects on the consumers

b) Implementation of standards

1. Lack of information on standards, and lack of public understanding of standards

2. Shortage of manpower, testing equipment and quality control technology in the industry

3. Shortage of independent testing laboratories

4. Indifference to standards, tendency to evade responsibility, and low conformity to standards by the industry

5. Shortage of manpower at DTI and BPS

6. Lack of cooperation among the government organizations, the industrial associations, and the consumers

And, in order to promote the formulation of standards, it is planned to strengthen the cooperative relation with the relevant associations and provide them with assistance for improving their capability to formulate draft standards, while making positive use of the Standards Council, the Regional Standards Councils and the Provincial Standards Councils.

As will be discussed later, many international standards and foreign standards have been adopted as part of PNS, and BPS has a great expectation on close link to international participation in international standardization activities centered around the International Organization for Standardization (ISO) with a view to adopting to the extent possible the standards formulated there.

In addition, there is a plan to prepare industry profiles for 13 sectors which will be basic information for formulating standards. The profiles will be made to clarify the products classified into individual industrial fields for which standardization is desirable, and also to determine the priority of standardization and further to evaluate the benefits of standardization, thus the target industrial sectors are civil and building, electrical and consumer products industries.

BPS prepared the "Visions and Targets" based on the consensus of the major industrial associations and others concerned aiming to drastically strengthen the national standardization activity in the three year period covering 1989 through 1991. It relates to the following seven points. As it is still in the stage of concept formulation, BPS is working to build up the specifics urgently.

1. Establishment of the Quality Management Institute

2. Establishment of Regional Testing Centers

3. Education on quality at each level of schools

4. Enactment of acts concerning quality assurance of products and the protection of consumers

5. Commissioning of the product testing and certification to industrial associations and specialized organizations

6. Mutual approval with foreign testing organizations of the test results and the certification marks of the Philippines

7. Quality certification for 1000 companies in the industry of processed food, garment, footwear, furniture, electronics, gifts, housewares, civil and building materials, and electrical products

2) Procedure to establish standards

The establishment of national standards is carried out in the following steps in accordance with the "Standard for Formulating National Standards of the Philippines" (Refer to Attached Information 5 for details):

1. Formulation of the Action Program for the Standardization Activity by BPS, and establishment and operation of the Technical Committee : The Technical Committee to deliberate the draft national standards is organized for each industry. When necessary to expedite the deliberation, an experts committee or a sub-committee may be formed under the technical committee to deliberate on certain subjects. Being important that national standards are formulated by a consensus of the relevant parties, the members of these committees are appointed from the representatives of parties who have important interest in the subject standard, such as BPS, the manufacturing industry, consumers, academic societies, experts and representatives of other relevant government organizations. There are 35 Technical Committees organized at present. (Refer to Attached Information 4.)

   Furthermore, "TC-37: Technical Committee for Office Goods" is scheduled to be organized in the near future. The total number of members is 389 persons.

2. Preparation of the draft standards by BPS and the formulation of the Technical Committee draft

3. Distribution to related parties of the committee draft : The draft is distributed through BPS seeking comments and opinions. The comments of the parties who are expected to be the user of the subject standard are regarded as particularly important.

4. Examination of the comments on the committee draft by the Technical Committee

5. Holding of public hearings on the revised committee draft

6. Formulation of the final draft and approval by the Secretary of DTI

7. Publication of the national standard : In the case of mandatory standards, they are published in the official gazette and the major newspapers. In the case of voluntary

standards, they go to printing as they are not required to be published in the official gazette or the major newspapers.

The PNS establishment process is illustrated in Figure 3-2-1.

Against a background of increasing need for standards, BPS has entered individual standardization assistance agreements with organizations, etc. which are judged to be capable of formulating standards such as association standards (including investigation and research and collection of information) and whose cooperation is judged to be effective for formulating national standards to ensure smooth and expedient establishment of the national standards. (Refer to Attached Information 6 and 7.) The associations with which agreements have been entered are as follows:

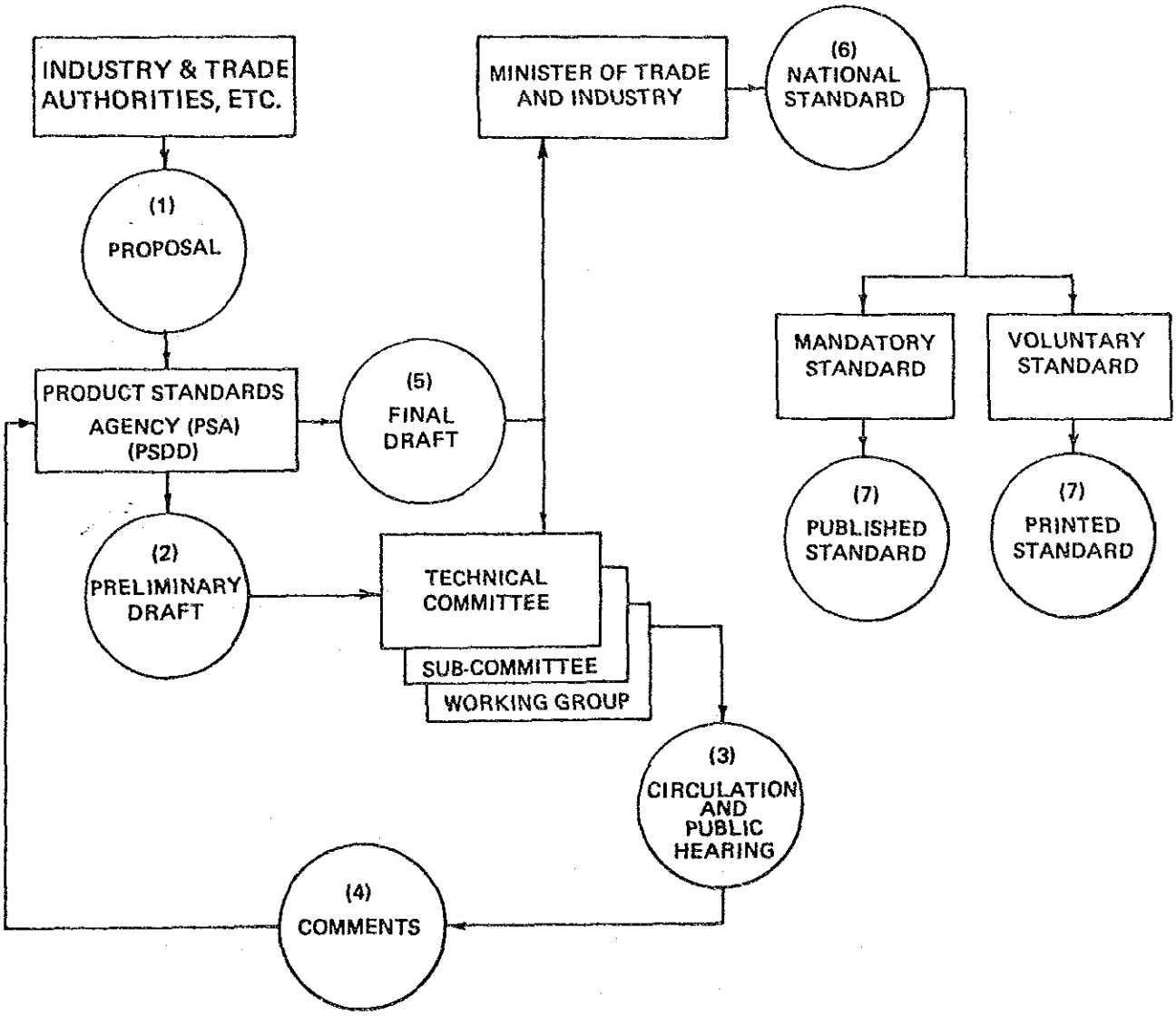
1. PARES (Philippine Airconditioning and Refrigerating Engineers)
2. PTNMA (Philippine Toy and Novelty Mfrs. Association, Inc.)
3. CIAP (Construction Industry Authority of the Philippines)
4. AMTEC (Agricultural Machinery Testing and Evaluation Center)
5. PLPGA (Philippine Liquefied Petroleum Gas Assn. Inc.)
6. CGAP (Compressed Gas Assn. of the Philippine, Inc.)
7. PHTRC (Postharvest Horticulture Training and Research Center)
8. PSME (Philippine Society of Mechanical Engineers)
9. PHILSA (Philippine Standards Association)
10. BFAD (Bureau of Food and Drugs)

3) Establishing of standards

The national standardization activity in the Philippines started as early as 1947 and at that time a few number of the national standards were published by the official gazette. But an organized and systematic standards formulation was started after the enforcements of the Republic Act No.4109 on June 20, 1964. According to the national standards catalog of 1988, the total number of standards established and adopted as the national standards of the Philippines in 1988 totaled 954 as shown in the following list:

PNS	:	117	(Philippine National Standards)
SAO	:	415	(Standards Administrative Order)
PHILSA	:	1	(Standards established by Philippine Standards Association)
PTRI	:	2	(Standards established by Philippine Textile Research Institute)
ANSI	:	12	(Standards established by American National Standards Institute)
ASTM	:	134	(Standards established by American Society for Testing and Materials)
DOT	:	1	(Standards established by Department of Transportation (U.S.A.))
UL	:	1	(Standards established by Underwriters' Laboratories (U.S.A.))

Figure 3-2-1 **Standards Formulation Sytems Flow**



AS	:	10	(Standards established by Standards Association of Australia)
BS	:	35	(Standards established by British Standards Institution)
JIS	:	12	(Japanese Industrial Standards)
ISO	:	195	(Standards of International Organization for Standardization)
IEC	:	19	(Standards of International Electro-Technical Commission)
Total	:	954	

PNS are national standards that have been established since 1983 and SAO are standards established between 1965 and 1981, which had been issued under the Standards Administrative Order, abbreviated SAO. However, among the SAO standards, there are 20 that were transferred from the national standards established prior to 1965. Also, there is 1 standard established by PHILSA, which was made a national standard and 2 standards adopted from standards made by PTRI. Such standards made by the Philippines total 535 standards. On the other hand, those adopted from international standards and foreign standards total 419 standards which hold a conspicuously high percentage in the national standards. With respect to foreign standards, ASTM standards of U.S.A., are dominating with 134 standards and a fair number of BS standards, totaling 35 standards are adopted. There are 12 JIS standards adopted. With respect to international standards, there are 195 ISO standards, 19 IEC standards totaling 214 standards adopted, indicating the important position of the international standards in the national standards of the Philippines.

Tabulating these standards classified into industrial fields, they are shown in Table 3-2-1. According to this, majority of the standards relate to chemicals, metals and metal alloys, agricultural products, building and construction, petroleum products, papers, boards and pulps, textiles and garments, plastic and electrical products, reflecting the present state of development of the industry of the Philippines. On the other hand the standards for machinery are relatively few and also the standards for electronics and information technology are very few.

Of the total number of standards, approximately 44% are product standards, and the remaining 56% are testing methods, implementation standards and terminology.

The records of establishment of standards in the past five years are shown in Table 3-2-2.

According to this, BPS formulated 40 to 45 standards a year on its own in the past several years. It is to be noted that the authorization as the national standards of those formulated by relevant associations or several government agencies, although few in number, started since 1986. The number of international standards and foreign standards adopted is increasing year by year, and is considered to be the important

Table 3-2-1 Categorized National Standards

No.	Categories	Number of Standards	No.	Categories	Number of Standards
1	Chemicals	92	12	Fertilizers	34
2	Metals and Metal Alloys	85	13	Processed Foods	34
3	Agricultural Products	79	14	Machineries	29
4	Building and Construction	74	15	Packaging	25
5	Petroleum Products	71	16	Containers	22
6	Papers, Boards and Pulps	56	17	Leathers	16
7	Textiles and Garments	53	18	Fire Protection and Fire Fighting Equipment	15
8	Rubber and Plastics	52			
9	Electrical	50	19	Glass and Ceramics	13
10	Measuring and Testing Equipment	49	20	Household Appliances	10
			21	Furnitures	5
11	Pipes and Fittings	39	22	Others	51

Source : PNS Catalogue

Table 3-2-2 Development of Philippine National Standards (PNS)

Year	1984	1985	1986	1987	1988
Development by BPS	32	36	44	41	41
Adoption of Standards developed by other National Bodies	0	0	1	5	7
①PTRI	0	0	0	5	0
②CIAP	0	0	0	0	7
③PHILSA	0	0	1	0	0
Adoption of International Standards	11	35	66	49	59
①ISO	11	29	61	46	57
②IEC	0	6	5	3	2
Adoption of foreign standards	35	35	15	26	55
①ANSI	12	7	4	3	0
②ASTM	18	22	10	4	30
③UL	0	0	0	0	0
④ACI	0	0	0	5	0
⑤DOT	0	1	0	0	6
⑥BS	1	0	0	1	7
⑦IP	0	1	0	0	0
⑧AS	0	0	0	13	8
⑨JIS	4	4	1	0	4
Total	78	106	126	121	162

Source : PSA Annual Reports

BPS Annual Reports

Note : P T R I ……Philippine Textile Research Institute
C I A P ……Construction Industry Authority of the Philippines
P H I L S A …Philippine Standards Association
A N S I ……American National Standards Institute
A S T M……American Society for Testing and Materials
U L ……Underwriters' Laboratories
A C I ……American Concrete Institute
D O T ……Department of Transportation
B S ……British Standards Institution
I P ……The Institute of Petroleum
A S ……Standards Association of Australia
J I S ……Japanese Industrial Standards

source of the Philippine National Standards. In the international standards adopted, ISO standards hold a dominating percentage and, in the foreign standards adopted, ASTM standards hold a dominant share. Twelve JIS standards also have been adopted as PNS, almost all of which are related to metals including iron and steel. (Refer to Attached Information 8.)

The product standards established by BPS consist of the mandatory standards which regulate the production and sales of substandard products in performance and quality and the voluntary standards which do not have such regulatory power. There are 49 mandatory standards as of May, 1989. (Refer to Attached Information 9.)

The mandatory standards, because of its regulatory nature, are set only for the specific fields of industry on which technical regulation is required in order to achieve certain policy objectives. In the Philippines, a major portion of such standards relate to health and safety of the public. Of the 49 mandatory standards, electrical-related standards are dominant with 20, followed by 5 high-pressure-gas-related standards, 5 metal-related standards, 3 cement-related standards, 3 fire-extinguisher-related standards, 2 tire-related standards and 11 others. As there were many accidents caused by electricity, a special Presidential Decree (LOI No.1209) was issued to prevent such accidents. In this connection a number of mandatory standards relating to electricity have been established.

In addition, the following standards are scheduled to be added as mandatory standards during the next three years: (1990-1993)

1. Flat irons
2. Water heaters
3. Microwave ovens
4. Toasters, grills, roasters
5. Copper wires for electrical purposes
6. Aluminum wires for electrical purposes
7. Rubber insulated flexible cords
8. Carbon dioxide and other gas cylinders
9. Push button switches
10. Remote control switches
11. Turbine oil
12. Aviation oil
13. Porcelain voltage insulators
14. Insulating rubber tape
15. Bicycle tires

Thorough investigation and research must precede the establishment of standards and the technical specification and testing methods defined in the standards should be these acceptable to be reasonable to the parties concerned. The development, investigation and research on standards in the Philippines are conducted by the Investigation Group of the Standards Development Division of BPS and positive efforts are made with the cooperation of the relevant organizations. Looking at the record of such research and investigation conducted by them during the years 1984 to 1987, there were 69 themes in 1984, 242 themes in 1985, 270 themes in 1986, and 218 themes in 1987. The scope of the research and investigation covered a broad field including food, electricity, chemicals, machinery, building and construction, housewares, consumer goods, etc. The subjects of those research and investigation were related mainly to dimensions of products, sizes, performance and quality, while some were related to definitions and testing methods. As the method of investigation and research, it is started with the collection and study of similar foreign standards and technical literature and if necessary the tests are commissioned to the testing organizations in and out of the country and the results of the tests are analyzed and studied. Under the ISO agreement to exchange standards of a country free of charge among the member countries, BPS, being a member of ISO, has accumulated the standards of the countries of the world and the international standards such as ISO and IEC, etc., which are available for their research and investigation.

(3) Dissemination of the Standards

National standards will not bring about any effects unless they are practiced by the relevant parties. Hence the importance of their extension is just as important as establishing the standards. Recognizing the importance of the extension, BPS organized a Standards Promotion Division and are striving to extend the standards. The key points of the targets of extension by BPS, as seen in the Action Program for Standardization for fiscal 1988 and fiscal 1989, are manufacturers and the general public. The reason for placing importance on the general public in addition to the manufacturers is because the general public usually has little consciousness of quality and standards and has a tendency to purchase products of quality below standard if the price is low and it is necessary to drastically change the consciousness of the general public in order to extend the standards at the manufacturing level.

The BPS headquarters and DTI regional and provincial offices, with the cooperation of the other government organizations, specialized organizations and industrial associations, carry out nation-wide activities for the extension of standards, and their intent is to strengthen the cooperative relation and also request education on standardization in schools too.

The extension activities of BPS are as follows: (Refer to Attached Information 10 for details.)

1. Preparation and distribution of the publications related to the standards

2. Seminars and dialogue meetings by industry (except for quality control) : Seminars are divided roughly into two types; namely, a type to explain the contents, directions of use, precautions for use, etc., when an important standard has been established or amended and a type to get the message thoroughly across to the relevant parties when new policies and new directions of importance has been promulgated by BPS. Also, dialogues as a means to extend standardization are regarded as important and there are two types of dialogues conducted by BPS, namely the dialogue with the important industrial associations and the dialogue with public organizations. Looking at the records for fiscal 1988, there were 28 seminars held, of which three were for explanation of new standards and 25 were for explanation of the new policies of the government (9 for government procurement of PS Mark products, and 16 for promotion of the adaptation of the metric system). On the other hand, with respect to dialogue meetings, there were 19 meetings for the 12 important business associations and 3 for others (one meeting each with Standards Council, OEA and PMA), totaling 22 meetings. The total number of participants was 6,296 persons.

3. Exhibitions: Main products approved for PS Certification Mark which are important for both the producers and the consumers are loaded on BPS owned vehicles and exhibited at the major cities. The exhibition vehicle is loaded with visual and audio texts, extension booklets, PNS, foreign standards, and other publications and goods for reference, in addition to the PS Mark products. There were 17 exhibitions held in 1988 and the total number of attendants exceeded 10,000 persons.

4. National Meeting to promote standardization : Designating the second week of October as National Standardization Week, events are held nation-wide to promote standardization. The main events are seminars and dialogues by industrial sectors, business associations or consumers.

5. Extension by mass media : There were about 40-50 press releases annually. Press conferences are also frequent.

6. Extension by use of libraries : BPS has a library and the visitors receive the reference service of the BPS officials and can peruse, purchase or make copies of the desired standards. The operation is computerized and retrieval of standards is available. Visitors total about 30 persons a day.

The library not only serves the visitors, but also prints the PNS standards when they are established or amended, distributes them to the government organizations, and business associations and other important parties free of charge and strives for the extension of the standards.

7. Government procurement of BPS Certified Products : A memorandum was exchanged among DTI, Department of Budget and Management (DBM) and Commission on Audit (COA) on October 10, 1987 relating to the government procurement of BPS Certified Products, which was put into effect on January 1, 1988. Since the demand by government procurement occupies a relatively large share, it fulfills an important role in the extension of industrial standardization particularly in the extension to the manufacturing sector and the consumers. Its significance is great for the small and medium enterprises which are weak in market development.

(4) Acts and Regulations Relating to Industrial Standardization

The acts and regulations, etc. relating to national standardization activities in the Philippines amount to quite a number including acts, orders, notices and guidelines, of which there are ten acts and regulations considered essential in understanding the background of the national standardization activity, which are summarized below (Attached Information 11):

1) Executive Order (EO) No.133

The order prescribes the BPS function of promoting, implementing and coordinating industrial standardization and was enforced on July 28, 1987 with the direct objective of reorganizing DTI, immediately after the start of the Aquino administration. This is similar to the law for ministries and agencies of the Japanese government. As it is too broad to define the specific function to be performed by BPS to conduct the promotion, implementation and coordination of industrial standardization, DTI is advancing the standardization administration by establishing regulations and announcing guidelines as will be discussed later.

2) Republic Act (RA) No.4109

This Act was enacted prior to the effective date of EO No.133, and relates to the activities that BPS is now engaged in or expected to engage in. The act was enforced on June 20, 1964 and by this act a drastic strengthening of the standardization administration of the Philippines was attempted. That is, the Standards Division of the Bureau of Commerce, the Department of Commerce and Industry (the forerunner of the present DTI) was upgraded to the Bureau of Standards (BS), and the activity of the

Bureau of Standards was also expanded and organized. This is the important act that provided the axis to the standardization administration of the Philippines. In fact, the national standards of the Philippines started to be established in 1965, the following year.

3) Letter of Instruction (LOI) No.1208

This instruction was issued by the President of the Republic of the Philippines on March 9, 1982 instructing the Ministry of Trade and Industry (MTI: forerunner of DTI), and the Board of Investment (BOI) for action in view of the fact that the frequent fires that broke out in the residential and commercial districts were due to substandard electrical wires, electrical materials, electrical parts, and electrical accessories and that the fires discovered in the early stage could be tackled with proper extinguishers.

By this instruction, PSA and its successor BPS assumed responsibility of the formulation of the standards and organization for certification regarding these products.

4) Standards Administrative Order (SAO) No.20-3, series 1987

This order was issued by MTI pursuant to Republic Act No.4109 mentioned in (2) above, and stipulates the details which apply in the approving of the industrial standard certification mark of the Philippines to the producer or the manufacturer.

In the Philippines, there was the industrial standards certification system established prior to the issuance of this order, and the order therefore was to improve the existing certification system.

5) Executive Order (EO) No.913

This order was issued by the President on October 7, 1983 authorizing the minister of MTI to enact the regulations necessary for smooth and expedient enforcement of the acts relating to trade and industry, which includes, among others, those for the prevention of dumping of substandard products and the prevention of smuggling of inferior products which will cause damage to the textile and garment industry. The objective of this executive order has is to control the violators of the acts related to trade and industry, but at the same time it also tasks BPS's responsibility for formulating and extending product standards and penetrating the quality consciousness to the consumers as well as the producers, which are important measures to prevent the market from being flooded with inferior products.

6) Standard for Standards Manual

This manual was issued by MTI in 1983 and was adopted as a Philippine National Standard (PNS). The objective of issuing this manual was to coordinate the Technical Committees and to promote the formulation of the standards as well as to provide clear guidelines in the development of PNS.

7) Department Administrative Order (DAO) No.10, 1987

This order was issued subordinating to EO No.133, by the Secretary of DTI on December 2, 1987 with the objective of establishing the Standards Council of the Philippines to strengthen the National Standardization Activity, aiming at improving the quality of the increasing number of products of Philippines and promoting the protection of the consumers, and stipulates the structure of the committee members and their roles.

8) Implementing Guidelines on Government Procurement of BPS Certified Products

These are guidelines for procurement by the government organizations of products certified by BPS and were circulated as a joint memorandum of DTI, DBM and COA on October 10, 1987 after the enforcement of EO No.133 and were enforced on January 1, 1988. The objective is to request the government organizations including enterprises controlled by the government to exercise preference in procurement of BPS certified products from the viewpoints of economy and safety.

9) DAO No.4, 1988: Revised Rules and Regulations concerning the Issuance of Import Commodity Clearance (ICC)

This order was enforced on July 1, 1988 to ensure implementation of the import surveillance provision stipulated in the RA No.4109 and the LOI No.1208.

By this order, all regulations relating to ICC issued prior to the enforcement of this order were rescinded, and all ICC are issued hereafter according to this order.

10) Memorandum concerning the joint procedure for the testing of imports regulated with mandatory standards

To prevent damage from imports of inferior goods, the RA No.4109, the LOI No.1208 and the EO No.133 (1987) and other relevant regulations were enforced, under which BPS is obligated to formulate national standards which form the basis for inspections, tests and evaluation of the quality of domestically produced goods as well as imports, and to certify those products, while on the other hand, with respect to imports, the Bureau of

Customs (BOC) is obligated to conduct import approval prior to unloading imported cargoes into the country by the RA No.1937, the RA No.4109 and the Presidential Decree (PD) No.1464. From a strong recognition that the two bureaus must cooperate particularly closely in order to prevent inferior and hazardous imports from entering the country, this memorandum was exchanged between the two bureaus and was signed by directors of both bureaus on May 25, 1988.

(5) Standards and Certification Systems

1) Outline

The prime objectives of the Standards and Certification Systems are to satisfy both the elevation of the quality consciousness of the manufacturers and the protection of the consumers, ultimately to promote the development of the industry of the country by the certification of an authoritative third party such as the government or testing laboratories to the effect that a certain product, except in the case of self-certification, meets the standards of quality and performance, safety, etc. Whether the objective is fulfilled through an understanding not only by the industry but also widely by the consumers depends greatly on the administration starting with the establishment of national standards and the capability of the testing laboratories.

In the Philippines, there is the PS Certification Mark System and the Import Commodity Clearance System which are mainly administered by BPS.

2) Philippine Standards Certification Mark System

a) Outline of system

According to "the Standards Administrative Order No. 20-3 concerning the labeling of the products administered by PSA (the forerunner of BPS) which was promulgated in 1987 as an amendment and expansion of an earlier version, the license for the use of the PS Mark for the subject product certified is issued to the factory which BPS certified that the said factory is able to continuously produce the product which meets the national standards or the international or foreign standards adopted as national standards as the result of strict factory assessments and product tests conducted by BPS or the DTI Regional/Provincial Office, which is the regional office of DTI. (Refer to Attached Information 11.) This System assures the safety and reliability of the product quality to the consumers and promotes the acceptance of the product in the domestic and overseas markets and extends benefits to the manufacturer in increased sales and profits.

The license is permanent except when it is revoked due to violation of the conditions of the license and the factory which is licensed must subject itself to periodical checks by the DTI Regional/Provincial Office which issued the license in order to ascertain that the product quality, manufacturing conditions, equipment, etc. meet the subject standards and the quality assurance plan specified by BPS.

The Philippine government organizations preferentially procure products bearing the PS Mark and promotes the protection and expansion of the PS Certification Mark System in accordance with the "Guidelines concerning the Government Procurement of BPS Certified Products" enforced on January 1, 1988 relating to the goods procured.

b) Conditions of license

The conditions of the license are stated in the pamphlet entitled "How to apply for the PS Mark" published by BPS, which summarized below:

1. The product explicitly stated in the license must meet the Philippine National Standard (PNS) or, in special cases, other standards approved by BPS.

2. The licensed party must use the PS Mark on only its own product which was the object of the license.

3. The licensed party must observe the rules of R.A. No.4109, E.O. No.913 and the rules and regulations relating to their administration and follow all instructions and orders issued by BPS as authorized under the relevant acts and regulations.

4. The licensed party must allow the assessor of BPS or DTI Regional/Provincial Office to enter the factory in operation with the purpose to assess the raw materials, production processes, final products, quality assurance equipment, records, etc., according to the "Guidelines for Assessing the Quality Control Systems of Manufacturing Firms Relative to the Issuance of the License to Use the PS Certification Mark" published by BPS.

5. The licensed party must assure at any time that the product licensed meets the subject Philippine National Standards (PNS) or other standards approved by BPS. For this purpose, the licensed party must strive to maintain a quality control system including the tests and inspections in a state that satisfies BPS.

6. In the case of a sub-contracting agreement, the licensed sub-contractor must assume all responsibility of the quality of the partly-finished product.

7. The licensed party is obligated to report to BPS in writing any changes in the management, name of firm or removal of the factory, etc. Notice must be submitted one month in advance in the case of removal of the factory and within one month after the occurrence in the other cases.

8. With respect to removal of the factory, the license will be effective after BPS approves by reassessment of the factory at the destination by DTI Regional/Provincial Office.

9. The license to use the PS Mark may not be lent to a third party .

The foregoing conditions will be binding on any party that is licensed. Even when the penal regulations of R.A. No.4109, E.O. No.913 or other rules and regulations are not violated, violation of any of the above conditions could be the sufficient ground for revocation of the license.

c) Object of certification

All product standards including food are objects of the PS Certification Mark System, but those products which require advance certification by BPS from the viewpoint of ensuring safety of the consumers and fair trade, will be objects of the mandatory certification.

Also, PNS other than product standards such as implementation specifications and method of representation, or items particularly designated by BPS from the above viewpoint even if they are product standards other than PNS are objects of the mandatory certification. As PNS, there are 49 standards which are the objects of mandatory certification as of May 11, 1989. (Refer to Attached Information 9.) Also in the next three years (1990-1993), fifteen additional items are scheduled for mandatory certification. (Refer to 3-2 (2) Establishment of Standards for details.)

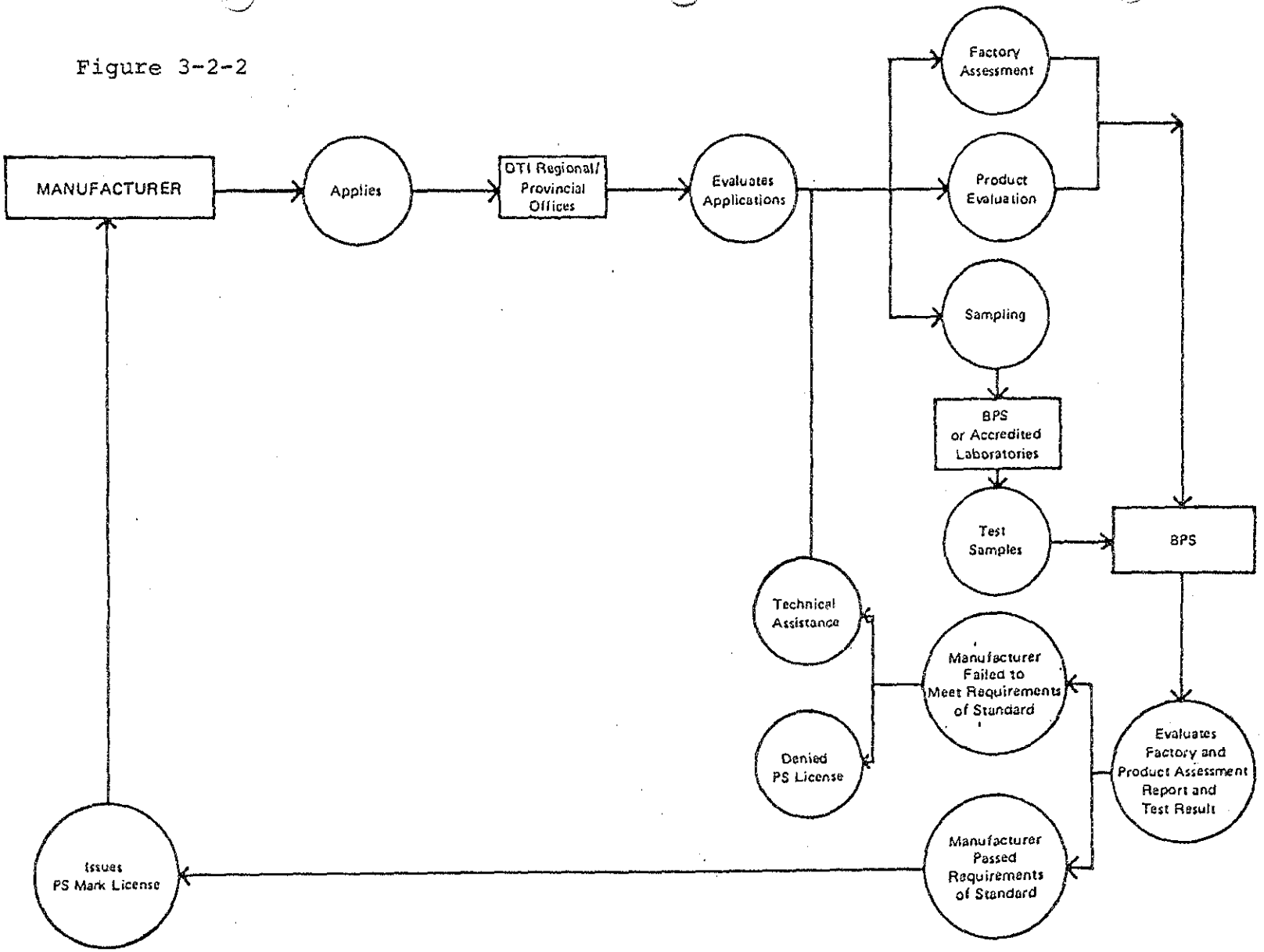
d) PS Mark

Regardless of whether the item is an object of mandatory certification or not, the same PS Mark will be used.

e) Procedure for certification

The procedure for certification is shown in Figure 3-2-2. (Refer to Attached Information 12 for details.)

Figure 3-2-2



Flow Chart of Certification Procedures

f) Follow-up inspection

BPS or DTI Regional/Provincial Office will conduct follow-up inspections on the holders of PS Mark licenses once each year. The inspection comprises factory assessment done in accordance with the assessment standards stated in factory assessment, evaluation of product, sampling and tests on samples. The factory assessment done in the follow-up inspection is merely a verification of the examination conducted at the time of the application, but when there is an irregularity, the necessary improvement is done. The factory must pay a fee of 2,000 pesos for the follow-up inspection.

g) Record of issuance of PS Mark licenses

The record of issuance of PS Mark licenses during the past three years is shown in Table 3-2-3.

Also, the PS Mark license holders by product fields as of December 31, 1988, are as follows:

Chemicals	62
Metals	32
Building materials	87
Automobiles	21
Daily goods	60
Fire extinguisher	96
Food	62
Electrical	70
Total	490

Table 3-2-3 RECORDS OF APPROVAL OF PS LICENSE, 1986-1988

	1986	1987	1988
No.of Application	33	48	62
No.of Approval	53	35	42

Source: BPS

3) Import Commodity Clearance System

a) Outline of system

In accordance with the Letter of Instruction (LOI) No.1208 of 1982, the Ministry of Trade and Industry, forerunner of DTI, the Board of Investment and the Product Standards Agency, have strived to eliminate poor quality electric wires, electric materials and fire extinguishers. To the manufacturers within the country results were obtained with the establishment and extension of the PS Mark System but for the imported products favorable results were difficult to come by because of the defects in the procedure, authority, etc. in the previous ICC regulations and many fires broke out caused by poor quality imported goods.

Thus, the Philippine Government amended the previous ICC regulations by DAO No.4 Series of 1988, 1988-05-25 to ensure the surveillance clause of LOI No.1208 above mentioned and established the Revised Rules and Regulations Concerning the Issuance of Import Commodity Clearance and enforced it on July 1, 1988.

According to this amendment of the regulations, BPS and the Bureau of Customs standing on the understanding that the cooperation of the two bureaus was essential to prevent the distribution of poor quality imported goods in the domestic market, signed the "Memorandum concerning the Joint Procedures for Inspection of Mandatory Standard Imported Products" and a cooperative system between the two bureaus was established. Thus, the object imported products were sampled for each cargo before clearing custom to be inspected to check whether they meet the PNS or the international or foreign standards approved by BPS, and ICC is issued to only those products that meet the standards.

b) Object items

All electric wires, electric materials, electric parts, electric accessories, fire-extinguishers, fire-extinguishing systems, fire-extinguisher accessories according to the LOI No. 1208 are all objects of this system.

Also, from the viewpoint of ensuring the safety of the people, several PNS standards which are the objects of mandatory certification in the PS Mark System are designated as object items. (Refer to Attached Information 14.)

It is expected that the object items will increase in number because BPS is striving to establish PNS where standards are lacking and to make them mandatory.

Incidentally, items for which no applicable PNS exist, are checked to ascertain whether they meet international or foreign standards approved by BPS such as, ISO, IEC, BS, DIN, ANSI, JIS, etc.

c) Record of inspections

The number of Import Commodity Clearance increased with the increase of imports and the 160 cases in 1986 increased to 381 cases, or doubled, in 1988. In 1988 there were 8 cases disapproved in Import Commodity Clearance. (Refer to Table 3-2-4.) Looking at the numbers of importers, products and cases approved in Import Commodity Clearance in 1988, fire extinguishers, LPG gas cylinders, and electrical products are dominant in number. (Refer to Table 3-2-5.)

In addition to the above, there were 417 cargoes which were imported with exemption from Import Commodity Clearance in 1988. BPS gives the following points as reasons:

1. There is no appropriate PNS standard.

2. The product cannot be tested at the accredited testing laboratories of BPS.

3. The product is for in-house use and will not enter the market.

4. The item is an experimented product.

Table 3-2-4 STATUS OF IMPORT COMMODITY CLEARANCE

	1986	1987	1988
I. C. C. Issued	160	276	381
Kinds of products	22	22	16
I. C.C. Denied	13	6	8

Source: BPS

Table 3-2-5 BREAKDOWN OF IMPORT COMMODITY CLEARANCE ISSUED IN 1988 (1)

Importer	Product	No.of Clearance
Advance Safety System	Fire Extinguisher	5
Engineering Equip. Inc.	Fire Hose & Fire Extinguisher	3
Pulser Enterprises	ditto	6
Macondray & Co. Inc.	ditto	4
Mark International Phil. Inc.	Fire Hose	2
RWJ Enterprise	Fire Extinguisher	1
Transpec Trading	ditto	1
Loxon Philippines	ditto	2
Mini Commercial	ditto	2
Macondray & Co. Inc.	ditto	1
Addex Trading	ditto	3
B.J. Marthel International	ditto	1
AG & P Manila	ditto	1
Duval Holdings, Inc.	ditto	1
Anglinco Sons Mktg. Corp.	Fire Hose	9
Allied Export Enterprises	LPG Cylinder	1
Almada Dev. & Equip. Co.	ditto	4
Bridgestone Automotive	ditto	2
Jarvison Enterprises	ditto	12
JD's Marchandise LPG Supply	ditto	6
Jitney Auto Supply Co.	ditto	6
MITC Industries	ditto	8
Mobile Motors Inc.	ditto	6
Par Marchandising	ditto	5
Romars Trading	ditto	1
Sunyu Trading	ditto	6
Superior Gas & Appliances	ditto	1
Toppers Distributors Inc.	ditto	1
Fortune Gas & Appliances	ditto	12
Eleven Industries	ditto	1
Northern Gas Corp.	ditto	3
Masagana Gas Service & App.	ditto	4
Sen Hing Trading	ditto	1
Corong Enterprises	ditto	3
MBA Mercantile	ditto	2
Letrograhics Corp.	ditto	5
Bright Gas Corp.	ditto	1
Oliver Mercantile	ditto	1
Ecomac Equip. Corp.	ditto	3
Golden Edition Inter. Trading	ditto	4
Island Air Products Corp.	ditto	2
Ocampo's Olongapo Inc	ditto	1
Civic Motors	ditto	1
Peppermint Mktg.	ditto	2
Leeman Enterprises	ditto	1
Hikari Int'l	ditto	4
Rengar Ind'l Corp.	ditto	1
CMS Trading	ditto	1
Armstrong Enterprises	Pneumatic Tires	28
Escor Distributors	ditto	18
Felton Commercial & Ind'l	ditto	7
Phil. Allied Enterprises	ditto	8

Table 3-2-5 BREAKDOWN OF IMPORT COMMODITY CLEARANCE ISSUED IN 1988 (2)

Importer	Product	No.of Clearance
Remel Enterprises	ditto	38
Ryco, Inc.	ditto	8
Skunac Corp.	ditto	21
Alinel Enterprises	ditto	31
Alpco Ind'l Co.	ditto	2
Goodyear Phils. Inc.	ditto	7
Tonson Trading	ditto	1
Edge Corp.	ditto	6
Sher & Emm Trading	ditto	1
Luson Bandag Comm'l	Rubber Inner Tubes	8
Philtread Tire & Rubber Corp.	ditto	10
Native West Integrated Trading	ditto	1
First Gem Phil. Inc.	PVC Insulated Elect. Wires	2
P.I. Electrical Supply	Knife Switch, Safety Switch	3
Reliable Electric Co. Inc.	Safety Switch	1
Power Construction Supply	Galvanized Steel Sheets & Coils	1
Regan Industrial Sales Inc.	Galvanized Steel Sheets	1
Trader Industrial Supply Co.	ditto	1
Pilipinas Hino, Inc	ditto	1
Richfield Inter. Inc.	Fluorescent Lamp Ballast	1
Yarnton Traders Corp.	PVC Electrical Tapes	6
Edgeworth Mktg. Corp.	ditto	1
Yazaki Torres Mfg.	Automotive Wires	1
Temprite Ind'l Corp.	Fiber Covered Insulated Elec. Wire	2
Starbright Sales Enterprises	Ballast	3
Phoenix Omega Dev't & Mgt	Ballast/Starter	2
Fuji-Haya Electrical Co.	Circuit Breaker	1
P.I. Electrical Supply	ditto	1
J.Y. Multi Products	Safety Matches	2
M.G. Tanlimco	G.I. Pipes	1

Source:BPS

The Import Commodity Clearance System based on the LOI No.1208, as stated in Annex 2, regulates the supply of electrical products and their parts, construction materials and fire-extinguishers which meet the PNS standards or adopted international standards in order to protect the safety of the people. The fact that some of the imported cargoes have been exempted from Import Commodity Clearance for the reasons stated in 1 and 2 above, however, implicates that the present operation of the Import Commodity Clearance is unsatisfactory to fulfill the objective of the system due mainly to deficiency of testing capability.

3-3 Present Status and Issues of the Systems and Organization of Testing and Inspection

(1) Outline of the System and Organization of Testing and Inspection

1) General

BPS controls the testing and inspection to be conducted under the PS Certification Mark System and the Import Commodity Clearance System. In addition to above, there are the testing and inspection which the enterprises commission to the testing and inspection organizations for their own.

With respect to the metrology system which is related to the testing and inspection system, the Industrial Technology Development Institute (ITDI) of Department of Science and Technology (DOST) is responsible for maintenance and management of the national standards. Also, with respect to the metrology calibration, the National Standards and Testing Laboratory (NSTL) of ITDI performs the service.

2) Tests and inspections under the PS Certification Mark System

The tests and inspections under the PS Certification Mark System comprise the "Factory Assessment" which investigates the quality control, and technical management of the factories that applied for approval to use the PS Mark, the "Standards Conformity Confirmation Test" which investigates the the applied product to confirm conformity of the product to the PNS standards, the "Factory Inspection" and the "Standards Conformity Confirmation Test" which are conducted on the PS licensed factories once a year continuously after the approval to use the PS Mark to confirm that the PS licensed products are manufactured conforming to the PNS standards, the "Standards Conformity Confirmation Test" which tests the products sold in the market to confirm whether those products meet the PNS standards, and the "On-the-site Inspection" of the licensed factories which is conducted from time to time according to BPS's judgment and the "Standards Conformity Confirmation Test" of the products manufactured at the inspected factories.

The Factory Assessment, the Factory Inspection and the On-the-site Inspection are carried out by BPS or the DTI regional offices.

The Standards Conformity Tests are conducted by the BPS laboratory and other 23 testing laboratories accredited by BPS according to the approval standards prescribed by BPS. The 23 testing laboratories consist of laboratories managed by the public institutions, those managed by private institutions, private inspection companies, and the testing laboratories of the manufacturers.

3) Tests and inspections under the Import Commodity Clearance (ICC) System

The Import Commodity Clearance (ICC) System is to approve imports into the Philippines of only electrical products and construction materials that conform to the PNS standards or the international standards and foreign standards approved by BPS, in accordance with the LOI No.1208. BPS has entered an agreement with respect to the operation of this system with the Bureau of Customs (BOC) of the Department of Finance (DOF) which administers external trade.

Under the ICC System, when the application of import clearance is submitted by the importers at each arrival at the port of the products to be imported, BPS or DTI regional offices conduct tests on the samples drawn from the imported cargoes to confirm conformity with the PNS standards or the international standards and foreign standards approved by BPS (Standards Conformity Test).

The Standards Conformity Test is performed by the BPS laboratory and 23 testing laboratories accredited by BPS according to the accreditation criteria prescribed by BPS as in the case of PS Certification Mark System.

4) Other tests and inspections

There is no legislation which enforces the "Export Inspection" that is to ensure the quality of export products. Therefore, the enterprises conduct quality checks of their products on their own, but as they do not possess adequate testing and inspection equipment, they contract the outside laboratories for such tests.

There is no system to check the quality and performance of imported raw materials and supplies or imported parts. Such checks should be originally done by the enterprises as acceptance inspections, but most of the enterprises actually do not conduct such tests because they do not possess adequate testing and inspection equipment.

Tests and inspections for research and development of products such as matching with the design, checking the performance, checking the quality, confirming the safety at various stages from the development of products to the final product, should be done by the manufacturers themselves, but because they do not possess adequate testing and inspection equipment, a part of such tests are contracted out to the testing laboratories.

These tests are conducted by the testing laboratories accredited by BPS, the testing organizations under the control of the Department of Science and Technology, the

testing organizations under the control of the National Food Authority and the private testing companies.

(2) Tests and Inspections under the PS Certification Mark System

1) The present status of the testing and inspection system, and its performance

a) Records of certification

The number of applicants and the number of certification tests for the PS Mark have steadily increased year by year. The number of applications in 1988 increased to 62, about a double of that in 1986, while the license holders of PS Mark reached 490 in 1988. The Factory Inspections of the licensed factories are carried out one or more times each year and 550 inspections were conducted in 1988. Furthermore, inspections of products sampled from the market increased too and the records for 1988 indicate a total exceeding 2200 cases, although the number for the regions is not definite. Table 3-3-1 shows these records.

b) Accreditation of testing laboratories

In order to promote the PS Certification Mark System, since 1982, BPS has adopted the system that is to authorize the testing for the PS Mark conducted by the testing laboratories which have been accredited by BPS after assessment based on the applications from the organizations which meet certain conditions regardless of whether they are public organizations or private organizations. The criteria for accreditation are set forth in the following documents:

1. Guidelines for the accreditation of testing laboratories (first revision) 1985-02-25: Guidelines effectuated in 1982 as revised in compliance with ISO/IEC Guide 25.

2. Laboratory accreditation: Explanations to the above Guideline -- prepared by BPS for their internal use.

3. Pointers for conducting assessment of laboratories for accreditation: Internal documents of BPS regarding the evaluation of the testing laboratories that applied for accreditation.

4. Assessment report on the technical competence of a testing laboratory for accreditation: This is a format for assessment of a testing laboratory. The assessment is done on a point system but a revision is being prepared.

Table 3-3-1 STATUS OF PS CERTIFICATION MARK SCHEME

	1986	1987	1988
Application for PS Mark	33	48	62
PS license issued	53	35	42
Total PS licensees	432	484	490
Factory & Product assessment	811	642	550
Product samples tested	2,587	4,277	5,986
tested by BPSL	2,234	3,842	5,031
tested by ATL	353	435	955
Test report issued	849	757	638
Market sampling & Spot inspection	1,869	2,000	2,200

Source:BPS
Note: (1) "ATL" means accredited testing laboratory.
(2) Numbers of "Market sampling & Spot inspection" in 1987 and 1988 are rough calculation for the reason of lack of data.

BPS conducts assessment of the testing laboratories according to the criteria set in the above documents. Main check points are as follows:

1) Staff of laboratory - including the technical level
2) Contents of work
3) Method of test
4) Testing equipment in possession and the method to calibrate the equipment
5) Record of tests
6) Environment of test

The tests to be conducted by the accredited laboratories under the PS Certification Mark System, are those required for issuing the license to use the PS Mark, the tests on the products drawn at the Factory Inspection and products sampled from the market. Therefore, the testing laboratories only report to BPS the results of the tests conducted according to the PNS standards or the foreign standards or international standards approved by BPS. The accredited testing laboratories are not allowed to have direct contact with the applicants of the PS Mark in relation to the testing, which is all done through BPS.

As of December 31, 1988, 23 testing laboratories have been accredited (Refer to Table 3-3-2). These are are 3 laboratories managed by government institutions (MIRDC, PTRI, NFA), 3 laboratories managed by non-governmental institutions (PIPAC, AMTEC, USCL) and the remaining 17 laboratories which are owned by private testing companies or private manufacturers, and their specialized fields are 13 for machinery industry, 1 for electric industry, 8 for chemical industry and 1 for textile industry. (Refer to Table 3-3-3.) As seen above, there is an unbalance in the testing fields that the accredited testing laboratories can serve. With respect to the field of electric industry, excepting for some lighting apparatus, there is substantially no laboratory among the accredited laboratories that can conduct tests on electrical products. Among the products which are the objects of the mandatory certification, there are cases in which it is not clear which testing laboratories can perform the tests.

Looking at the products which are the object of the mandatory standards and the testing laboratories that can conduct the tests (Table 3-3-4), there are very few laboratories that can perform even a part of the test items specified in the standards, which is a grave problem in promoting the certification system. Products that cannot be tested at the accredited testing laboratories have to be tested at the testing laboratory of BPS, and although the system for conducting certification test by accredited laboratories has been adopted, it is not much functioning for the tests of the products being the object of the mandatory standards. The record of tests conducted in 1988 indicated that the number of tests conducted at the BPS laboratory

Table 3-3-2 LIST OF BPS-ACCREDITED LABORATORIES (1)

Name of Lab.	Date of Accreditation	Field of testing acredited	Location
Metals Industry Research & Development Center(MIRDC)	1982-07-22	Metal testing	Manila
Philippine Textile Research Institute(PTRI)	1982-09-01	Textile & Textile products	Manila
Philippine Institute of Pure & Applied Chemistry (PIPAC)	1982-11-02	Chemical & chemical products	Quezon
Industrial Test Masters, Inc., (ITM)	1983-06-10	Requalifier of LPG cylinders Note:ITM is not in operation at present.	Quezon
Consolidated Industrial Gases, Inc. (CIGI)	1983-08-12	Nitrogen Oxygen Argon Hydrogen Carbon Dioxide Acetylene	Manila
Filippine Electro Industrial Corporation (FEIC)	1984-02-22	Requalifier of LPG cylinders	Manila
Agricultural Machinery Testing & Evaluation Center (AMTEC)	1984-04-06	Hand tractor Thresher Drier Corn sheller Rice mill Weeder Transplanter Puddler Seeder Reaper Engine pump Sprayer Hammer mill Feed mixer Chaff cutter	Laguna
Asephil Marketing Corp. (ASEPHIL)	1984-06-21	Requalifier of LPG cylinders	Manila
Philippine Cement Industry Authority (Cement Central Laboratory-CCL)	1985-06-12	Portland cement (Types:I,II,III,IV & V) Pozzolan and blended cements	Manila

Table 3-3-2 LIST OF BPS-ACCREDITED LABORATORIES (2)

Name of Lab.	Date of Accreditation	Field of testing acredited	Location
Ramcar Incorporated (RAMCAR)	1985-07-17	Automotive lead-acid storage battery	Queson
Ostrea Mineral Lab., Inc. (OSTREA)	1985-07-19	Gold & silver assay Coal analysis Fertilizer and fertilizer products Feeds & feed products Soil analisis	Manila
National Food Authority (NFA)	1985-08-05	Palay Milled rice Corn grain Wheat Corn grits Mongo Grain testing Sorghum Soybeen Rice by-products Corn by-products Peanuts	Queson
Sime Darby Pilipinas, Inc. (SIME DARBY)	1985-08-30	Natural crumb rubber Pneumatic tires	Manila
C. C. Unson Company, Inc. (CC UNSON)	1985-09-19	Automotive lead-acid storage battery	Queson
Philtread Tire & Ruber Corporation (FIRESTONE)	1985-11-25 1986-12-17	Peumatic tires Natural crumb rubber	Manila
Goodyear Tire & Rubber Co. of the Phils., Inc. (GOODYEAR)	1985-11-25	Peumatic tires	Las Pinas
University of San Carlos Testing Center (USCL)	1985-12-04	Chemical testing	Cebu
A. G. & E. Allied Services Company (AGE)	1986-03-18	Requalifier of LPG cylinders	Manila
Superior Gas and Equipment Company (SGE)	1988-03-24	Requalifier of LPG cylinders	Manila
Philips Electrical Lamps, Inc. (PHILIPS)	1988-04-07	Testing of incandescent lamps & fluorescent lamps	Manila

Table 3-3-2 LIST OF BPS-ACCREDITED LABORATORIES (3)

Name of Lab.	Date of Accreditation	Field of testing acredited	Location
Refractories Corporation of the Philippines, Inc. (RCP)	1988-08-05	Testing of basic refractories and monolithics	Manila
SGS Far East Limited - Phils. (SGS)	1988-09-09	Vegetable oils & food Water Coal & related fuels Mineral ores and concentrates Chemicals and fertilizers Structual building & Ceramics materials Industrial manufacturing materials	Manila
CME Engineering & Consuting Services (CME)	1988-09-27	Feeds, domestic & industrial waste, water, foods	Manila

Source:BPS

Table 3-3-3 CLASSIFICATION OF ACCREDITED TESTING LABORATORIES

Field	Category	No. of TL
Mechanical	Mechanical	1
	Mettalurgy	1
	LPG	5
	Cement	1
	Tyre	3
	Battery	2
Electrical	Electrical	1
Chemical	Chemical	2
	Fertilizer	4
	Gas	1
	Mineral	1
Others	Textile	1

Source:BPS

Table 3-3-4 RELATION BETWEEN COMPULSORY STANDARDS AND TESTING LABORATORIES

Standard No.	Product	Name of Testing Laboratory able to conduct testing
PNS 02	Fluorescent Lamp	PHILIPS
PNS 03	LPG Steel Cylinder	MIRDC
PNS 04	LPG Steel Cylinder for vehicles	MIRDC
PNS 05	LPG system for engine	MIRDC
PNS 06	Lead-acid storage battery	RAMCAR, CC UNSON
PNS 07	Portland cement	CCL
PNS 09	Safety matches	
PNS 12	Ballast for fluorescent lamp	
PNS 13	Electrical cartrige fuse	
PNS 14	uPVC electrical conduit	
PNS 15	Portable fire extinguisher	PIPAC
PNS 16	Concrete hollow block	CCL
PNS 25	Pneumatic tyre	SIME DARBY, FIRESTONE, GOODYEAR
PNS 26	Galvanized steel pipes	MIRDC
PNS 27	Classification of fire extinguisher	
PNS 34	Rubber inner tube of tyre	SIME DARBY, FIRESTONE, GOODYEAR
PNS 35	Thermoplastic insulated electrical wires and cables	
PNS 38	Incandescent lamp	PHILIPS
PNS 40	Copper redraw rod	
PNS 41	Requalification of LPG Cylinder	ITM, FEIC, ASEPHIL, AGE, SGE
PNS 42	Lampholder and starterholder	
PNS 43	EC aluminum redraw rod	
PNS 45	Starter for fluorescent lamp	
PNS 49	Steel bar for concrete reinforcement	MIRDC
PNS 55	PE pipes for water supply	
PNS 63	Pozzolan cement	CCL
PNS 67	Galvanized steel sheet	MIRDC
PNS 68	Fire hose	
PNS 74	Fluorescent lighting fixture	
PNS 77	Carbon steel wire rod	MIRDC
PNS 79	PVC tape for electrical insulation	
PNS 80	Edison screw lampholder	
PNS 99	Kerosene stove	
PNS 100	LPG gas stove	
PNS 103	Medical grade oxygen	CIGI
PNS 105	ballast for mercury vapor lamp	
PNS 109	Polyvinyl formal enameled copper wire	
PNS 110	Polyester amideimide enameled copper wire	
PNS 111	Oreo-resinous enameled copper wire	
PNS 130	Safety glass	
PNS 134	Electric fan	
PNS 135	Electronic ballast	
PNS 136	Steel wire nail	MIRDC
PNS 137	Toys	
PNS 173	Dimension for sawn timber	
PNS 189	Lighting set	
PNS 194	Sawn timber	
PNS 196	Plywood	
PNS DOT	Motor vehicle brake fluid	

Note: Based on Table 3-3-2
Testing Laboratories are not always able to conduct complete testing.

accounted for about 84% of the total including those conducted at the accredited laboratories.

One of the problems in the accreditation of testing laboratories is the accreditation of private profit-oriented testing and inspection companies. In view of the present situation that the overall testing capability is inadequate, it seems unavoidable to accredit private testing and inspection companies as an expedient measure, but it involves problems from the standpoint of confidentiality and impartiality. In Japan, for accreditation of a private organization, the government authority carefully assesses the legal status and management of the organization, and thus accredited private organization is obligated to submit annual business plans and annual reports to the authority for its approval, and further the staff of the accredited private organizations are treated as quasi-public officials and measures are taken to ensure complete maintenance of confidentiality and impartiality. In view of the BPS guidelines for the accreditation of private laboratories, these aspects are not definitive in the testing laboratory accreditation system of BPS.

There are 13 accredited laboratories which are those owned by manufacturers. It is not only a problem from the confidentiality and impartiality mentioned above but also that there is a fear that the period of the certification that will be prolonged because they will have to give priority to the tests for research and development and the tests on performance and confirmation of safety of their own products.

Furthermore, the locations of the 23 accredited laboratories and the testing laboratory of BPS (BPSL) are concentrated in Manila and its vicinities, except for USCL in Cebu, and the products produced at the factories located in the regions cannot be tested unless they are sent to Manila. Thus, with the additional time of transportation there would be more time required to receive the results of the tests than the factories located in the vicinity of Manila, and there is a high probability that the results of the tests may lose reliability particularly in the analysis of processed food, etc. due to the problem of change in the test sample over time.

c) Fees and costs of certification

The fees and costs to be paid or reimbursed by applicant for certification are stipulated as the Revised Fees to be Collected by the Agency in the Product Standards Administrative Order No.71-1 (1982), which are summarized below: