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REPORT ON DATA COLLECTING FOR
BANKABLE FEASIBILITY STUDY FOR

THE ERECTION OF A SECOND GENERATION INTEGRATED STEEL MILL IN EAST OR WEST JAVA

Final Report

Prepared for : UNIDO

Jakarta, February 3, 1993

REPORT ON DATA COLLECTING FOR BANKABLE FEASIBILITY STUDY FOR THE ERECTION OF A SECOND GENERATION INTEGRATED STEEL MILL IN EAST OR WEST JAVA

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Project US/INS/91/183

I. INTRODUCTION

1.1. Background

This study is prepared based on the Contract No. 92/106 between the United Nations Industrial Development Organization (UNIDO) and PT DATA CONSULT Inc. dated July 14, 1992.

1.2. The Scope of the Study

The Scope of the study is based on the term of reference provided by UNIDO and modified by the proposal of PT DATA CONSULT.

The study is divided into two part, namely, updating the data provided by the study " The Indonesian Steel Industry" prepared by PT Data Consult Inc. in April 1991 and collecting the addition information of steel market consumption especially steel flat products, through field research and desk research.

1.3. Sources of Information

Data and information contained in this report were collected from various sources. Primary data were collected through a field survey and interviews which have been done in West Java, Central Java, East Java, Jakarta and its sourunding areas.

More than 150 companies has been visited and interviewed. The total of 89 questionaires has been full fill and replied by the respondents and more interviews have been done to complete the informations.

The following table show the list of respondents which have replied the questioners

LIST OF REPLIED QUESTIONAIRES

Code	Name of Company	City
**	Industry Sector: Automotive	
057	PT Krama Yudha Tiga Berlian	Jakarta
**	Industry Sector: Can Making	
068	PT Putera Dharma	Jakarta
036	PT Almicos	Surabaya
071	PT Ancol Terang Metal Printing	Jakarta
078	PT United Can Co. Ltd	
**	Industry Sector: Car Body Builder	
002	PT Permorin	Jakarta
012	PT Nusa Cendana Harum	Jakarta
013	PT Mekar Armada Jaya	Magelang
018	PT Nasmoco	Cilegon
019	PT Putera Berlian	Bandung
021	PT Superior Coach	Jakarta
024	PT Trisakti Carrosery	Magelang
027	CV Laksana Karoseri	Semarang
028	PT Laksana	Semarang
043	PT Handayani	Malang
054	PT Adi Budaya Cipta	Magelang
025	PT Tugas Kita	Semarang
033	PT Podo Joyo	Malang
058	PT Meridian Mustika	Bandung
052	PT Kobutri	Bandung
**	Industry Sector: Electric/Electronic	
004	PT Sanyo Industries Indonesia	Jakarta
031	PT Honoris Perdana Indonesia	Jakarta
064	PT National Gobel	Jakarta
083	PT Tjiparaj Permai	Jakarta Timur
087	PT Padi Komponen	
**	Industry Sector: GI Sheet	
009	PT Semarang Makmur	Semarang
014	PT Fumira	Semarang
059	PT Keris Mas Sukses	Jakarta
062	PT Tumbak Mas Inti Mulia	Bekasi
**	Industry Sector: Heavy Equipment	
060	PT United Tractors Pandu Engineering	Jakarta
044	PT Barata Indonesia	Surabaya
070	PT Sakai Sakti	Jakarta

Code	Name of Company	City
** Industry Sector: Long Product Steel		
017	PT Inti General Jaya Steel	Semarang
** Industry Sector: Machinery & Engineering		
088	PT Meco Inox Prima	Surabaya
041	PT Boma bisma Indra unit Bisma	Surabaya
046	PT Babcock & Wilcox Indonesia	Jakarta
001	PT Hasuno Putra Utama	Surabaya
007	PT Kubota Indonesia	Semarang
008	PT Rabda	Semarang
010	PT Jadi Jaya makmur	Semarang
011	PT Tatung Budi Indonesia	Tangerang
026	PT Kartika Indah	Semarang
051	CV Setia Logam	Bandung
053	PT Pindad Persero	Bandung
016	PT Kubota Indonesia	Semarang
003	PT Bukaka Kujang Prima	Jakarta
073	PT Kerta Laksana	Cimahi
074	PT Karpindo Bahagia	Surabaya
076	PT Aalborg Ciserv Jakarta	Jakarta
084	PT Boma Stork	Pasuruan
072	PT Carya Ltd.	Jakarta
075	PT Lee Won Industrial Co.	Gresik
** Industry Sector: Office Equipment		
049	PT Union Metal Work Product	Jakarta
** Industry Sector: Railway Industry		
085	PT INKA	Madiun
** Industry Sector: Reinforcing Rod/Bar		
045	PT Bhirawa Steel	Surabaya
** Industry Sector: Shipbuilding		
022	PT Dok & Perkapalan Kodja Bahari	Jakarta
042	PT Dok dan perkapalan Surabaya	Surabaya
065	PT Inggom Shipyard	Jakarta
035	PT PAL Indonesia	Surabaya
023	PT Jasa Marina Indah	Semarang
089	PT Dok & Perkapalan Kodja Bahari Unit Galangan IV	
** Industry Sector: Steel Construction		
047	PT Murinda	Jakarta
006	PT Panca Jasa	Surabaya
055	NV Soedono & Co.	Semarang

Code	Name of Company	City
063	PT Jaya Steel Indonesia	Jakarta
034	PT Bangun Sarana Baja	Surabaya
037	PT Jatim Mustika Sarana Steel	Surabaya
038	PT Ometraco Arya Samantha	Surabaya
048	PT Berca Indonesia	Jakarta
020	PT Amarta Karya	Semarang
** Industry Sector: Steel Cutting		
050	PT Afro Pacific Indah Steel	Jakarta
077	PT Steel Center Indonesia	
** Industry Sector: Steel Drum		
066	PT Rheem Indonesia	Jakarta
067	PT Poli Contindo Nusa	Jakarta
** Industry Sector: Steel Mill		
032	PT ISPAT INDO	Sidoarjo
** Industry Sector: Steel Pipe		
056	PT Bakrie Pipe Industries	Bekasi
039	PT Radjin Steel Pipe Industry	Surabaya
061	PT KHI.Pipe Industries	Jakarta
005	PT Bumi Kaya Steel	Jakarta
030	PT Bakrie and Brothers	Jakarta
015	PT Raja Besi	Semarang
029	PT Indonesia Steel tube Works	Semarang
079	PT Super Tata Raya Steel Corp	
080	PT Wira Mustika Indah	
081	PT Pabrik Pipa Indonesia	Jakarta
082	PT Sinar Tangerang Steel	Tangerang
086	PT Aneka Jakarta Iron Steel	Jakarta
** Industry Sector: Steel Sheet/Plate		
040	PT Jaya Pari Steel	Surabaya
** Industry Sector: Tin Plate		
069	PT Pelat Timah Nusantara (PT LATINUSA)	Jakarta

2. SPONGE IRON

2.1. Number of Company and Production Capacity

2.2. Production Development

Sponge iron production (PT Krakatau Steel's Production) has been fluctuating in the past five year, with tendency to increase. In that periode, the highest production level was achieved in 1990 when production rose by around 12.1% from the previous year. Production decline in 1988 due to the reconditioning of plant module. The reconditioning work was completed in the middle of 1989 and since then the sponge iron plant has been operating with three modules. Production rose to 1,210,380 tons in 1989 up by 22.9% from the previous year.

According to the Department of Industry, sponge iron production in 1991 declined to 1,355,023 ton down by 0.1% from previous year. The production fluctuation was caused not only by the reconditioning of the plant's modules but also by the trend of sponge iron consumption by domestic steel smelters. Not all of the steel smelter in Indonesia use sponge iron as raw material. This is because their plant equipment do not support the use sponge iron and many of them prefer the use of scrap iron, which is considered more profitable than the use of sponge iron.

PT Krakatau Steel's sponge iron production is mostly consumed by its own steel smelter. The utilization of the company's sponge iron production capacity at present is fairly high. As an illustration, in 1991 the company produce 1,355,023 tons or around 90.3%.

Table - 2.1
Sponge iron production
1987 - 1991

Year	Production (Tons)	Growth (%)
1987	1,027,879	-
1988	984,746	-4.2
1989	1,210,380	22.9
1990	1,356,906	12.1
1991	1,355,023	-0.1
Average (%)		7.7

Source: Department of Industry

2.3. New Project

PT Krakatau Steel is planning to expand its sponge iron plant, rising its production capacity to 2,300,000 tons per year. This project is expected to be completed in 1992 and the plant is expected to resume production in 1993. Another sponge iron plants will be set up by PT Ispat Steel, a subsidiary of PT Ispat Indo Group, with a production capacity of 1,000,000 tons per year.

Initially, PT Ispat Steel will be carried out its project in two stage. The first stage, which was started at the end of the last year and is expected to be completed in 1992 and the second stage to be completed in 1994. According to Department of Industry, PT Ispat Steel apperently has delayed its projects.

Table - 2.2
New Projects of Sponge Iron, 1991

Name of Company	Production Capacity (Tons/Year)	Start Operation (Planned)
PT Krakatau Steel	2,300,000	1993
PT Ispat Steel	2,000,000	To be Postponed
T o t a l	4,300,000	

Source : The Investment Coordinating Board and Department of Industry

2.4. Import Development

2.4.1. Sponge Iron Import by Volume and Value

Imported sponge iron is consumed only by a few steel plants, while many others use scrap iron. Only two steel plants continue to use imported sponge iron as a raw material, namely PT Krakatau Steel and PT Ispat Indo. Consumption of imported sponge iron by other steel plants is incidental.

In the periode from 1987 to 1991, threre were shrap increases in sponge iron imports. Impor was sharply from only 45,130 ton, valued at US$ 6,717,000 in 1987 to

183,965 tons, valued at US$ 25,492,000 in 1991. Details of import from 1987 ton 1991 are shown in the following table;

Table - 2.3

Sponge iron imports, 1987 - 1991

Year	Volume (Tons)	Value (US$'000)
1987	54,130	6,717
1988	75,902	13,025
1989	104,935	15,814
1990	157,929	22,699
1991	183,965	25,492

Source: Central Bureau of Statistics

2.4.2. Sponge Iron Import by Country of Origin

Malaysia was Indonesia's biggest sponge iron supplier, but in 1988 and 1989 its position was replaced by Trinidad & Tobago. The small country in South AMerica, with had never supplied earlier, unexpectedly became the the biggest sponge iron supplier to Indonesia in 1988, supplying 41,258 tons, valued at US$ 6,319,000, accounting for 54.4% of the total imports; while Malaysia was in second place, supplying 33,907 tons, valued at US$ 5,414,000.

Import of sponge iron from Trinidad & Tobago became more dominant in 1989, amounting to 72,192 tons, valued at US$ 10,346,000,accounting for 69% in volume of Indonesia's total sponge iron imports at 104,935 tons.

According to the Central Bureau of Statistics, in 1990 and 1991, Malaysia regained its position as the biggest supplier, supplying 131,534 ton, valued at US$ 19,083,000 in 1990 and 128,800 tons, valued at US$ 18,783,000.

In the last two year, USSR (CIS) became the other major sponge iron supplier. In 1990, import from USSR amounted to 17,512 tons, valued at US$ 2,460,000 and in 1991 rose to 54,908 tons, valued at US$ 6,380,000.

Table - 2.4
Sponge iron imports by country of origin, 1987 - 1991

Tons
US$'000

Country of origin	1987	1988	1989	1990	1991
Malaysia	53,832 6,483	33,907 6,077	32,663 5,414	131,534 19,083	128,800 18,783
Australia	-	7 21	-	-	-
F.R. Germany	205 169	212 227	63 39	-	-
United Kingdom	59 16	86 20	-	-	-
Sweden	21 14	69 46	-	-	-
U.S.A	2 27	323 272	-	-	-
Trinidad & Tobago	-	41,258 6,319	72,192 10,346	6,017 648	-
U S S R	-	-	-	17,512 2,460	54,908 6,380
Phillippines	-	-	-	2,842 455	-
Belgia & Luxemburg	-	-	-	25 54	-
Singapore	-	19 9	-	-	254 321
Others	20 12	21 35	17 15	-	3 8
T o t a l	54,130 6,717	75,902 13,025	104,935 15,814	157,929 22,699	183,965 25,492

Source: Central Bureau of Statistics

2.5. Export Development

2.5.1. Export by Volume and Value

PT Krakatau Steel has been exporting sponge iron and iron/steel powder to a number Asian contries. According to the Central Bureau of Statistics, Indonesia's exports of sponge iron fluctuated in the periode from 1987 ton 1991, with a tendency to decline. In that periode, the highest level reachead in 1988 at 138,315 tons, valued at US$ 2,376,000.

In the last two year, sponge iron exports dropped to only 361 tons, valued at US$ 380,000 in 1990 and 11 tons, valeud at US$ 6,000 in 1991. The decline in exports is attributed to, among others, a growing a domestics demand, especially from PT Krakatau Steel's downstream production units.

PT Krakatau Steel exports sponge iron and iron/steel powder, if the domestic market can not absorb them.

Table - 2.5

Export of sponge iron and iron/steel powder, 1987 - 1991

Year	Volume (Tons)	Value (US$'000)
1987	75,117	1,362
1988	138,315	2,376
1989	46,626	590
1990	361	380
1991	11	6

Source: Central Bureau of Statistics

2.5.2. Export by Country of Destination

Indonesia has been exporting sponge iron and iron/steel powder to the number of Asian countries, including Japan, Thailand and India. In 1987, exports to Japan amounted to 60,300 tons, valued at US$ 704,000 and to 120,915 tons, valued at US$ 1,603,000 in 1988.

In the last two year, export to Japan amaunted to 327 ton, valued at US$ 332,000 in 1990 and to 11 ton, valued at US$ 6,000.

Exports to Thailand amounted to 4,500 ton, valued at US$ 184,000 in 1987 and to 17,400 tons, valued at US$ 773,000 in 1988.

Another major export market for sponge iron and iron/steel powder from Indonesia are India and Malaysia. Details of exports of sponge iron and iron/steel powder are shown in the following table;

Table - 2.6

Sponge Iron Export by Country of Destination, 1987 - 1991

Tons
US$'000

Country of destination	1987	1988	1989	1990	1991
Japan	60,300 704	120,915 1,603	-	327 332	11 6
Thailand	4,500 184	17,400 773	-	-	-
India	4,410 415	-	-	-	-
Malaysia	5,907 59	-	-	-	-
Taiwan	-	-	-	20 3	-
Oman	-	-	-	10 18	
Saudi Arabia	-	-	-	4 26	
Others	-	-	46,626 590	-	-
Total	75,117 1362	138,315 2376	46,626 590	361 380	11 6

Source : Central Bureau of Statistics

2.6. Supply Development

From 1987 to 1991, sponge iron supply is estimated increase by an average of 12.6% annually. The biggest increase in supply occured in 1989 when supply amounted to 1,268,689 tons - up 37.6% from the previous year. The increase was brought about by an increased demand within the country as a result of increased activities of downstream steel plants, like concrete bar, steelprofile and steel sheet/slab plants.

In the last two year, sponge iron supply rose again amounted to 1,514,474 tons in 1990 - up by 19.4% from previous year and to 1,538,977 tons in 1991. For details, see the following table,

Table - 2.7

Estimated of Sponge Iron Supply, 1987 - 1991

Year	Production	Import	Export	Consumption	Growth (%)
1987	1,027,879	54,130	75,117	1,006,892	-
1988	984,746	75,902	138,315	922,253	-8.4
1989	1,210,380	104,935	46,626	1,268,689	37.6
1990	1,356,906	157,929	361	1,514,474	19.4
1991	1,355,023	183,965	11	1,538,977	1.6
Average (%)					12.6

Source : Data Consult

3. BILLET

3.1. The Number of Company and Their Production Capacities

Steel billet plants in Indonesia are all integrated with plants producing concrete bar, steel wire rod, steel profile and the like. There are 10 steel billet plants in Indonesia, with a production capacity of 2,455,000 tons per year.

Until 1991, the steel billet plant of the PT Krakatau Steel was the biggest steel billet plant in Indonesia. Emplyoing the continous casting process, the plant produce steel billet with a production capacity of 540,000 tons per year.

The other major steel billet plants are the plant of PT Ispat Indo and PT Jakarta Prima Steel. PT Ispat Indo is the only steel billet producer in Indonesia which operates under foreign investment scheme (PMA). PT Jakarta Prima Steel has a production capacity of 400,000 tons per year.

The other steel billet plants are smaller than the plants describe earlier, each having a production capacity below 200,000 tons per year. The smallest production capacity is that of PT Pabrik Besi Baja Barawaja, at 37,000 tons per year. For details, see the following table.

Table - 3.1

Steel Billet Plants and Their Production Capacity, 1991

Name of Company	Production Capacity (Ton/Year)	Status	Location
PT. Krakatau Steel	540,000	PMDN	Cilegon, West Java
PT. Ispat Indo	500,000	PMA	Sidoarjo, East Java
PT. Jakarta Prima Steel	400,000	PMDN	Jakarta
PT. Gunung Gahapi Sakti	200,000	PMDN	Medan, North Sumatera
PT. Inti General Jaya Steel	120,000	PMDN	Semarang, Central Java
PT. Pangeran Karang Murni	186,000	PMDN	Jakarta
PT. Jatim Taman Steel	120,000	PMDN	Sidoarjo, East Java
PT. Growth Sumatera	272,000	PMDN	Medan, North Sumatera
PT. Pulogadung Steel	60,000	PMDN	Jakarta
PT. Pabrik Besi Baja Barawaja	37,000	PMDN	Ujung Pandang South Sulawesi
T O T A L	2,455,000		

Source : Department of Industry

3.2. Production Development

In the period from 1987 to 1991, steel billet production increased by an average of 14.8% annually from 1,146,962 tons in 1987 to 1,984,459 tons in 1991.

The highest production level was achieved in 1989 at 1,483,608 tons - up by 22.1% from 1,214,887 tons in 1988. In 1991 production was 1,984,459 tons - up again by 13% from the previous year.

Table - 3.2
Steel Billet Production,
1987 - 1991

Year	Production (ton)	Growth (%)
1987	1,146,962	-
1988	1,214,887	5.9
1989	1,483,608	22.1
1990	1,756,284	18.3
1991	1,984,459	13.0
Average (%)		14.8

Source : Department of Industry

3.3. Production by Company

In spite of the increase in production in 1991, the average capacity utilization rate of the domestic producer was still low at 49.2% only.

The highest production capacity utilization has been achieved by the major producers, PT Krakatau Steel, PT Ispat Indo, PT Hanil Jaya Steel and PT Jakarta Prima Steel, while the medium - scale producers have been able to utilize less than 50% of their production capacity.

In 1991, PT Krakatau Steel produced 574,070 tons or 106.3% of its production capacity, PT Ispat Indo produced 371,736 tons or 80.8% of its production capacity. The highest capacity utilization at 122.9% was achieved by PT Hanil Jaya Steel, which produced 122,877 tons. For details, see the following table.

Table - 3.3
Steel Billet Production by Company, 1991

Name of Company	Production (Ton)	Capacity Utilization (%)
PT. Krakatau Steel	574,070	106.3
PT. Ispat Indo	371,736	80.8
PT. Jakarta Prima Steel	302,539	75.6
PT. Gunung Gahapi Sakti	119,944	60.0
PT. Inti General Jaya Steel	69,813	58.2
PT. Pangeran Karang Murni	75,312	40.5
PT. Jatim Taman Steel	115,668	96.4
PT. Growth Sumatera	82,185	30.2
PT. Pulogadung Steel	41,784	52.2
PT. Pabrik Besi Baja Barawaja	9,110	24.6
PT. Budidharma Steel	99,421	86.5
PT. Hanil Jaya Steel	122,877	122.9
T o t a l	1,984,459	49.2

Source : Department of Industry.

3.4. New Projects

In the period from 1990 to 1992, the Investment Coordinating Board issued 6 permits for steel billet plants pojects, with production capacity of 1,600,000 tons per year. 3 of the six projects are expansion project, with a total production capacity of 1,170,000 tons per year. PT Jakarta Prima Steel is the largest project, with production capacity of 670,000 tons per year, followed by PT Wahana Garuda Lestari (400,000 tons) and PT Hanil Jaya Steel (100,000 tons). The three expansion projects are scheduled to be completed in 1992.

Meanwhile, of the three new projects, with a production capacity, the largest project is PT Marga Kencana Adimulya, with a production capacity of 200,000 tons per year. Followed by PT Niyasa Maju (150,000 tons) and PT Erabaja Prima Sukses (80,000 tons). According to Department of Industry, the three new projects are scheduled to completed in 1993. For details, see the following table.

Table - 3.4
Number of Expansions and New Projects of Steel Billet, 1991

Name of Company	Production Capacity (Tons/Year)	Start Operation (Planned)
EXPANSION PROJECTS		
PT Wahana Garuda Lestari	400,000	1992
PT Jakarta Prima Steel	670,000	1992
PT Hanil Jaya	100,000	1992
Sub-Total	1,170,000	
NEW PROJECTS		
PT Erabaja Prima Sukses	80,000	1993
PT Marga Kencana Adimulya	200,000	1993
PT Nityasa Maju	150,000	1993
Sub-Total	430,000	
Grand Total	1,600,000	

Source : The Investment Coordinating Board and Department of Industry

3.5. Import Development

3.5.1. Import by Volume and Value

In 1990, steel billet imports rose sharply to 171,259 tons, valued at US$ 47,866,000 - up by over 40 times in volume from the previous year, but in the following year, imports dropped to 69,783 tons, valued at US$ 34,247,000 - down by 59.3% from the previous year.

The significant import in the last two year was brought about by an increase in the requirements of concrete bar. For details, see the following table.

Table - 3.6
Steel Billet Import by Country of Origin,
1987 - 1991

Tons
US$'000

Country of origin	1987	1988	1989	1990	1991
Australia	17,309 3,863	-	-	42,962 11,900	40,092 13,987
Netherlands	-	9,839 2,669	-	-	-
Trinidad and Tobago	-	-	3,970 852	4,189 1,018	-
Peop. Rep. of China	-	-	-	16,237 4,304	10,880 14,998
Poland	-	-	-	8,199 2,140	9,902 2,805
Bulgaria	-	-	-	15,748 4,110	-
Singapore	-	-	-	33,194 9,700	-
Brazil	-	-	-	39,559 11,230	8,909 2,458
Turkey	-	-	-	11,170 3,463	-
Others	-	10 4	-	-	-
T o t a l	17,309 3,863	9,849 2,673	3,970 852	171,259 47,866	69,783 34,247

Source : Central Bureau of Statistics

3.7. Supply Development

The volume of steel billet supply can be estimated by adding imports to production less export. On this basis, it is estimated that steel billet supply amounted to 1,137,812 tons in 1987 and rose to 1,846,883 tons in 1991, showing an average increase of 13.6% annually.

Significant increase occurred in 1989 and 1990 at 22.7% and 28.5%. Steel billet supply declined to 1,846,883 tons in 1991 - down by 1.3% only from the previous year. The estimated supply from 1987 to 1991 is as follow:

Table - 3.9
Estimated of Steel Billet Supply,
1987 - 1991

Ton

Year	Production	Import	Export	Supply	Growth (%)
1987	1,146,962	17,309	26,459	1,137,812	-
1988	1,214,887	9,849	38,094	1,186,642	4.3
1989	1,483,608	3,970	31,077	1,456,501	22.7
1990	1,756,284	171,259	55,532	1,872,011	28.5
1991	1,984,459	69,783	207,359	1,846,883	-1.3
Average (%)					13.6

Source : Data Consult

Table - 3.5
Steel Billet Imports,
1987 - 1991

Year	Volume (Tons)	Value (US$'000)
1987	17,309	3,863
1988	9,849	2,673
1989	3,970	852
1990	171,259	47,866
1991	69,783	34,247

Source : Central Bureau of Statistics

3.5.2. Import by Country of Origin

In the period from 1987 to 1991, Australia was the biggest supplier of steel billet to Indonesia, even in 1990, when the steel billet imports were supplying from several supplier countries.

In 1990, imports from Australia amounted to 42,962 tons, valued at US$ 11,900,000, accounting for 25.1% of the total imports. The second place was Brazil amounted to 39,559 tons, valued at US$ 11,230,000, accounting for 23.1% of the total imports. The other major suppliers are Singapore, Bulgaria and PR. China.

In 1991, imports from Australia amounted to 40,092 tons, valued at US$ 13,987,000, accounting for 57.5% of the total imports. For details, see the following table.

Table - 3.6
Steel Billet Import by Country of Origin,
1987 - 1991

Tons
US$'000

Country of origin	1987	1988	1989	1990	1991
Australia	17,309 3,863	-	-	42,962 11,900	40,092 13,987
Netherlands	-	9,839 2,669	-	-	-
Trinidad and Tobago	-	-	3,970 852	4,189 1,018	-
Peop. Rep. of China	-	-	-	16,237 4,304	10,880 14,998
Poland	-	-	-	8,199 2,140	9,902 2,805
Bulgaria	-	-	-	15,748 4,110	-
Singapore	-	-	-	33,194 9,700	-
Brazil	-	-	-	39,559 11,230	8,909 2,458
Turkey	-	-	-	11,170 3,463	-
Others	-	10 4	-	-	-
T o t a l	17,309 3,863	9,849 2,673	3,970 852	171,259 47,866	69,783 34,247

Source : Central Bureau of Statistics

3.6. Export Development

3.6.1. Export by Volume and Value

Steel billet has been exported in a significant quantities since 1987. Exports amounted to 26,459 tons, valued at US$ 5,477,000 in 1987, rose by about 44% to 38,094 tons, valued at US$ 9,487,000 in 1988.

After declined in 1989, exports rose again to 55,532 tons, valued at US$ 14,897,000 in 1990. In 1991, steel billet exports rose sharply to 207,359 ton, valued at US$ 53,162,000 - up by 73.2% from the previous year. For details, see the following table.

Table - 3.7
Steel Billet Exports,
1987 - 1991

Year	Volume (Tons)	Value (US$'000)
1987	26,459	5,477
1988	38,094	9,487
1989	31,077	7,231
1990	55,532	14,897
1991	207,359	53,162

Source : Central Bureau of Statistics

3.6.2. Export by Country of Origin

Indonesia's steel billet exports have gone to countries in Asia, namely Japan, Taiwan and Malaysia. When the first exported steel billet in 1987, most of its exports went to Japan, amounting to 24,033 ton, valued at US$ 4,990,000, accounting for 90.8% of the total exports. The remainder at 2,425 tons, valued at US$ 487,000, went to Philippines.

In last two year, Japan as the biggest importers of steel billet from Indonesia. In 1990, exports to Japan amounted to 19,160 tons, valued at US$ 4,958,000, accounting for 34.5% in volume of the total exports. In 1991, exports to Japan, accounting for about 54% of the total exports at 111,892 tons, valued at US$ 29,606,000.

The major Indonesia's export markets of steel billet in 1990 and 1991 were Malaysia, Taiwan, Singapore, Bangladesh and Republic of Korea. For details, see the following table.

Table - 3.8
Indonesian Steel Billet Exports by Country of Destination, 1987 - 1991

Tons
US$'000

Country of destination	1987	1988	1989	1990	1991
Japan	24,033	9,940	-	19,160	111,892
	4,990	2,488		4,958	29,606
Taiwan	-	27,154	31,077	14,424	14,843
		6,749	7,231	4,186	3,553
Philippines	2,425	-	-	-	-
	487				
India	-	1,000	-	-	-
		250			
Singapore	-	-	-	7,950	-
				2,089	
Malaysia	-	-	-	5,998	32,055
				1,554	8,070
Burma	-	-	-	3,000	-
				773	
Pakistan	-	-	-	5,000	2,114
				1,337	668
Bangladesh	-	-	-	-	10,896
					2,800
Rep. of Korea	-	-	-	-	32,169
					7,607
Thailand	-	-	-	-	3,389
					858
T o t a l	26,459	38,094	31,077	55,532	207,359
	5,477	9,487	7,231	14,897	53,162

Source : Central Bureau of Statistics

3.7. Supply Development

The volume of steel billet supply can be estimated by adding imports to production less export. On this basis, it is estimated that steel billet supply amounted to 1,137,812 tons in 1987 and rose to 1,846,883 tons in 1991, showing an average increase of 13.6% annually.

Significant increase occurred in 1989 and 1990 at 22.7% and 28.5%. Steel billet supply declined to 1,846,883 tons in 1991 - down by 1.3% only from the previous year. The estimated supply from 1987 to 1991 is as follow:

Table - 3.9
Estimated of Steel Billet Supply,
1987 - 1991

Ton

Year	Production	Import	Export	Supply	Growth (%)
1987	1,146,962	17,309	26,459	1,137,812	-
1988	1,214,887	9,849	38,094	1,186,642	4.3
1989	1,483,608	3,970	31,077	1,456,501	22.7
1990	1,756,284	171,259	55,532	1,872,011	28.5
1991	1,984,459	69,783	207,359	1,846,883	-1.3
Average (%)					13.6

Source : Data Consult

4. I N G O T

4.1. The Number of Companies and Their Production Capacities

Based on the record of the Department of Industry, there are 7 companies producing steel ingot with a total production capacity of 500,200 ton per year in 1990. The biggest producer is PT Wahana Garuda Lestari with a production capacity of 200,000 tons per year, and the smallest is PT Toyogiri Steel with a production capacity of 45,000 tons per year.

Since 1991, only three steel ingot producers, namely PT Hanil Jaya Metal Works, PT Toyogiri Steel and PT Wahana Garuda Lestari, are still producing ingot for their own consumption for producing billet.

Another ingot producers, namely: PT Inti General Jaya Steel, PT Pulogadung Steel and PT Growth Sumatera, which previously used ingot as their raw material (integrated with ingot plants), are now turning away from ingot. They use continues casting for producing billet.

Based on the above information, the ingot production capacity is 379,000 tons p.a. in 1992 as shown in Table 4.1. The ingot production capacity, is also the billet production capacity of those companies.

Table - 4.1
Steel Ingot Producers and Their Production Capacities, 1992

(Tons/Year)

Name of Company	Status	Location	Production Capacity
PT Jatim Taman Utama Steel	PMDN	East Java	74,000
PT Hanil Jaya Metal Works	PMDN	East Java	60,000
PT Toyogiri Steel	PMDN	West Java	45,000
PT Wahana Garuda Lestari	PMDN	West Java	200,000
T o t a l			379,000

Source : Department of Industry

4.2. Production Development

Ingot produced by steel ingot plants in Indonesia is mostly used for producing steel billet, especially by steel billet plants which do not have continous casting machines. Steel ingot is also used for producing downstream steel products, especially blom ingot which is used for producing steel profile.

From 1987 to 1991, steel ingot production showed a declining trend with an average decline of 15.2% annually. The biggest decline occured in 1989 at 31.7%, when production dropped to 99,520 tons from 145,694 in 1988. In 1991, steel ingot production dropped again to 90,000 tons - down by 4.7% from the previous year.

The following table-4.2 shows the development of ingot production. The figures of steel billet production which used ingot as raw materials are exclude from billet production figures as shown in table 3.2.

Table - 4.2
Ingot Production, 1987 - 1991

Year	Production (Tons)	Growth (%)
1987	189,865	-
1988	145,694	-23.3
1989	99,520	-31.7
1990	93,814	-5.7
1991	90,000	-4.7
Average (%)		-15.2

Source : Department of Industry

4.3. Import Development

4.3.1. Import by Volume and Value

Its appears that Indonesia's requirement for steel ingot has been met mostly by its own production. Although steel ingot is still imported, its volume is inignificant, compared with the domestic production, even in 1991, there was not steel ingot imports.

In the last five year period from 1987 to 1991, the biggest volume of steel ingot imports occured in 1990 at 28,084 tons, valued at US$ 4,509,000. The smallest volume occured in 1988 at only 23 tons, valued at US$ 68,000. For details, see the following table.

Table - 4.3
Steel Ingot Imports,
1987 - 1991

Ton
US$'000

Description	1987	1988	1989	1990	1991
Ingot of high carbon	1,472 2,359	17 53	189 298	28,084 4,509	-
Ingot of alloy steel	6 14	6 15	139 112	13 33	-
Ingot of iron steel	-	-	231 328	1 3	-
T o t a l	1,478 2,373	23 68	559 738	28,098 4,545	-

Source : Central Bureau of Statistics

4.3.2. Import by Country of Origin

Only a few countries supply steel ingot to Indonesia in small quantities. In 1987, Australia was the biggest supplier at 1,450 tons, valued at US$ 2,337,000, accounting for 98% of the total imports. Other supplier countries in the small quantities were Japan, Taiwan, Sweden and Germany.

In 1990, when the steel ingot was increased sharply, all came from USA. Imports from that country amounted to 28,084 tons, valued at US$ 4,510,000. For details, see the following table.

Table - 4.4
Steel Ingot Imports by Country of Origin,
1987 - 1991

Ton
US$'000

Country of origin	1987	1988	1989	1990	1991
Japan	21 20	15 47	54 281	-	-
Taiwan	-	-	136 94	-	-
F.R. Germany	-	1 3	1 2	-	-
Australia	1,450 2,337	-	366 345	-	-
Sweden	-	6 14	-	-	-
U S A	-	-	-	28,084 4,510	-
Others	7 16	1 4	2 16	-	-
T o t a l	1,478 2,373	23 68	559 738	28,098 4,510	-

Source : Central Bureau of Statistics

4.4. Supply Development

The decline in the domestic steel ingot production has also caused a decline in the supply of steel ingot within the country, since the domestic production accounts for most of the supply.

The volume of steel ingot supply ca be estimated by adding imports to domestics production less exports. On that basis, in the period from 1987 to 1991, steel ingot supply declined from 191,343 tons in 1987 to 90,000 tons in 1991, showing an average decline by 15% annually.

Table - 4.5
Estimated Steel Ingot Supply,
1987 - 1991

(Ton)

Year	Production	Import	Supply	Growth (%)
1987	189,865	1,478	191,343	-
1988	145,694	23	145,717	-23.8
1989	99,520	559	100,079	-31.3
1990	93,814	28,098	121,912	21.8
1991	90,000	-	90,000	-26.7
Average (%)				-15.0

Source : Department of Industry

5. SLAB

5.1. Number of Company and Their Capacity

Up to now there is only one steel slab producer in Indonesia, namely PT Krakatau Steel, apparently due to the fact that slab manufacturing requires large investment and linked with downstream steel manufacturing. In the country, steel slab is consumed only by three companies, namely PT Krakatau Steel, PT Jaya Pari Steel and PT Gunawan Dian Jaya, which have HRC/Plate production units.

PT Jaya Pari Steel and PT Gunawan Dian Jaya do not have its own steel slab plant, bacause its HRC/Plate production capacity is still relatively small.

5.2. Production Development

Since steel slab production began in 1984, it has been increasing, in pace with the increase in the demand within the country. In the periode from 1987 to 1991, the highest production level was achieved in 1990 at 903,995 tons - up by 13% from the previous year and 1991, production was 963,537 tons - up by 6.6% from the previous year.

In the period from 1987 to 1991, steel slab production rose by an average of 7.4% annually. Details of production are as follow:

Table - 5.1
Steel Slab Production,
1987 - 1991

Year	Production (Ton)	Growth (%)
1987	728,114	-
1988	721,567	-0.9
1989	800,040	10.9
1990	903,995	13.0
1991	963,537	6.6
Average (%)		7.4

Source : Department of Industry

5.3. Import Development

5.3.1. Import by Volume and Value

The increased demand for HRC/Plate within the country has raised not only the domestic steel slab production but olso steel slab import. According to the Central Bureau of Statistics, in the period from 1987 to 1991, steel slab import was fluctuating with a tendency to increase.

In that five year period, the biggest volume of import occured in 1990 at 500,152 tons, valued at US$ 120,923,000 - up by 86% from the previous year. In 1991, import amounted to 276,346 tons, valued at US$ 70,458,000 - down by around 44.7% in the volume from the previous year.

Table - 5.2
Steel Slab Import,
1987 - 1991

Year	Volume (Ton)	Value (US$'000)
1987	183,307	36,768
1988	308,476	87,121
1989	267,478	82,531
1990	500,152	120,923
1991	276,346	70,458

Source: Central Bureau of Statistics

5.3.2. Import by Country of Origin

Until 1990, the Asian countries as South Korea and Taiwan were the biggest suppliers of steel slab to Indonesia and the rest were Australia, Belgium & Luxemburg, USA, Mexico and Brazil. Taiwan was the biggest supplier, exporting 124,205 tons, valued at US$ 28,387,000, accounting for 24.8% in volume of the total Indonesia's steel slab import. In the second place was South Korea, with 99,805 ton, valued at US$ 24,748,000.

In 1991, there was no import from Taiwan, while Mexico maintained its posistion as the biggest supplier, with 53,737 tons, valkued at US$ 13,673,000. In the second and the third place were Belgium & Luxemburg and

Australia. Steel slab imports in the 1987 - 1991 period were as follows:

Table - 5.3
Steel Slab Import by Country of Origin, 1987 - 1991

(Tons /US$'000)

Country of origin	1987	1988	1989	1990	1991
Japan	1,886 361	-	2,188 623	-	-
South Korea	30,981 6,861	54,030 15,407	44,489 13,580	99,805 24,748	17,486 4,405
North Korea	-	2,024 323	-	36,466 9,884	-
Taiwan	-	73,856 22,465	66,170 19,559	124,205 28,387	-
Thailand	-	-	18,307 5,575	-	-
P.R. China	-	-	9,998 2,819	-	7,058 1,745
Australia	-	18,203 2,733	-	89,278 22,619	33,633 8,525
Mozambique	13,816 2,739	28,565 8,320	39,074 13,231	-	-
Belgium & Luxemburg	109,777 22,110	21,923 5,349	-	46,480 11,719	52,453 13,645
Sweden	4,774 835	-	-	-	-
Netherlands	-	44,903 12,020	-	-	9,961 2,142
Spain	-	30,648 9,909	-	-	-
Italy	-	-	9,996 3,249	-	-
Poland	-	-	9,940 3,181	-	-
U S S R	-	-	9,210 2,441	-	-
Mexico	16,670 2,924	-	160 572	83,006 18,440	53,737 13,673
Brazil	5,376 937	34,304 10,351	56,172 16,823	20,911 5,123	49,433 12,757
U S A	-	-	-	-	31,351 8,151
Others	27 1	2 244	1,774 878	-	-
T o t a l	183,307 36,768	308,476 87,121	267,478 82,531	500,152 120,923	276,346 70,458

Source: Central Bureau of Statistics

5.4. Suplly Development

The supply of steel slab within the country is made up of the domestic production and imports. Supply increased rapidly in the periode from 1987 to 1991, with substansial increase of 28.2% and 31.5% occuring in 1987 and 1990. In 1991, supply amounted to 1,239,883 tons - down by 11.7% from the previous year. In the periode from 1987 to 1991, supply increased by an average of 9.1% annually. For details, see the following table :

Table - 5.4
Estimated of Steel Slab Supply,
1987 - 1991

Tons

Year	Production	Import	Supply	Growth (%)
1987	728,114	183,307	911,421	-
1988	721,567	308,476	1,030,043	13.0
1989	800,040	267,478	1,067,528	3.6
1990	903,995	500,152	1,404,147	31.5
1991	963,537	276,346	1,239,883	-11.7
Average				9.1

Source : Data Consult

6. HOT ROLLED COIL/PLATE (HRC/PLATE)

6.1. Number of Company and Production Capacity

At present there are three companies producing HRC/Plate with a total production capacity of 1,100,000 ton per year, namely PT Krakatau Steel (1000,000 tons) and PT Jaya Pari Steel (100,000 ton). All the companies operating under the Domestic Investment scheme (PMDN).

Table - 6.1

Hot rolled coil plants and their production capacities, 1991

Name of Company	Status	Location	Prod. Capacity (Ton/year)
PT. Krakatau Steel	BUMN/ PMDN	Cilegon,	1,000,000
PT. Jaya Pari Steel	PMDN	Surabaya, East Java	100,000
T o t a l			1,100,000

Source: Department of Industry
BUMN = State Company PMDN = Domestic Investment

6.2. New Project

From 1990 to 1991, five investment permits were issued for the construction of new HRC/Plate plants with a total production capacity of 2,810,000 tons/year. The five companies were scheduled to start operation between 1992 and 1994.

PT Gunawan Dian Jaya Steel and PT Alim Ampuh Jaya Steel planned to start production in 1992. PT Gunawan Dian Jaya Steel, which belongs to the group of PT Jaya Pari Steel, has been able to complete its project as planned. The company's plant, which has a production capacity of 340,000 tons of HRC/Plate/year, was inaugurated in November 1992.

PT Alim Ampuh Jaya Steel failed to complete its project as planned. According to PT Alim Ampuh Jaya Steel, the completion of its project has been postponed until 1993. However, the company's project is not making progress, so it appears it may not be completed in 1993, either.

The other HRC/Plate projects are the projects of PT Ispat Steel (1,250,000 tons/year), PT Gunung Naga Mas (700,000 tons/year) and PT Littile Giant Steel (120,000 tons/year), which are scheduled to be completed in 1994.

However, it is certain that they will not be completed as planned, as they are not making any progress. PT Ispat Steel, which is serious with its project, has rescheduled the completion of its project. According to the company, the completion of its project has been postponed for a year until 1995. No clarification has been given on the two other projects.

From the above description, it may be concluded that only two of the five companies mentioned above are seriously interested in HRC/Plate manufacturing, namely: PT Gunawan Dian Jaya Steel, which already started operation in November 1992, and PT Ispat Steel, which plans to start operation in 1995.

Table - 6.2
New HRC/Plate Plants Projects,
1991

Name of Company	Production Capacity (Tons/Year)	Start Operation (Planned)
PT Gunawan Dian Jaya	340,000	Mid 1992
PT Alim Ampuh Jaya Steel	400,000	Postponed
PT Ispat Steel	1,250,000	1995
PT Gunung Naga Mas	700,000	no progress
PT Little Giant Steel	120,000	no progress

Source : The Investment Coordinating Board and Department of Industry

6.3. Production Development

In the period from 1987 to 1991, HRC/Plate production showed a increasing. Production rose from 844,785 tons in 1987 to 1,192,321 ton in 1991 - up by an average of 10.2% annually. The biggest increase was achieved in 1989 at 37.7%.

According to the Department of Industry, in 1991 HRC/Plate production amounted to 1,192,321 tons - down by 10% from the previous year.

Table - 6.3
HRC/Plate Production,
1987 - 1991

Year	Production (Ton)	Increase (%)
1987	844,785	-
1988	944,210	11.8
1989	1,300,477	37.7
1990	1,325,417	1.9
1991	1,192,321	-10.0
Average (%)		10.2

Source: Department of Industry

6.4. Import Development

6.4.1. Import by Volume and Value

Although HRC/Plate is already produced in a substantial quantity within the country, Indonesia still imports certain type of HRC/Plate, especially those not yet produced by the domestic plants, for instance HRC/Plate with a thickness for less than 2 mm. The type of HRC/Plate already produced within the country are also imported if there is a shortage of supply within the country because the domestic producers export their product in order to maintain their share in export markets.

According to the Central Bureau of Statistics, HRC/Plate import in 1991 showed a significat increase. HRC/Plate imports in this year amounted to 463,619 tons,

valeud at US$ 215,566,000 - up by 248.3% in volume from the previous year.

Table - 6.4
HRC/Plate Import,
1987 - 1991

Tons
US$'000

Type	1987	1988	1989	1990	1991
Iron or Steel coil of thickness 1.5-6 mm	3,547 11,313	2,071 747	6,339 3,710	37,159 19,483	359,537 148,241
Iron or steel coil of thickness > 6-9 mm	26 8	2,872 1,025	13,674 659	19,092 10,512	31,449 13,407
Iron or steel coil of thickness >9 mm	-	-	13,621 6,108	12,473 5,019	2,754 2,817
Universal plate of iron or steel, thickness 5-50 mm	5,649 2,225	2,471 1,354	1,578 819	3,377 2,201	4,879 3,339
Universal plate of iron or steel thickness 50-100 mm	193 176	508 201	580 374	10,753 4,169	12,363 7,350
Sheet and Plate >4.75 mm of high carbon steel	3,684 1,934	845 926	1,149 882	18,676 11,732	17,287 23,062
Sheet and Plate >4.75 mm of alloy steel	2,194 3,172	3,383 5,960	3,296 2,669	2,813 1,862	4,308 2,349
Plate and Sheet, thickness of more than 4.75 mm not surface treated	30,100 12,181	56,552 31,528	39,951 18,762	28,862 16,026	31,043 15,001
Total	45,393 31,009	68,702 41,741	67,888 33,983	133,124 71,004	463,619 215,566

6.4.2. Import by Country of Origin

Japan and South Korea had a dominant share in Indonesia's HRC/Plate import until 1989, but after that there were several countries became a significant suppliers as Australia, Brazil, USA and Belgium & Luxemburg, even in 1991 Brazil became the biggest suppliers, supply-

ing 167,351 tons, valued at US$ 60,450,000, accounting for 36% in volume of total imports; while Japan supplied 118,653 tons, valued at US$ 62,820,000 accouting for 25.6% in volume of total imports.

Imports from South Korea amounted to 42,943 ton, valued at US$ 21,007,000 and USA supplying 42,043 ton, valued at US$ 17,112,000. Other countries supplying HRC/Plate to Indonesia include West European countries, like Sweden, Finland and Germany. Details of HRC/Plate imports by country of origin in the 1987 - 1991 period are follow:

Table - 6.5
HRC/Plate Imports by Country of Origin,
1987 - 1991

Tons
US$'000

Country of Origin	1987	1988	1989	1990	1991
Japan	13,694	17,006	22,759	71,658	118,653
	8,198	11,382	12,796	46,405	62,820
South Korea	19,501	26,299	21,013	5,623	42,943
	16,679	14,744	9,363	2,448	21,007
Taiwan	366	328	-	540	3,641
	113	153		286	1,619
Singapore	5,448	2,955	585	1,122	1,144
	1,887	1,239	151	816	876
Australia	2,144	5,389	15,201	41,230	33,844
	1,887	3,533	6,094	15,029	14,825
USA	-	589	558	1,299	42,043
		740	395	677	17,112
Brazil	2,363	8,127	-	1,265	167,351
	804	3,237		1,367	60,450
Germany	305	1,144		744	2,570
	377	1,354		550	1,902
United Kingdom	194	369	-	374	-
	168	235		443	
Belgium & Luxemburg	-	-	-	-	31,163
					1,520
Finland	-	-	-	-	15,007
					6,258
Sweden	-	-	-	-	14,849
					6,283
Spain	-	-	-	-	9,981
Others	7,192	4,720	7,377	9,269	8,028
	2,112	4,321	5,184	2,983	17,096
T o t a l	45,393	68,702	67,888	133,124	463,619
	31,009	41,741	33,983	71,004	215,566

Source : Central Bureau of Statistics.

6.5. Export Development

6.5.1. Export by Volume and Value

Indonesia has been exporting HRC/Plate in significant quantities. Export began in 1984 in a small quantity. Export continued to increase in the following years, reaching the highest level at 409,409 tons, valued at US$ 116,864,000. In the following years, while the volume declined, the value of export rose.

In period from 1987 to 1991, exports of HRC/Plate has been fluctuating with a tendency to declined. In 1991, export of HRC/Plate amounted to 234,615 ton, valued at US$ 85,899,000.

Table - 6.6
HRC/Plate Exports,
1987 - 1991

Tons
US$'000

Type	1987	1988	1989	1990	1991
Iron or steel coils of thickness 1.5 - 6 mm	158,066 44,370	43,672 15,864	14,869 51,822	35,468 12,894	66,847 19,761
Iron or Steel coils of thickness 6 - 9 mm	26,610 7,585	16,005 5,426	20,813 8,660	20,292 12,074	12,959 4,088
Iron or steel coils of thickness > 9mm	136,142 38,580	165,733 63,298	258,092 113,675	156,705 66,238	143,223 61,517
Sheet and Plate thickness of more than 4.75 mm not surface treated	88,591 26,329	46,713 15,692	98,710 35,861	26,051 9,401	3,761 1,533
Total	409,409 116,864	272,123 100,280	393,484 163,378	238,516 100,607	234,615 85,899

Source : Central Bureau of Statistics

6.5.2. Export by Country of Destination

Japan is the main export market for HRC/Plate from Indonesia. In 1987 - 1991 period, Japan as the biggest importer of HRC/Plate from Indonesia. In 1987, export to Japan amounted to 282,980 tons, valued at US$ 81,205,000, accounting for 69.1% of the total export and in 1991 amounted to 95,207 tons, valued at US$ 39,907,000, accounting for 40.6% of the total exports.

The other major export market in the 1987 - 1991 period were Malaysia, Thailand and South Korea. In 1991, export to South Korea amounted to 68,128 tons, valued US$ 20,257,000, accounting for 29.0% of the total export.

Table - 6.7
HRC/Plate Export by Country of Destination,
1987 - 1991

Tons
US$'000

Country of Destination	1987	1988	1989	1990	1991
Japan	282,980	185,926	240,439	125,679	95,207
	81,205	71,472	106,066	54,525	39,907
Thailand	3,444	154	17,585	-	24,110
	954	44	7,376		7,517
Singapore	6,839	5,515	9,139	6,333	-
	1,867	1,155	3,761	2,452	
Malaysia	28,942	24,475	27,502	30,455	33,959
	7,892	8,605	10,275	11,679	12,342
Hongkong	-	1,218	-	829	-
		372		251	
South Korea	3,963	-	91,502	35,375	68,128
	1,199		37,746	12,717	20,257
USA	83,240	56,826	1,332	-	-
	23,746	17,745	454		
Saudi Arabia	-	-	-	3,264	
				1,328	
Others	1	9	5,985	36,589	2,121
	1	887	1,461	17,655	1,740
T o t a l	409,409	272,123	393,484	238,516	234,615
	116,864	100,280	163,378	100,607	86,899

Source : Central Bureau of Statistics

6.5.3. HRC/Plate Supply Development

In the 1987 - 1991 period, the HRC/Plate in Indonesia rose substantially by 31.8% annually, from 480,769 tons in 1987 to 1,421,325 tons in 1991.

The amount of supply can be estimated by adding imports to domestic production less exports.

The highest increase in this period in 1988, amounted to 740,789 tons - up by 54.0% from the previous year and 31.6% in 1989. For details, see the following table:

Table - 6.8
Estimate of HRC/Plate Supply,
1987 - 1991

(Ton)

Year	Production	Import	Export	Supply	Growth (%)
1987	844,785	45,393	409,409	480,769	-
1988	944,210	68,702	272,123	740,789	54.0
1989	1,300,477	67,888	393,484	974,187	31.6
1990	1,325,417	133,124	238,516	1,220,025	25.1
1991	1,192,321	463,619	234,615	1,421,325	16.5
Average (%)					31.8

Source : Data Consult.

7. COLD ROLLED COIL (CRC)

7.1. Number of Company and Their Capacity

The CRC industry in Indonesia emerged in 1987 when PT Cold Rolling Mill Indonesia Utama (PT CRMIU), a company operating under the PMA (Foreign Investment), commonced production. The company has a production capacity of 850,000 ton a year.

Originally, the company was a joint venture, involving PT Krakatau Steel (40%), PT Kaolin Indah of Salim Group (40%) and Sectiacier SA of Luxemburg (20%). After the series of financial trouble, in the latest 1991, PT CRMIU has merged with PT Krakatau Steel. The 100% ownership by PT Krakatau Steel is expected to improve the efficiency of the company's operation.

7.2. Production Development

PT CRMIU started commercial production in the middle of 1987. Its production was 141,200 tons initially and rose to 451,789 tons and 470,530 tons in 1989. The production in 1989 showed an icrease of only 4.1%, even in 1990 produxtion dropped a little to 426,203 tons - down by 9.4%.

According to the Department o_ Industry, in 1991 CRC production rose again to 475,684 tons- up by 11.6% from the previous year. For details, see the following table.

Table - 7.1
CRC Production Development,
1987 - 1991

Year	Production (Tons)	Increase (%)
1987	141,200	-
1988	451,789	210.0
1989	470,530	4.1
1990	426,203	-9.4
1991	475,684	11.6

Source: Department of Industry

7.3. Import Development

7.3.1. Import by Volume and Value

In the period from 1987 to 1991, CRC/Plate were imported still in large quantities, but showed tendency to decrease, with decline occuring in 1989 and 1991.

Imports in 1989 amounted to 409,203 tons, value at US$ 270,573,000 - down by 37% from the previous year. In 1991, CRC/Plate imports amounted to 287,326 ton, valued at US$ 185,671,000 - down by 37.3% from the previous year.

Table - 7.2
CRC/Plate import,
1987 - 1991

Tons
US$'000

Type	1987	1988	1989	1990	1991
Plate and sheet 3-4.75 mm, not surface treated of iron or steel	14,744 7,062	51,879 22,566	54,868 31,380	66,733 56,461	64,890 4,524
Sheet and plate < 3mm not surface treated	520,909 268,230	527,951 283,584	301,396 188,627	336,482 199,931	257,929 169,087
Sheet and plate < 3mm of high carbon steel	4,341 8,122	37 345	2,799 1,331	4,037 3,048	371 210
Others	46,357 44,904	61,464 38,557	47,215 30,510	50,987 24,585	22,542 11,850
Total	593,084 343,631	649,246 366,222	409,203 270,573	458,239 284,025	287,326 185,671

Source : Central Bureau of Statistics

7.3.2. Import by Country of Origin

The main suppliers of CRC/Plate to Indonesia are Japan and South Korea. Japan is the biggest supplier, because CRC/Plate is used in large quantity in the automotive industry, which is dominate by Japan. CRC/Plate from Japan is also used in a significant quantity as a raw material in the tinplate industry.

In 1991, Japan supplied 237,334 tons, valued at US$ 156,503,000, accounting for 82.6% in volume of the total imports.

Imports from South Korea declined in 1991 to 10,337 tons, valued at US$ 6.639,000, accounting for only 3.6% in volume of the total imports. The other supplier countries of CRC/Plate to Indonesia i.e Taiwan, USA and Venezuela. For details, see the following table:

Table - 7.3
CRC/Plate Import by Country of Origin,
1987 - 1991

Tons
US$'000

Country of Origin	1987	1988	1989	1990	1991
Japan	493,713	338,425	245,406	281,805	237,334
	268,217	198,500	138,831	162,869	156,503
South Korea	25,411	121,225	75,845	35,108	10,337
	10,791	41,171	36,982	14,912	6,639
Taiwan	2,871	635	1,179	14,840	9,388
	1,079	408	587	6,603	6,059
Singapore	338	2,805	2,454	2,344	379
	235	2,460	1,630	1,658	518
Mozambique	764	-	-	-	-
	311				
USA	2,399	-	1,897	3,965	1,555
	646		1,350	2,439	959
Brazil	7,868	30,335	10,761	5,488	-
	3,452	11,792	4,273	3,260	
United Kingdom	1,258	693	-	1,603	260
	553	418		1,188	350
Germany	9,758	9,678	1,699	1,812	-
	4,319	6,794	1,495	1,263	
Netherland	2,165	7,193	-	-	-
	1,029	6,142			
Australia	4,470	8,658	5,611	1,410	1,480
	3,048	5,514	3,240	1,351	1,153
Canada	-	-	-	14,145	-
				6,005	
Venezuela	-	-	-	7,648	5,869
				4,391	3,341
Others	42,069	29,599	64,349	88,071	20,724
	49,951	35,529	82,185	79,156	10,149
T o t a l	593,084	549,246	409,201	458,239	287,326
	343,631	290,505	270,573	284,025	185,671

Source : Central Bureau of Statistics

7.4. Export Development

7.4.1. Export by Volume and Value

Indonesia began exporting CRC/Plate in 1987, amounted to 17,646 tons, valued at US$ 6,121,000. In line with the increase in domestic production, export rose sharply to 159,743 tons, valued at US$ 71,617,000.

In 1990, CRC/Plate export dropped to only 36,531 tons, valued at US$ 19,230,000 - down drastically by 77.1% in volume from the previous year, even in 1991, export dropped again to only 4,908 ton, valued at US$ 1,892,000 -down by 86.6% in volume from the previous year.

Table - 7.4
CRC/Plate Export,
1987 - 1991

Tons
US$'000

Type	1987	1988	1989	1990	1991
Sheet and Plate	6,737	862	103,186	19,816	1,985
thickness 3-4.75 mm not surface treated	2,081	279	43,865	8,322	691
Sheet and Plate tickness < 3mm	10,909	117,673	56,557	16,715	2,923
not surface treated	4,040	59,479	27,752	10,908	1,224
Total	17,646	118,535	159,743	36,531	4,908
	6,121	59,758	71,617	19,230	1,892

7.4.2. Export by Country of Destination

Indonesia's CRC/Plate export mostly go to Asian countries. The export market outside Asia include USA and some Middle East Countries include Iraq. In 1987, the biggest importers was Japan, importing 5,571 tons, valued at US$ 1,996,000. In the second and third place were USA and Thailand.

The number of export markets grew in the following years and in 1988 the P.R China emerged as the biggest export market. Export to P.R China that year amounted to 46,815 tons, valued at US$ 24,479,000, accounting for 39.5% of the total exports.

In 1990, the biggest export went to new market country was Iraq, at 24,769 tons, valued at US$ 16,401,000, accounting for 67.8% in volume of the total export. But in 1991, when CRC/Plate exports was dropped, the biggest export market went to Thailand was 2,395 tons, valued at US$ 807,000 and in the second place was Japan. See the following table:

Table - 7.5
CRC/Plate Export by Country of Destination,
1987 - 1991

Tons
US$'000

Type	1987	1988	1989	1990	1991
Japan	5,571 1,996	11,509 6,320	9,522 4,467	5,534 2,073	1,895 851
South Korea	-	-	88,317 37,580	-	-
Taiwan	2,021 737	1,652 660	-	-	-
Thailand	4,105 1,517	16,462 7,199	33,721 14,022	-	2,395 807
Hongkong	-	13,722 8,026	1,157 659	-	-
PR China	-	46,815 24,479	16,909 9,355	-	-
Malaysia	-	8,981 4,321	3,651 2,057	513 213	249 190
USA	4,831 1,242	10,678 3,899	-	-	-
Iraq	-	-	-	24,769 16,401	-
Others	1,120 450	8,716 7,078	6,466 3,477	5,596 462	292 44
Total	17,646 6,121	118,535 59,758	159,743 71,617	36,531 19,230	4,831 1,892

Source : Central Bureau of Statistics

7.5. Supply Development

In the period from 1987 to 1991, supply showed a modest growth at 4.4% annually, from 716,602 tons to 758,102 tons in 1991. In five year period, the biggest amount of supply occured in 1988 at 982,500 tons- up by 37.1% from the previous year. In 1991, CRC/Plate supply amounted to 758,102 tons- down by 10.6% from the previous year.

Table - 7.6
Estimate of CRC/Plate Supply,
1987 - 1991

Tons

Year	Production	Import	Export	Supply	Growth (%)
1987	141,200	593,048	17,646	716,602	-
1988	451,789	649,246	118,535	982,500	37.1
1989	470,530	409,203	159,743	719,990	-26.7
1990	426,203	458,239	36,531	847,911	17.8
1991	475,684	287,326	4,908	758,102	-10.6
Average (%)					4.4

Source : Data Consult

8. STEEL CUTTING

8.1. Number of Company and Their Capacity

Base on the record of the Department of Industry in 1991, there are 21 steel plate cutting plants in operation, with a total production capacity of 1,196,500 tons per year. The biggest plant is the plant of PT Krakatau Steel, with a production capacity 400,000 ton per year.

Most of the existing steel plate cutting plants are owned by steel plate consumers, such as steel pipe producers, steel construction companies and motor vehicle producers.

The steel plate cutting which are integrated with steel plate cutting consumers include PT Aneka Jakarta, which belongs to the group of PT Super Steel Indah, and PT Rajin Steel which has its own steel pipe plant.

Motor vehicle producer engaged in steel plate cutting include Astra Group. To meet its steel plate requirement, the group has established PT Steel Center Indonesia, which has a significant production capacity of 125,000 ton per year.

The other steel plate cutting companies are not integrated with steel plate consumers. They function more as distributors of steel plate, like PT Afro Pacific and PT Logam Menara Murni.

Table - 8.1
Steel Plate Cutting Companies, 1991

Name of company	Status	Production Capacity (Tons/year)
PT Krakatau Steel	BUMN	400,000
PT Dirga Pacific Steel		62,000
PT Afro Pacific Indah	PMDN	40,000
PT Steel Center Indonesia	PMDN	125,000
PT Continental Steel	Non- Fac.	75,000
PT Super Steel Indah	PMDN	51,000
PT Sarana Steel	PMDN	52,000
CV Wira Mustika Indah	PMDN	24,000
PT Logam Menara Murni	PMDN	22,000
PT Daya Swahasta Cipta		36,000
CV Ahli Teknik	PMDN	12,000
PT Raja Besi	PMDN	36,000
PT Industri Afro Pacific	PMDN	36,000
PT Jaya Pari Steel	PMDN	30,000
PT Aneka Jakarta	PMDN	25,000
PT Pulogadung Steel	PMDN	8,500
PT Tri Putra Jaya		10,000
PT Rajin Steel	PMDN	30,000
PT Alim Ampuh Jaya	PMDN	98,000
PT Waja Sentosa Metalindo		6,000
PT Bumi Kaya Steel	PMDN	18,000
T o t a l		1,196,500

Notes : BUMN : State owned company
PMDN : Domestics Investment Scheme
Source: Department of Industry

8.2. Production Development

In the period from 1987 to 1991 steel plate production increased by 15% annually, from 387,607 tons in 1987 to 644,497 tons in 1991. The highest production level at 634,100 tons -up by 47.8% from the previous year.

According to the Department of Industry, steel plate cutting production in 1991 increased only to 644,497 tons - up 1.6% from the previous year.

Table - 8.2
Steel Plate Cutting Production
1987 - 1992

Year	Production (Ton)	Growth (%)
1987	387,607	-
1988	416,078	7.3
1989	429,169	3.1
1990	634,100	47.8
1991	644,497	1.6
Average (%)		15.0

Source : Department of Industry

8.3. Production by Company

Since production depends on orders, the existing steel plate cutting plants have different capacity utilization rates. In 1991 their capacity utilization rates varied from only 5.9% to 181.8%, with an average utilization rate of 56.5%.

In 1991, the highest capacity utilization rate was achieved by PT Steel Center Indonesia at 181.8%, followed by PT Waja Sentosa Metalindo (95.7%), PT Afro Pacific Indah (95%) and PT Krakatau Steel at 82.4%. For details, see the following table.

Table - 8.3
Steel Plate Cutting by Company, 1991

Name of Company	Production (Ton)	Utilization (%)
PT Krakatau Steel	329,476	82.4
PT Dirga Pacific Steel	0	0
PT Afro Pacific Indah	38,000	95.0
PT Steel Center Indonesia	125,332	83.6
PT Continental Steel	32,344	43.1
PT Super Steel Indah	29,359	57.6
PT Sarana Steel	23,805	45.8
CV Wira Mustika Indah	0	0
PT Logam Menara Murni	2,250	10.2
PT Daya Swahasta Cipta	12,600	35.0
CV Ahli Teknik	0	0
PT Raja Besi	2,473	69
PT Industri Afro Pacific	3,788	10.5
PT Jaya Pari Steel	17,112	57.0
PT Aneka Jakarta	8,731	4.9
PT Pulogadung Steel	0	0
PT Tri Putra Jaya	0	0
PT Rajin Steel	5,043	16.8
PT Alim Ampuh Jaya Steel	5,740	5.9
PT Waja Sentosa Metalindo	5,744	95.7
PT Bumi Kaya Steel	2,700	15.0
T o t a l	644,497	53.9

Source : Department of Industry

9. STEEL WIRE ROD

9.1. Number of Company and Their Production Capacity

At present there are seven companies in Indonesia producing steel wire rod with a total production capacity of 882,000 ton per year. Of the seven companies, PT Krakatau Steel and PT Ispat Indo are the main producers. PT Krakatau Steel has a production capacity of 320,000 ton per year, while PT Ispat Indo has a production capacity of 300,000 tons per year. The smallest producer is PT Maxifero, with a production capacity of 12,000 tons per year.

Of the seven producers, two producer operating under foreign investment scheme (PMA), namely PT Ispat Indo and the new comer is PT Hanil Jaya Metal Works. The rest are operating under domestics investment including PT Krakatau Steel.

Table - 9.1
Steel Wire Rod Plants and Their Production Capacities, 1991

Name of Company	Production Capacity (Ton/year)	Status
PT. Krakatau Steel	320,000	BUMN
PT. Ispat Indo	300,000	PMA
PT. Gunung Gahapi Sakti	100,000	PMDN
PT. Growth Sumatra Ind. Ltd.	30,000	PMDN
PT. Jakarta Kyoei Steel	20,000	PMDN
PT. Maxifero	12,000	PMDN
PT. Hanil Jaya Metal Works	100,000	PMA
T o t a l	882,000	

Source: Department of Industry

9.2. Production Development

Steel wire rod production in the five year period from 1987 to 1991 shows a tendency to decline, from 446,692 tons in 1987 to 445,482 tons in 1991. In that period, the biggest production increase occurred in 1990 when production reached 474,605 tons - up by 5.7% from the previous year.

According to the Department of Industry, in 1991 production dropped to 445,482 tons - down by 6.1% from the previous year.

Table - 9.2
Steel Wire Rod Production,
1987 - 1991

Year	Production (Ton)	Growth (%)
1987	446,692	-
1988	452,110	0.1
1989	449,014	-0.7
1990	474,605	5.7
1991	445,482	-6.1
Average growth		0.3

Source: Department of Industry

9.3. Production by Company

The capacity utilization rate of the existing plants varied from 27.7% to 72.1%. In 1991, of the seven producers, five produced 445,482 tons, showing a utilization rate of 50.5%.

In 1991, the highest capacity utilization was achieved by PT Ispat Indo, which produced 216,420 tons or 72.1% of its capacity, while PT Krakatau Steel, with produced 178,022 tons, utilized only 55.6% of its production capacity.

The lowest capacity utilization was achieved by PT Gunung Gahapi Sakti, which produced only 27,699 tons or 27.7% of its production capacity.

PT Growth Sumatra Industry. Ltd., was able to achieved high capacity utilization, producing 21,000 tons or 70% of its production capacity. Details are follow:

Table - 9.3
Steel Wire Rod Production by Company, 1991

Name of Company	Production (Ton)	Capacity utilization (%)
PT Krakatau Steel	178,022	55.6
PT Ispat Indo	216,420	72.1
PT Gunung Gahapi Sakti	27,699	27.7
PT Growth Sumatera Ind. Ltd.	21,000	70.0
PT Jakarta Kyoei Steel	2,341	11.7
PT Maxifero	0	0
PT Hanil Jaya Metal Works	0	0
CV Wira Mustika Indah	0	0
T o t a l	445,482	50.5

Source: Department of Industry

9.4. New Projects

In the period from 1990 to 1991, the Investment Coordinating Board (BKPM) issued 8 permits for steel wire rod plant project, with a total production capacity of 687,000 ton per year. One of 8 projects is the expansion project with a production capacity of 150,000 per year.

PT Hanil Jaya Metal Works is planning to expand its steel wire rod plant, rising its production capacity to 250,000 tons per year from 100,000 tons at the present. This project is expected to be completed in 1994.

In terms of production capacity, the biggest project of the new wire rod plant is PT Marga Kencana Adimulya, with a production capacity of 200,000 tons per year. Foolowed by PT Bhirawa Steel, with a production capacity of 120,000 ton per year.

According to the Depertment of Industry, PT Bhirawa Steel and PT Heavycon Steel are expected to be completed in 1992 and three projects are expected to be completed in 1993. Meanwhile, the rest are expected to be completed in 1994, included the expansion project of PT Hanil Jaya Metal Works. For details, see the following table.

Table - 9.4
New and Expansion Project of Wire Rod, 1991

Name of Company	Production Capacity (Tons/Year)	Start Operation (Planned)
EXPANSION PRCJECT		
PT Hanil Jaya Metal Works	150,000	1994
NEW PROJECTS		
PT Bhirawa Steel	120.000	1992
PT Heavycon Steel	21,000	1992
PT Indo Steel Mulya Jaya	40,000	1993
PT Wahana Garuda Lestari	36,000	1993
PT Master Steel	30,000	1993
PT Stanesia Steel	90,000	1994
PT Margakencana Adi Mulya	200,000	1994
T o t a l	687,000	

Source : The Investment Coordinating Board and Department of Industry

9.5. Import Development

9.5.1. Import by Volume and Value

In the five year period from 1987 to 1991, steel wire rod import were small in both volume and value, compered with the domestic production, although there was a notable increase in 1990.

Imports of steel wire rod of various types amounted to 52,072 tons, valued at US$ 29,156,000 in 1990. In the following year, imports dropped to 45,226 tons, valued at US$ 30,634,000 - down by 13.1% from the previous year.

Most of the wire rod imported is high carbon steel wire rod, which is not much produced within the country,

prestressed concrete, special spring wire, wire rod for welding electrode and cold heading wire rod.

Table - 9.5
Steel Wire Rod Imports, 1987 - 1991

Tons
US$'000

Type	1987	1988	1989	1990	1991
Bar and rod of high carbon steel	2,143	1,305	4,512	-	-
	1,170	1,657	3,038		
Bar and rod of alloy steel	5,972	23,712	10,368	-	-
	6,804	18,227	6,850		
Other bar and rod of iron or steel	1,430	7,016	6,294	-	-
not surface treated	878	3,036	24,225		
Wire rod of high carbon steel	2,309	2,632	21,134	-	-
	1,069	1,654	2,128		
Steel bar for making wire, carbon	-	-	-	9,207	-
<0,025%, 5m = < thickness <10mm				3,240	
Other steel bar for making wire	-	-	-	1,468	-
diameter < 14mm, carbon <0,025%				724	
Steel bar for making wire, carbon	-	-	-	1,669	-
< 0,25%, diameter > 14mm				691	
Steel bar for making wire, 0,25% <	-	-	-	665	
carbon <0,6%, 5m < thicknes < 10mm				279	-
Other steel bars for making wire,	-	-	-	4	-
diameter <14mm, 0,25% < carbon				36	
< 0,6%					
Other steel bar for making wire,	-	-	-	-	11,026
carbon >0,77%					5,770
Steel bar for making wire 0,25% <	-	-	-	2,922	-
carbon <0,06%, not circ. cross				1,534	
section					
Bar and rod, hot-roll, in irregularly	-	-	-	745	132
wound coils, of stainless steel				664	465
Bar and rods, of stainless steel, not	-	-	-	460	727
further worked than hot-rolled				1,576	1,880
Other bar and rod of alloy steel	-	-	-	35,593	33,341
Total	11,854	34,665	23,308	52,072	45,226
	9,921	24,574	14,431	29,156	30,634

Note : Classified by Harmonized Systems
Source : Central Bureau of Statistics

9.5.2. Import by Country of Origin

Steel wire rod is imported from a number of countries, including European countries. However, imports are mostly sourced from Asian countries, especially Japan and South Korea.

In the five year period from 1987 to 1991, Japan was the biggest supplier of steel wire rod to Indonesia, fol lowed in the second place by South Korea until 1989 and Singpore.

Import from Japan in 1987 amounted to 7,076 tons, valued at US$ 4,805,000, accounting for 59.7% in volume of the total imports. In 1991, Japan still was the biggest supplier, amounted to 29,709 tons, valued at US$ 19,161,000, accounting for 65.7% in volume of the total imports.

Taiwan as the new supplier of steel wire rod to Indonesia. In 1991, imported from this country amounted to 3,902 tons, valued at US$ 1,704,000, accounting 8.6% in volume of the total import. For details, see the following table.

Table - 9.6
Steel Wire Rod Imports by Country of Origin, 1987 - 1991

Tons
US$'000

Country of origin	1987	1988	1989	1990	1991
Japan	7,076	17,894	13,220	26,661	29,709
	4,805	12,367	5,381	16,984	19,161
South Korea	2,308	4,958	5,206	1,021	1,844
	1,527	2,876	3,155	888	880
Taiwan	108	2,625	438	1,673	220
	76	1,208	273	784	184
P.R. China	-	-	-	-	3,902
					1,704
Singapore	182	647	3,433	3,892	29
	820	597	1,331	1,391	35
Hongkong	-	-	-	-	3,035
					2,504
F.R. Germany	529	1,290	241	1,346	872
	693	1,547	452	1,416	1,018
Austria	243	331	-	5,653	222
	558	725		1,211	440
Sweden	455	392	-	16	-
	1,027	1,066		39	
Rumania	-	-	-	4,947	-
				1,707	
Venezuela	-	-	-	3,167	-
				951	
Brazil	-	-	-	2,191	2,096
				1,162	1,118
Others	993	6,528	769	1,503	3,297
	415	4,188	71	2,623	3,590
T o t a l	11,854	34,665	23,308	52,072	45,226
	9,921	24,574	14,431	29,156	30,634

Source : Central Bureau of Statistics

Table - 9.7
Steel Wire Rod Exports,
1987 - 1991

Year	Volume (Ton)	Value (US$'000)
1987	13,392	3,349
1988	1,618	465
1989	10,018	3,340
1990	365	111
1991	1,051	335

Source : Central Bureau of Statistics

9.6.2. Export by Country of Destination

Steel wire rod is exported only to a few countries mostly in Asia, including Japan, Thailand and Singapore. Outside in Asia, steel wire rof from Indonesia is exported to USA only. Exported to this country is not continuous in the last five year period. Exported to USA only in 1987, amounted to 13,231 tons, valued at US$ 3,306,000, accounting for 98.8% in volume of the total export.

In 1991, all steel wire rod exports from Indonesia went to Singapore, amounted to 1,051 tons, valued at US$ 335,000, but in 1988 and 1989 Japan absorbed most of Indonesia's exports. For details, see the following table.

Table - 9.8
Steel Wire Rod Exports by Country of Destination, 1987 - 1991

Tons
US$'000

Country of destination	1987	1988	1989	1990	1991
Japan	161	1,302	1,012	101	-
	43	363	326	26	
Thailand	-	316	8,182	-	-
		102	2,707		
Singapore	-	-	626	264	1,051
			236	85	335
Philippines	-	-	198	-	-
			71		
U.S.A.	13,231	-	-	-	-
	3,306				
Total	13,392	1,618	10,018	365	1,051
	3,349	465	3,340	111	335

Source: Central Bureau of Statistics

9.7. Supply Development

As mentioned earlier, imports of steel wire rod are small, compered with the domestic production. The same is true of exports. As such, they do not greatly affect the supply of steel wire rod within the country. This is reflected in the growth of supply, which in line with the growth of the domestic production.

The amounted of steel wire rod supply can be estimated by adding imports to production less exports each year.

On that basis, steel wire rod supply within the country incease by 2.8% annually from 445,154 tons in 1987 to 489,657 tons in 1991. The highest increase in supply occurred in 1990 when the supply amounted to 526,313 tons - up by 13.8% from the previous year.

Table - 9.9
Estimated of Steel Wire Rod Supply,
1987 - 1991

(Ton)

Year	Production	Import	Export	Supply	Growth (%)
1987	446,692	11,854	13,392	445,154	-
1988	452,110	34,665	1,618	485,157	9.0
1989	449,014	23,308	10,018	462,304	-4.7
1990	474,605	52,072	365	526,313	13.8
1991	445,482	45,226	1,051	489,657	-7.0
Average (%)					2.8

Source : Data Consult

10. CONCRETE BAR AND PROFILE

10.1. The Number of Plants and Their Production Capacity

By their production facilities, concrete bar and steel profile plats may be divided into three categories: steel melting & rolling plants, steel rolling plants and steel rerolling plants.

Based on the 1991 record of the Department of Industry, there are 31 plants in Indonesia producing concrete bar and steel profile, with a total production capacity of 2,504,100 tons per year. Of this number, 14 are steel melting & rolling plants, with a production capacity of 1,866,500 tons per year; 8 steel rolling plants, with a production capacity of 483,800 tons per year and 9 steel rerolling plants, with a total production capacity of 153,800 tons per year.

The major steel melting & rolling plants are the plants of PT Krakatau Steel, PT Budi Dharma, PT Wahana Garuda Lestari, PT Inti General Jaya Steel, PT Gunung Gahapi Sakti and PT Jakarta Prima Murni.

The Leading steel rolling mill are the plants of PT Tobusco, PT Muara Pluit, PT Air Baja Indonesia and PT Interworld. While the leading steel rerolling plants are the plants of PT Bhirawa Steel, PT Jaya Pari Steel and PT Senriwa Steel. For details, see the following table.

Table - 10.1
Concrete Bar and Steel Profile Producers and Their Production Capacities, 1991

Name of Company	Production Capacity (Tons/Year)	Status
A. Steel Melting & Rolling Mill (SRM)		
PT Krakatau Steel	280,000	PMDN/BUMN
PT Budi Dharma	127,000	PMDN
PT Inti General Jaya Steel	140,000	PMDN
PT Gunung Gahapi Sakti	165,000	PMDN
PT Jakarta Prima Murni	100,000	PMDN
PT Hanil Jaya Metal Works	130,000	PMDN
PT Jatim Utama Steel	168,000	PMDN
PT Growth Sumatera	184,000	PMDN
PT Pulogadung Steel	60,000	PMDN
PT The Master Steel	150,000	PMDN
PT Bara Waja	37,500	Non-Fac
PT Toyo Giri Steel	45,000	PMDN
PT Ispat Indo	80,000	PMA
PT Wahana Garuda Lestari	200,000	PMDN
Sub-Total	1,866,500	-
B. Rolling Mill Steel (RM)		
PT Tobusco	134,000	PMDN
PT Jakarta Kyoei Steel	130,000	PMDN
PT Muara Pluit	70,000	PMDN
PT Air Baja Indonesia	60,000	PMDN
PT Inter World	60,000	PMDN
PT Maxifero	30,000	PMDN
PT Bima Buana Baja	46,800	PMDN
PT Sumatera Selatan Utama Steel Industry	23,000	Non-Fac
PT Pyramid Iron Factory	n.a	
Sub-Total	483,800	
C. Rerolling Mill (RR)		
PT Jaya Pari Steel	28,000	PMDN
PT Nasional Union Steel	n.a	PMDN
PT Serniwa Steel	19,000	PMDN
PT Waja Wuhan	18,000	PMDN
PT Super Tata Raya	15,000	PMDN
PT Bhirawa Steel	48,000	PMDN
PT Ancol Iron Factory	10,000	PMDN
PT Waru Jaya	12,000	PMDN
CV Perjuangan	3,800	PMDN
Sub-Total	153,800	
Grand Total	2,504,100	

PMDN : Domestic Investment Scheme
PMA : Foreign Investment Scheme
Source : Department of Industry

10.2. Production Development

In the period from 1987 to 1991, concrete bar/profil production rose by an average 10.8% annually, from 894,720 tons in 1987 to 1,310,604 tons in 1991. In that period, the biggest production increase occured in 1990 when production reached 1,189,987 tons - up by 28.2% from the previous year.

According to the Department of Industry, in 1991, concrete bar/profile production increased to 1,310,604 tons - up by 10.1% from the previous year. For details, see the following table.

Table - 10.2
Concrete Bar/Profile Production,
1987 - 1991

Year	Production (Tons)	Growth (%)
1987	894,720	-
1988	829,892	-7.0
1989	928,135	11.8
1990	1,189,987	28.2
1991	1,310,604	10.1
Average (%)		10.8

Source : Department of Industry

10.3. Production by Company

High production capacity utilization has been achieved by the major producers, except PT Wahana Garuda Lestari because the company began to start production in the end of 1991.

The major producers have been able to utilize more than 60% of their production capacity. PT Krakatau Steel, one of the biggest producers, produced 175,819 tons or 62.8% of its production capacity. The highest capacity utilization at 96.7% was achieved by PT Maxifero.

PT Tobusco was able to achieved high capacity utilization, produced 118,593 tons, accounting for 88.5% of its production capacity. PT Toyo Giri Steel produced 40,000

tons, accouting for 88.9% of its production capacity. For details, see the following table.

Table - 10.3
Concrete Bar and Steel Profile Production by Company, 1992

Name of Company	Production (Tons)	Capacity Utilization (%)
A. Steel Melting & Rolling Mill (SRM)		
PT Krakatau Steel	175,819	62.8
PT Budi Dharma	94,853	74.7
PT Inti General Jaya Steel	59,506	42.5
PT Gunung Gahapi Sakti	80,448	48.8
PT Jakarta Prima Murni	-	-
PT Hanil Jaya Metal Works	96,975	74.6
PT Jatim Utama Steel	110,987	66.1
PT Growth Sumatera	74,714	40.6
PT Pulogadung Steel	30,156	50.3
PT The Master Steel	96,486	64.3
PT Bara Waja	8,108	21.6
PT Toyo Giri Steel	40,000	88.9
PT Ispat Indo	-	-
PT Wahana Garuda Lestari	34,000	17.0
Sub-Total	902,044	48.3
B. Rolling Mill Steel (RM)		
PT Tobusco	118,593	88.5
PT Jakarta Kyoei Steel	108,294	83.3
PT Muara Pluit	52,000	74.3
PT Air Baja Indonesia	-	-
PT Inter World	28,385	47.3
PT Maxifero	29,023	96.7
PT Bima Buana Baja	22,684	48.5
PT Sumatera Selatan Utama Steel Industry	-	
PT Pyramid Iron Factory	-	
Sub-Total	358,979	74.2
C. Rerolling Mill (RR)		
PT Jaya Pari Steel	12,000	42.9
PT Nasional Union Steel	-	-
PT Serniwa Steel	-	-
PT Waja Wuhan	8,467	47.0
PT Super Tata Raya	9,643	64.3
PT Bhirawa Steel	24,452	50.9
PT Ancol Iron Factory	5,416	54.2
PT Waru Jaya	1,571	13.1
CV Perjuangan	32	0.8
Sub-Total	49,581	32.2
Grand Total	1,310,604	52.3

Source : Department of Industry

10.4. New Projects

In period from 1990 to 1991, the Investment Coordinating Board (BKPM) issued 15 permits for the new projects of concrete bar and steel profile plants, with a production capacity of 1,808,000. 5 of them were expansion projects, with a total production capacity of 926,000 tons per year and the rest were new projects with a production capacity of 882,000 tons per year.

According to Department of Industry , most of them are scheduled to completed in 1993. Meanwhile, the other projects are scheduled to be completed in 1992 and 1994. For details, see the following table.

Table - 10.4
Number of Expansion and New Projects of Concrete Bar and Steel Profile
1991

Name of Company	Production Capacity (Tons/Year)	Start Operation (Planned)
EXPANSION PROJECTS		
PT Wahana Garuda Lestari	348,000	1992
PT Bhirawa Steel	96,000	1992
PT Jakarta Prima Steel	360,000	1992
PT Hanil Jaya Metal Works	50,000	1993
PT Ever Steel	72,000	1993
Sub-Total	926,000	
NEW PROJECTS		
PT Dinamik Sarana Surya	42,000	1992
PT Erabaja Prima Steel	42,000	1993
PT Bangun Sarana Baja	20,000	1993
PT Akurasi Kuatmega	84,000	1993
PT Sri Rejeki Perdana Steel	45,000	1993
PT Marga Kencana Adimulya	195,000	1993
PT Master Steel	120,000	1993
PT Nityasa Maju	250,000	1994
PT Karyasugih Perkasa	84,000	1994
Sub-Total	882,000	
Grand Total	1,808,000	

Source : The Investment Coordinating Board and Department of Industry

10.5. Import Development

10.5.1. Import by Volume and Value

Imports of concrete bar/profil fulctuated in the five year period. Imports amounted to 39,620 tons, valued at US$ 16,179,000 in 1987 and 23,868 tons, valued at US$ 12,318,000 in 1991. The biggest import volume occured in 1988 at 83,298 tons, valued at US$ 37,444,000.

Imports in the five-year period were dominated by steel profile in various form, e.g. U-channel and other forms of steel profile. For instance, in 1991, imports of U-channel and other form of steel profile amounted to 23,439 tons, valued at US$ 11,995,000, accounting for 98.2% of the total imports, while concrete bar imports amounted only to 429 tons, valued at US$ 329,000. For details, see the following table.

Table - 10.5
Concrete Bar/Steel Profile Imports,
1987 - 1991

Ton
US$'000

Type	1987	1988	1989	1990	1991
Concrete steel	53 39	7,411 2,599	302 206	817 363	429 323
U-Channel up to 120 x 55 x 66	20 10	29 26	-	-	-
U-Channel of iron and steel other size	14,432 5,718	12,723 6,894	3,251 1,199	17,378 6,003	8,833 3,584
Angle shaped and other section of iron or steel	-	-	-	-	-
Angle up to 120 x 120 x 6	447 187	431 202	-	4,678 2,609	5,321 2,805
Other form of iron or steel	24,613 10,176	62,442 27,340	46,783 21,879	32,297 15,621	9,285 5,606
Angle shape and section <80 mm of high carbon	42 7	73 27	1,071 738	-	-
Angle shape and section <80 mm of alloy steel	13 22	189 356	196 436	-	-
T o t a l	39,620 16,179	83,298 37,444	51,603 24,458	55,170 24,682	23,868 12,318

Source : Department of Industry

10.5.2. Imports by Country of Origin

The large quantities of concrete bar/profile in the last two year were Japan, South Korea, Taiwan and Germany. In 1990, South Korea supplied 11,824 tons, valued at US$ 5,587,000, accounting for 21.4% in volume of the total imports. The second place was Germany at 9,989 tons, valued at US$ 3,187,000. Imports from Japan amounted to 6,921 tons, valued at US$ 5,028,000.

In the following year, imports from South Korea dropped to 1,835 tons, valued at US$ 1,067,000 and from Germany amounted only to 757 tons, valued at US$ 325,000. In 1991, Japan was the biggest supplier, with 5,584 tons, valued at US$ 3,159,000, accounting for 23.4%, followed by Poland as a new comer with 4,373 tons, valued at US$ 1,565,00.

The other major suppliers were Australia, United Kingdom and Taiwan. For details, see the following table.

Table - 10.6
Concrete bar/Steel Profile by Country of Origin, 1990 - 1991

Tons
US$'000

Country of origin	1990	1991
Japan	6,921 5,028	5,584 3,159
South Korea	11,824 5,587	1,835 1,067
Taiwan	3,278 1,510	809 386
Poland	-	4,373 1,565
Australia	1,571 1,005	3,450 2,093
Germany	9,989 3,187	757 325
United Kingdom	5,898 3,305	828 747
Netherland	668 449	751 563
U S A	1,016 353	547 334
Trinidad & Tobago	2,539 832	-
Venezuela	3,167 951	-
Others	7,699 2,475	2,157 2,056
T o t a l	55,170 24,682	23,868 12,318

Source : Central Bureau of Statistics

10.6. Export Development

10.6.1. Export by Volume and Value

In the period from 1987 to 1991, concrete bar/profile exports has been fluctuating with a tendency to decline. In 1987, exports amounted to 55,044 tons, valued at US$ 13,069,000. In the following year, export rose impressively, reaching their peak in 1988 at 109,664 tons, valued at US$ 31,113,000, of which concrete bar accounted for 84,869 tons, valued at US$ 23,766,000.

In 1989, exports dropped to 38,698 tons, valued at US$ 14,046,000 - down by 64.% from the previous year. In the following year exports declined and in 1991, amounted to 13,922 tons, valued at US$ 4,439,000. For details, see the following table.

Table - 10.7
Concrete Bar/Profile export,
1987 - 1991

Tons
US$'000

Type	1987	1988	1989	1990	1991
Concrete steel, diameter	55,044	84,869	33,717	11,075	13,541
>14mm	13,069	23,766	11,949	3,951	4,288
U-channel of iron or	-	170	-	-	-
steel up to 120 x 55 x 6		43			
Angle up to 120 x 55 x 6	-	3,714	2,349	-	-
		1,102	982		
Other form of iron or	-	17,161	275	-	-
steel		5,251	303		
U-channel of iron or	-	3,750	2,307	2,791	147
steel other size		951	814	1,041	79
Concrete steel, carbon <0.25%	-	-	-	-	233
diameter >14mm					72
Total	55,044	109,664	38,698	13,866	13,922
	13,069	31,113	14,046	4,992	4,439

Source : Central Bureau of Statistics

10.6.2. Export by Country of Destination

Initially, Indonesia exported concrete bar/profile to three countries, namely Japan, Singapore and USA. In the five-year period from 1987 to 1991, the number of export markets continued to increase, covering Asian countries and Middle-East countries.

The expansion of the export markets began in 1988 and 1989 the Middle-East countries (Iraq and Saudi Arabia) absorbed most of Indonesia's exports.

In 1987, the biggest volume of steel concrete bar/profil exports from Indonesia went to USA, amounted to 26,991 tons, valued at US$ 5,871,000. The second biggest volume at 25,548 tons, valued at US$ 6,587,000 went to Japan.

In 1988, continued to be the main export markets, but in the following year exports to the both countries dropped sharply, even in 1990 and 1991, there were not exports to USA and Japan.

According to the Central Bureau of Statistics, in 1991, concrete bar/profile exports went to only two countries, namely; Singapore and Thailand. Exports to Singapore amounted to 11,009 tons, valued at US$ 3,510,000, accounting for 70.1% and the rest went to Thailand. For details, see the following table.

Table - 10.8
Concrete bar/Profile Export by Country of Origin,
1987 - 1991

Tons
US$'000

Country of destination	1987	1988	1989	1990	1991
Japan	25,548 6,587	31,946 9,210	601 310	-	-
Hongkong	-	10,157 2,903	159 39	-	-
Singapore	2,505 611	2,801 810	1,059 398	2,623 903	-
U.S.A.	26,991 5,871	53,518 14,889	1,052 319	-	-
Malaysia	-	3,957 1,138	1,554 574	1,666 583	11,009 3,510
Thailand	-	5,257 1,618	10,358 3,602	3,038 1,087	-
Taiwan	-	2,130 545	-	-	-
Iraq	-	-	19,671 7,507	6,539 2,419	2,913 929
Saudi Arabia	-	-	2,498 838	-	-
Yemen Arab Rep.	-	-	1,578 251	-	-
Others	-	-	118 208	-	-
T o t a l	55,044 13,069	109,664 31,113	38,648 14,046	13,866 4,992	13,922 4,439

Source : Central Bureau of Statistics

10.7. Supply Development

The amount of supply ca be estimated by adding imports to domestic production less exports. On that basis, in the five-year period from 1987 to 1991, supply increased by 11.6% annually, from 879,296 tons in 1987 to 1,320,550 tons in 1991.

The highest increased by 30.8% at 1,231,291 tons occured in 1990. In the following year, concrete bar/profile supply rose again to 1,320,550 tons - up by 7.2% only from the previous year. For details, see the following table.

Table - 10.9
Estimated Supply of Concrete Bar/Profile,
1987 - 1991

(Tons)

Year	Production	Import	Export	Supply	Growth (%)
1987	894,720	39,620	55,044	879,296	-
1988	829,892	83,298	109,664	803,526	-8.8
1989	928,135	51,603	38,698	941,040	17.1
1990	1,189,987	55,170	13,866	1,231,291	30.8
1991	1,310,604	23,868	13,922	1,320,550	7.2
Average (%)					11.6

Source : Data Consult.

11. HEAVY PROFILE

11.1. The Number of Company and Their Production Capacities

Based on the record of the Department of Industry (1991), there are 7 heavy profile producers in Indonesia, with a total production capacity of 904,000 tons per year. In 1991, there are three new comers in heavy profile industry, namely; PT Gunung Garuda (350,000 tons), PT Palja Steel (30,000 tons) and PT The Master Steel (30,000 tons).

In terms of production capacity, the biggest production capacity is the production capacity of PT Gunung Garuda at 350,000 tons per year, followed in the second place by PT Cigading Habeam Center at 198,000 tons per year. The smallest production capacity are the production capacity of PT Palja Steel and PT The MAster Steel, with a production capacity of 30,000 tons per year respectively.

Heavy profile produced in Indonesia at present is produced through the welding process, except PT Gunung Garuda which uses the rolling process.

Table - 11.1
Heavy Profile Producers and Their Production Capacities, 1991

Name of Company	Production Capacity (Ton/Year)	Status
PT Alim Ampuh Jaya Steel	110,000	PMDN
PT Jaya Pari Steel	100,000	PMDN
PT Cigading Habeam Center	198,000	PMDN
PT Gunung Gahapi Sakti	46,000	PMDN
PT Mulcindo	40,000	Non-Fac
PT Palja Steel	30,000	PMDN
PT Gunung Garuda	350,000	PMDN
PT The Master Steel	30,000	PMDN
T o t a l	904,000	

Source : Department of Industry

11.2. Production Development

Since it began in 1987, heavy profile production in Indonesia has shown a significant growth. In the period from 1987 to 1991, heavy profile production increased by 27.4% annually, from 74,833 tons to 171,719 tons.

The biggest production increase occured in 1990, when PT Gunung Garuda started production. In that year, heavy profile production amounted to 176,439 tons - up by 88.1% from the previous year. According to the Department of Industry, in 1991, heavy profile production declined to 171,719 tons - down by 2.7% only. For details, see the following table.

Table - 11.2
Heavy Profile Production,
1987 - 1991

Year	Production (Ton)	Increase (%)
1987	74,833	-
1988	86,478	15.6
1989	93,791	8.5
1990	176,439	88.1
1991	171,719	- 2.7
Average (%)		27.4

Source : Department of Industry

11.3. Production by Company

As a pointed earlier, in 1991 heavy profile production amounted to 171,719 tons which produced by 4 companies. The capacity utilization rate of the industry was only 19.0%, with the highest capacity utilization rate achieved by PT Cigading Habeam Center, which produced 66,312 tons, accounting for 33.5% of its production capacity.

In the same time, PT Gunung Garuda produced 77,338 tons, accounting for 22.1% of its production capacity, and the rest PT Alim Ampuh Jaya Steel (20.8%) and PT Mulcindo (12.8%). For details, see the following table.

Table - 11.3
Heavy Profile Production by Company, 1991

Name of Company	Production (Ton)	Capacity Utilization (%)
PT Alim Ampuh Jaya Steel	22,933	20.8
PT Jaya Pari Steel	-	-
PT Cigading Habeam Center	66,312	33.5
PT Gunung Gahapi Sakti	-	-
PT Mulcindo	5,136	12.8
PT Palja Steel	-	-
PT Gunung Garuda	77,338	22.1
PT The Master Steel	-	-
T o t a l	171,719	19.0

Source : Department of Industry

11.4. Import Development

11.4.1. Import by Volume and Value

In the period from 1987 to 1991, heavy profile imports show a significant increase. Imports rose from 5,890 tons, valued at US$ 2,440,000 in 1987 to 9,759 tons, valued at US$ 7,321,000.

After declined in 1988, heavy profile imports rose to 6,031 tons, valued at US$ 4,364,000 - up by 42.9% from the previous year. Imports rose again to 9,759 tons, valued at US$ 7,321,000 - up by 8.5% only in volume from the previous year.

The type of heavy profile as " angle in other size" dominating of Indonesia's heavy profile imports in that period. For instance, in 1991, amounted to 8,393 tons, valued at US$ 5,956,000, accounting for 86% of the total heavy profile imports. For details, see the following table.

Table - 11.4
Heavy Profile Imports, 1987 - 1991

Ton
US$'000

Type	1987	1988	1989	1990	1991
Angle in Others	5,203	4,044	5,998	7,437	8,393
size	2,015	2,264	4,269	5,361	5,956
Angle Shape and	652	173	-	1,176	21
Section > 80 mm of	264	93		798	19
high carbon steel					
Angle shape and	35	19	33	381	1,338
section > 80 mm of	161	7	95	326	1,346
alloy steel					
Total	5,890	4,236	6,031	8,994	9,759
	2,440	2,364	4,364	6,485	7,321

Source : Central Bureau of Statistics

11.4.2. Import by Country of Origin

Japan is the biggest supplier of various typrs of heavy profile to Indonesia. Imports from Japan accounted for most of Indonesia's heavy profile imports in the five-year period from 1987 to 1991.

Imports from Japan amounted to 2,360 tons, valued at US$ 1,055,000, accounting for 40.1% in volume of the total imports in 1987, and increased to 6,678 tons, valued at US$ 5,014,000, accounting for 74.2% in volume of the total imports in 1990.

In 1991, imports from Japan declined to 4,184 ton, valued at US$ 3,407,000, accounting for 42.9% in volume of the total imports. Foolowed by South Korea amounted to 2,160 tons, valued at US$ 1,282,000, accounting for 22.1% in volume of the total imports. For details, see the following table.

Table - 11.5
Heavy Profile Import by Country of Origin,
1987 - 1991

Tons
US$'000

Country of Origin	1987	1988	1989	1990	1991
Japan	2,360	1,768	3,835	6,678	4,184
	1,055	941	3,221	5,014	3,407
Singapore	1,229	595	145	669	931
	428	294	97	515	613
South Korea	1,189	15	1,284	602	2,160
	531	11	567	287	1,282
Australia	178	711	-	-	261
	96	255			242
USA	34	91	101	209	242
	11	4	65	163	177
United Kingdom	446	506	213	398	698
	212	260	135	287	400
Belgium and Luxemburg	-	273	-	-	-
		185			
Others	454	277	453	438	1,022
	107	414	279	219	1,200
T o t a l	5,890	4,236	6,031	8,994	9,759
	2,440	2,364	6,485	7,321	7,321

Source : Central Bureau of Statistics

11.5. Supply Development

The supply of heavy profile in Indonesia mostly comes from domestic production. In the five-year period from 1987 to 1991, supply increased rapidly by an average 26.6% annually.

In that periode, the biggest of heavy profile supply occured in 1990, amounted 185,713 tons - up by 86% from the

previous year. In 1991, supply declined to 181,478 tons - down by 2.2% from the previous year. For details, see the following table.

Table - 11.6
Estimated Supply of Heavy Profile,
1987 - 1991

(Ton)

Year	Production	Import	Supply	Increase (%)
1987	74,833	5,890	80,723	-
1988	86,478	4,236	90,714	12.4
1989	93,791	6,031	99,822	10.0
1990	176,439	8,994	185,713	86.0
1991	171,719	9,759	181,478	- 2.2
Average (%)				26.6

Source : Data Consult

12. STEEL PIPE

12.1. Number of Company and Their Production Capacity

At present there are 28 steel pipe producers in Indonesia, with a total production capacity of 795,500 ton per year. Of the 28 producers, 23 produce straight welded pipe, with a total production capacity of 606,500 tons per year; and 5 produce spiral welded pipe, with a total production capacity of 189,000 tons per year. Only one company produces both straight and spiral welded pipes, namely ; PT Bumi Kaya Steel, with a production capacity of 42,000 tons of straight welded pipe and 30,000 tons of spiral welded pipe per year.

In the term of production capacity, the Bakrie & Brothers Group is the biggest producer, with the two plants producing straight welded pipe. PT Bakrie Pipe Industries produces steel pipe for water, oil and gas, with a production capacity of 100,000 tons per year; while PT Bakrie & Brothers also produces steel pipe for water, oil and gas, with a total production capacity of 39,000 tons per year. With its two plants, the Bakrie & Brothers Group has a total production capacity of 139,000 tons per year, accounting for 17,5% of the country's production capacity.

The other major producer is PT Krakatau Hoogoven International Pipe Industries (PT KHI), which produces spiral welded pipe and has production capacity of 81,000 tons per year. PT KHI wich operating under foreign investment (PMA), produces spiral welded pipe for water, oil and gas and other mining activities.

There are many steel pipe producers produce furniture pipe, of which the biggest is PT Aneka Jakarta Iron Steel, with a total production capacity of 40,000 tons per year. The Smallest steel pipe producer is PT Panca Pipando Indah, with a production capacity of 2,000 tons per year. For details, see the following table.

Table - 12.1
Steel Pipe Producers and Their Production Capacities, 1991

Name of Company	Status	Installed Capacity (Ton/Year)
A. STRAIGHT WELDED PIPE		
PT. Bakrie Pipe Industries	PMDN	100,000
PT. Radjin Steel Pipe Industry	PMDN	33,900
PT. Aneka Jakarta Iron	PMDN	40,000
PT. Spindo	PMDN	45,000
PT. Super Tata Raya	PMDN	35,000
PT. Continental Steel	Non-Fac.	72,000
PT. Bumi Kaya Steel	PMDN	42,000
PT. Bakrie & Brothers	PMDN	39,000
CV. Wira Mustika Indah	Non-Fac.	25,000
PT. Raja Besi	PMDN	37,000
PT. Indonesia Steel Tube Work	PMA	24,000
PT. Pabrik Pipa Baja Indonesia	PMDN	17,100
CV. Ahli Teknik	Non-Fac.	10,800
NV. Djohan Trading Company	PMDN	9,600
PT. Pipa Mas Putih	PMDN	7,200
PT. Jasa Karya	Non-Fac.	6,000
PT. Ginco Steel Pipe	Non-Fac.	4,800
PT. Cemara Indah Pipe Ind.	Non-Fac.	4,200
PT. Suspinco	Non-Fac.	10,000
PT. Panca Pipando Indah	Non-Fac.	10,000
PT. Alim Surya	Non-Fac.	2,000
PT. Inastu	Non-Fac.	20,000
PT. Indal Aluminium Industri	Non-Fac.	12,000
Sub-Total		606,500
B. SPIRAL WELDED PIPE		
PT. Krakatau Hoogoven International Pipe Industries (KHI)	PMA	81,000
PT. Indal Aluminium Industri	Non-Fac.	12,000
PT. Alim Ampuh Jaya Steel	PMDN	30,000
PT. Bumi Kaya Steel Industries	PMDN	30,000
PT. Indal Steel Pipe	Non-Fac.	36,000
Sub - total		189,000
T O T A L		795,500

Source : Data Consult

12.2. Production Development

After increasing for two consecutive years from 1989 to 1990, steel pipe production declined to 301,138 tons in 1991 - down by 15.2% from the previous year.

In the five years period from 1987 ton 1991, the highest increased of steel pipe production occurred in 1990, amounted to 354,948 tons - up by 30% from the previous year. The spiral welded pipe production in 1991, amounted 65,603 tons, accounting for 21.8% of the total steel pipe production and the rest was straight welded pipe amounted to 235,535 tons, accounting for 78.2% of the total production.

Table - 12.2
Steel Pipe Production,
1987 - 1991

Year	Spiral Welded pipe	Straight Welded pipe	T o t a l	Increase (%)
1987	35,743	214,681	250,424	-
1988	31,217	213,134	244,351	-2.4
1989	70,496	202,660	273,156	11.8
1990	73,415	281,533	354,948	30.0
1991	65,603	235,535	301,138	-15.2
Average (%)				6.1

Source : Department of Industry

12.3. Production by Company

In 1991, the average capacity utilization rate of the steel pipe producers were still low at, 37.8% only. The higher average capacity utilization rate was achieved by straight welede pipe producers (4 companies), indicating that they have a higher degree of efficiency. PT Super Tata Raya was able to achieved a capacity utilization rate of 98.6%, the highest among the domestic steel pipe producers. Among the spiral welded pipe producer, only PT Alim Ampuh Jaya Steel was able to achieved capacity utilization rate of 74.2%.

Some of the steel pipe producers were able to achieved capacity utilization rate below 40%, like PT Bakrie Pipe Industries (33.2%), PT Aneka Jakarta Iron Steel (37.2%), PT Spindo (28.3%) and the smallest was PT Ginco Steel Pipe (5%).

Table - 12.3
Steel Pipe Production by Company, 1991

Name of Company	Production (Ton)	Share (%)	Capacity Utilization (%)
A. STRAIGHT WELDED PIPE			
PT. Bakrie Pipe Industries	33,178	14.1	33.2
PT. Radjin Steel Pipe Ind.	26,731	11.3	78.9
PT. Aneka Jakarta Iron Steel	14,873	6.3	37.2
PT. Spindo	12,742	5.4	28.3
PT. Super Tata Raya	34,505	14.6	98.6
PT. Continental Steel	11,069	4.7	15.4
PT. Bumi Kaya Steel	37,950	16.1	90.4
PT. Bakrie & Brothers	17,556	7.5	45.0
CV. Wira Mustika Indah	0	0	0
PT. Raja Besi	17,756	7.5	48.0
PT. ISTW	19,417	8.2	80.9
PT. Pabrik Pipa Baja Indonesia	7,379	3.1	43.4
CV. Ahli Teknik	0	0	0
NV. Djohan Trading Company	0	0	0
PT. Pipa Mas Putih	1,243	0.5	17.3
PT. Jasa Karya	631	0.3	10.5
PT. Ginco Steel Pipe	238	0.1	5.0
PT. Cemara Indah Pipe Industry	0	0	0
PT. Suspinco	0	0	0
PT. Panca Pipando Indah	0	0	0
PT. Alim Surya	267	0.1	13.4
PT. Inastu	0	0	0
PT. Indal Aluminium Industri	0	0	0
Sub-total	235,535	100.0	38.8
B. SPIRAL WELDED PIPE			
PT. Krakatau Hoogoven International Pipe Industry (KHI)	35,318	53.8	43.6
PT. Indal Aluminium Industri	0	0	0
PT. Alim Ampuh Jaya Steel	22,267	33.9	74.2
PT. Bumi Kaya Steel	8,018	12.2	26.7
PT. Indal Steel Pipe	0	0	0
Sub-total	65,603	100.0	34.7
T O T A L	301,138		37.8

Source : Department of Industry

12.4. New Projects

Although the production capacity utilization rate in 1991 was only 37.8%, but several investors still interested to established the steel pipe industry.

According to the Investment Coordinating Board (BKPM), in the past two years 9 permits have issued for the establishment of a new steel pipe industry, with a production capacity of 786,000 tons per year, consist of 6 projects were straight welded pipe with a production capacity of 644,000 tons and 3 projects were spiral welded pipe with a production capacity of 142,000 tons per year.

Of the 9 projects, one project is an expaxsion project i.e PT KHI Pipe Indonesia. The company obtained approvals for setting up its plant with a production capacity of 40,000 tons per year. This expansion project is expected to be completed in 1994. The other spiral welded pipe projects will builb by PT Swarna Baja Pacific with a total production capacity of 60,000 tons and PT PD Industri Rajin with a production capacity od 42,000 tons per year, both are expected to completed in 1992.

In terms of production capacity, the largest one belongs to PT Gunawan Dia Jaya Steel. The company plans to establish a straight welded pipe industry with a production capacity of 400,000 tons per year. Followed by PT Citra Tubindo with a production capacity of 100,000 ton per year. For details, see the following table.

Table - 12.4
New and Expansion Projects of Steel Pipe Plant, 1991

Name of Company	Production Capacity (Tons/Year)	Start Operation Planned
Straight Weldes Pipe		
NEW PROJECT		
PT Sri Rejeki Perdana Steel	24,000	1992
PT Pusa Steel	60,000	1992
PT Cakung Prima Steel	30,000	1993
PT Citra Tubindo	100,000	1993
PT Gunawan Dian Jaya Steel	400,000	1993
PT Master Steel	30,000	1993
Sub - Total	644,000	

Table - 12.5 (cont'd)

Name of Company	Production Capacity (Tons/Year)	Start Operation Planned
Spiral Welded Pipe		
EXPANSION PROJECT		
PT KHI Pipe Indonesia	40,000	1994
NEW PROJECTS		
PT Swarna Baja Pacific	60,000	1992
PT PD. Industri Rajin	42,000	1992
Sub - Total	142,000	
Grand Total	786,000	

Source : The Investment Coordinating Board and Department of Industry

12.5. Import Development

12.5.1. Import by Volume and Value

In the period from 1987 to 1991, Indonesia steel pipe import were substantial both in volume and value, even in 1990 import rose by 40.3% in volume to 231,766 tons, valued at US$ 335,531,000 from 165,222 tons, valued at US$ 230,560,000 in the previous year. In 1991, steel pipe import amounted to 243,263 tons, valued at US$ 402,899,000 - up by only 5% in volume from the previous year.

In that period, imports dominated by seamless tube and pipe which are ussually used for oil/gas drilling and dustribution. For instance, in 1991 all types of seamless tube and pipe, especially for oil and gas drilling and distribution imports amounted to 125,125 tons, valued at US$ 181,747,000, accounting for 51.4% in volume of the total import. For details, see the following table:

Table - 12.5
Steel Pipe Imports, 1987 - 1991

Tons
US$'000

Type	1987	1988	1989	1990	1991
Pipe, diameter < 10cm	391	224	190	92	272
	651	600	334	163	515
Pipe, diameter < 10cm	809	582	5.805	464	1,444
> 25 cm	751	498	2.045	564	1,061
Pipe, diameter > 25 cm	2,869	1,402	2,053	1,978	5,182
	2,693	2,349	2,867	1,772	8,796
Tube and other Pipe	9,630	862	150	1,376	1,468
	12,487	1,295	623	2,192	2,904
Seamless Tube and Pipe	512	518	13	-	-
for Elect and Bike	759	1.295	623		
Seamless Tube and Pipe	16,124	14,766	16,013	24,040	20,759
for Oil and Gas Pipeline	13,824	19,247	18,099	22,273	17,184
Other Seamless Tube and	53,099	57,551	87,135	118,123	104,366
Pipe used in drilling	44,801	71,725	118,067	181,275	164,563
Oil and Gas					
Welded Tube and Pipe	10,136	6,645	8,046	21,434	21,708
for Bike and Elect.	8,509	9,591	9,215	23,327	25,496
and Other Welded Tube					
and Pipe Diameter					
< 4 inch or Less					
Other Welded Tube and	21,753	19,904	8,422	23,519	25,109
Pipe	23,368	17,802	9,215	23,287	31,748
Other Tube and Pipe	4,366	10,546	24,822	40,660	62,955
of Iron and Steel	4,329	11,416	46,212	80,678	150,632
Total	119,689	113,000	165,222	231,766	243,263
	112,172	135,151	230,568	335,531	402,899

Source : Central Bureau of Statistics

12.5.2. Import by Country of Origin

Japan was the biggest supplier of steel pipe to Indonesia throughout the five year period from 1987 to 1991. Imports fron Japan amounted to 83,680 tons, valued at US$ 92,617,000 in 1987, or 70.3% in volume of the total Indonesia's steel pipe imports. In 1991, imports from Japan amounted to 128,463 tons, valued at US$ 211,439,000 or 52.8% in volume of the total imports.

Other major supplier countries of steel pipe to Indonesia like USA, Mexico, Belgium & Luxemburg and the new comer is PR.China. In 1991, Imports from USA amounted

to 19,558 tons, valued at US$ 43,518,000, or 8.0% in volume of the total steel pipe imports. For details, see the following table.

Table - 12.6
Imports of Steel Pipe by Country of Origin,
1987 - 1991

Tons
US$'000

Country of origin	1987	1988	1989	1990	1991
Japan	83,680	64,925	73,571	111,552	128,463
	92,617	64,714	140,009	153,267	211,439
South Korea	8,153	6,617	4,800	9,716	7,377
	5,581	4,476	4,157	12,145	9,944
Singapore	4,644	4,136	2,272	8,446	5,358
	6,877	6,229	2,085	9,186	10,262
West Germany	4,768	3,003	21,508	-	-
	8,441	5,233	22,540		
Belgium & Luxemburg	-	2,744	13,590	7,661	11,547
	7,227	8,182	8,048	8,613	14,681
France	5,496	5,019	2,697	6,142	9,028
	7,227	8,182	8,048	15,626	23,923
U.S.A.	5,217	3,238	7,373	12,583	19,558
	9,005	5,445	6,892	24,042	43,518
Mexico	-	6,190	20,184	19,838	14,591
		8,783	20,085	24,122	22,594
P.R. China	-	-	-	2,300	11,343
				2,030	6,654
Taiwan	-	-	-	1,891	2,865
				1,812	7,512
Batam	-	-	-	13,418	5,322
Argentina	-	-	-	6,691	4,029
				8,418	5,142
Spain	-	-	-	1,420	1,922
				2,887	2,607
Italy	-	-	-	472	3,530
				1,591	2,747
F.R. Germany	-	-	-	15,477	9,700
				23,873	18,032
Others	7,731	8,789	19,227	15,552	10,552
	5,403	19,656	11,658	34,376	20,589
T o t a l	119,000	113,000	165,222	231,766	243,263
	112,172	135,151	230,568	335,531	402,899

Source : Central Bureau of Statistics

12.6. Export development

12.6.1. Exports still small

Although most of Indonesia's steel pipe production is intended for consumption within the country, the possibility for increasing steel pipe exports exists. Indonesia has been exporting steel pipe to a number of countries, but the quantities of its steel pipe exports are small, compared with its exports of other steel products.

So far, only a few of the domestic steel pipe producers have been exporting, including PT. Bakrie & Brothers, PT. Pabrik Pipa Indonesia and PT. ISTW. In spite of tough competition encountered, the three companies have been able to export to a number of countries, by taking advantage of the facility provided by the Government in the form of facility for importing steel pipe material and refunds of import duty paid on imported materials for products which are exported.

Most of steel pipe exported from Indonesia is straight welded steel pipe, while spiral welded steel pipe is exported only in a small volume.

Steel pipe exports in the period from 1987 to 1991 do not show a remarkable development. Exports amounted to 11,669 tons, valued at US$ 4,356,000, in 1987. Exports dropped by 18% to 9,276 tons, valued at US$ 9,025,000, in 1989 from 11,319 tons, valued at US$ 4,993,000 in 1988. For details, see the following table:

Table - 12.7

Steel pipe exports, 1987 - 1991

Year	Volume (Ton)	Value (US$'000)
1987	11,669	4,356
1988	11,319	4,993
1989	9,276	9,025
1990	7,166	5,866
1991	12,373	11,796

Source: Central Bureau of Statistics

Table - 12.7 shows that the volume of exports was very small, compared with the domestic production, and it fluctuated. Under the existing circumstances, it appears that not much can be expected from export markets in the next few years. The main obstacle confronting Indonesian steel pipe producers in relation to exports is price. Steel pipe produced in Indonesia is still uncompetitive in price, compared with steel pipe produced in other countries. Apart from that, only a few steel pipe producers in Indonesia already meet international quality standards.

12.6.2. Exports only to a few countries

In the period from 1987 to 1991, the main export market was USA, especially in 1987 and 1988. In 1990, although the volume of exports declined, the number of exports markets increased. The biggest export market in 1990 was Singapore, importing 4,416 tons, valued at US$ 4,706,000.

Table - 12.8
Steel pipe exports by country of destination, 1987 - 1991

Ton
US$'000

Country of destination	1987	1988	1989	1990	1991
Japan	-	-	3,096 2,722	- -	272 558
Singapore	-	1 1	3,738 4,371	4,496 4,706	6,768 8,210
U.S.A.	11,669 4,356	11,051 4,823	1,492 749	-	-
Australia	-	252 143	-	-	-
Thailand	-	-	-	97 90	-
Mozambique	-	-	-	1,000 325	-
Taiwan	-	-	-	167 563	-
Hongkong	-	-	-	19 29	1,219 534
Netherlands	-	-	-	746 67	-

Table - 12.8 (cont'd)

Country of destination	1987	1988	1989	1990	1991
					Ton
					US$'000
Malaysia	-	-	-	-	735 494
Phillippines	-	-	-	-	580 545
Middle East Countries	-	252 143	-	-	-
Others	-	15 17	369 550	8 17	445 928
T o t a l	11,669 4,356	11,319 4,993	9,276 9,025	7,166 5,866	12,373 11,796

Source: Central Bureau of Statistics

12.6.3. Supply increases again

The supply of steel pipe in Indonesia has shown a tendency to increase in the past few years. In the five year period from 1987 to 1991, supply increased in 1989 and 1990 but the increase was significant. The amount of supply can be estimated by adding imports to domestic production less exports.

On that basis, supply increased by 11.8% annually from 358,444 tons in 1987 to 532,028 tons in 1991. The increase in supply came from an increase in the domestic production and imports. It occured as a result of increased activities in various economic sectors using steel pipe as a raw material or as a production tool.

Table - 12.9

Estimated steel pipe supply, 1987 - 1991

(Ton)

Year	Production	Imports	Exports	Supply	Growth (%)
1987	250,424	119,689	11,669	358,444	-
1988	244,351	113,000	11,319	346,032	-3.5
1989	273,156	165,222	9,276	429,102	24.0
1990	354,940	231,766	7,166	579,548	35.0
1991	301,138	243,263	12,373	532,028	- 8.2
Average (%)					11.8

Source: Data Consult

13. G.I SHEET (Galvanized Iron Sheet)

13.1. The Number of Producers and Their Production Capacities

According to the Department of Industry, there are 20 companies in Indonesia producing GI Sheet, with a production capacity of 658,400 tons per year (1991), comparising 532,200 tons for plain GI Sheet and 126,200 for colorcoat GI Sheet.

Of the 20 producers, 6 produce both plain GI Sheet and colorcoat GI Sheet; 3 produce only colorcoat GI Sheet, namely PT Super Steel Indah (24,000 tons), PT Eastindo Utama Industry and PT Alin Ampuh Jaya, with a production capacity of 12,000 tons per year.

In terms of capacity, the biggest producer at present is PT Fumira. The company produces plain GI Sheet with a production capacity of 66,000 tons and colorcoat GI Sheet with aproduction capacity of 30,000 tons per year.

Another prominent GI Sheet producer in PT Tumbak Mas Inti Mulia produces plain GI Sheet with a production capacity of 52,000 tons and coloecoat GI Sheet with a production capacity of 25,200 tons per year and PT Keris Mas Sukses with a production capacity of 50,200 tons per year. The smallest producers are PT Utomo Galvanizing Industry and PT Gendus Steel with a production capacity of 12,000 tons per year. For details, see the following table.

Table - 13.1
GI Sheet Producers and Their Production Capacities, 1991

Name of company	Status	Production Capacity (Ton/year)
A. Not colorcoat G.I Sheet		
PT Keris Mas Sukses	PMDN	50,200
PT Fumira	PMA	66,000
PT Tumbak Mas Inti Mulia	PMDN	52,000
PT Amien Steel Work Co. Ltd.,	PMDN	36,000
PT Industri Baja Garuda	PMDN	36,000
PT Sermani Steel Corp.	PMDN	36,000
PT Kalisco, Surabaya	PMDN	25,000
CV Wira Mustika Indah, Medan	PMDN	25,000
PT Tumbak Mas Jaya	PMDN	18,000
PT Semarang Makmur	PMDN	48,000
CV Wira Mustika Indah, Jakarta	PMDN	27,000
PT Kalisco, Kalbar	PMDN	23,000
PT Polyguna Nusantara	PMDN	24,000
PT Intan Nasional Iron Steel	PMDN	24,000
PT Witico	PMDN	18,000
PT Utomo Galvanizing Ind.	PMDN	12,000
PT Gendus Steel (Dharma Niaga Putra Steel)	PMDN	12,000
Sub-total		532,200
B. Colorcoat G.I Sheet		
PT Keris Mas Sukses	PMDN	25,200
PT Super Steel Indah	PMDN	24,000
PT Fumira	PMA	30,000
CV Wira Mustika Indah	PMDN	15,000
PT Polyguna Nusantara	PMDN	8,000
PT Industri Baja Garuda	PMDN	6,000
PT Intan Nasional Iron Steel	PMDN	6,000
PT Estindo Utama Industry	Non-Fac.	0
PT Alim Ampuh Jaya	PMDN	12,000
Sub-total		126,200
T o t a l (A+B)		658,400

Notes :
PMA : Foreign Investment Scheme
PMDN : Domestic Investment Scheme
Source : Department of Industry

13.2. Production Development

After declining in 1988, GI Sheet production increased in the last three year. The highest production rate occurred in 1991, amounted to 196,936 tons - up by 14.5% from the previous year. But in 1988, production dropped sharply to 149,067 tons - down by 23.2% from the previous year.

In the period from 1987 to 1991, production showed a tendency to increase. GI Sheet production rose from 194,022 tons in 1987 to 196,936 tons in 1991 - up by 11.3% annually. The following table shows the trend of production:

Table - 13.2
GI Sheet Production, 1987 - 1991

Year	Production (Ton)	Growth (%)
1987	194,022	-
1988	149,067	-23.2
1989	154,942	3.9
1990	171,953	11.0
1991	196,936	14.5
Average (%)		1.6

Source : Department of Industry

13.3. Production by Company

The low demand of GI Sheet in the country has been responsible for the failure of several domestics GI Sheet producers to operate efficiently. This is indicated by the low capacity utilization rates of the domestic producers, with averaged 30% only in 1991. The highest capacity utilization rate in 1991 was achieved by CV Wira Mustika Indah, which produced 21,772 tons or 51.8% of its production capacity of 42,000 tons per year (Plain GI Sheet and Colorcoat GI Sheet).

The lowest capacity utilization rate in 1991 was achieved by PT Super Steel Indah, which produced 1,881 tons or 7% of its production capacity of 24,000 tons of colorcoat GI Sheet. Low capacity utilization rates were

achieved by the small and medium producers, but also by the big ones. PT Fumira, one of the big producers, was able to produce only 19,960 tons of plain GI Sheet or 30.2% of its production capacity and its colorcoat GI Sheet production only accounted for 20.5% of ita production capacity.

Table - 13.3
GI Sheet Production by Company, 1991

Name of Company	Production (Ton)	Capacity Utilization (%)
A. Not Colorcoat G.I Sheet		
PT Keris Mas Sukses	22,293	44.4
PT Fumira	19,960	30.2
PT Tumbak Mas Inti Mulia	11,941	23.0
PT Amien Steel Work Co. Ltd.,	0	0
PT Industri Baja Garuda	6,020	16.7
PT Sermani Steel	15,872	44.1
PT Kalisco, Surabaya	9,092	36.4
CV Wira Mustika Indah, Medan	8,262	33.0
PT Tumbak Mas Jaya	0	0
PT Semarang Makmur	14,722	30.7
CV Wira Mustika Indah, Jakarta	21,772	80.6
PT Kalisco, Kalbar	8,500	37.0
PT Polyguna Nusantara	1,205	5.0
PT Intan Nasional Steel	32,394	135.0
PT Witico	3,846	21.4
PT Utomo Galvanizing Ind.	0	0
PT Gendus Steel	0	0
(Dharma Niaga Putra Steel)		
Sub-total	175,879	33.0
B. Colorcoat G.I Sheet		
PT Keris Mas Sukses	12,948	51.4
PT Super Steel Indah	1,681	7.0
PT Fumira	6,136	20.5
CV Wira Mustika Indah	0	0
PT Polyguna Nusantara	0	0
PT Industri Baja Surabaya	0	0
PT Intan Nasional Iron	0	0
PT Estindo Utama Industry	79	0
PT. Alim Ampuh Jaya	213	2.0
Sub-total	21,057	16.7
T o t a l (A+B)	196,936	30.0

Source : Department of Industry

13.4. New Projects

According to the Investment Coordinating Board (BKPM), in the past two years only one permits has been issued for the establishment of a new GI Sheet plant of PT Lancar Sentosa. The plant, which is designed to have a production capacity of 10,000 tons per year, will be set up in Bekasi, West Java, with an investment of around Rp 5.5 billion under the PMDN scheme. The plant is expected to completed in 1993.

13.5. Import Development

13.5.1. Import by Volume and Value

Although the demand within the country has been low in the past few year, GI Sheet with spacifications not yet produced in Indonesia continues to be imported.

According to the Central Bureau of Statistics, in periode from 1987 to 1991, GI Sheet imports rose from 2.875 tons, valued at US$ 1,658,000 in 1987 to 18,203 tons, valued at US$ 14,435,000 in 1991. The highest increased in this period occurred in 1989, amounted to 11,486 tons - up by 120.5% in volume from the previous year. In the following years, GI Sheet imports continues to increase. For details, see the following table.

Table - 13.4
GI Sheet Imports,
1987 - 1991

Year	Volume (Ton)	Value (US$'000)
1987	2,875	1,658
1988	5,208	3,522
1989	11,486	9,677
1990	15,138	11,658
1991	28,203	14,435

Source : Central Bureau of Statistics

13.5.2. Import by Country of Origin

In the period from 1987 to 1991, the major suppliers of GI Sheet to Indonesia were Japan and Australia. In this period, Japan contonued to be the biggest supplier. In 1987, imports from Japan amounted to 1,994 tons, valued at US$ 1,217,000, accounting for 69.4% in volume and the second place was Australia, amounted to 757 tons, valued at US$ 370,000, accounting for 26.3% in volume of the total imports.

In 1991, GI Sheet import from Japan amounted to 15,593 tons, valued at US$ 11,672,000, accounting for 85.7% in volume, while Australia amounted to 1,377 tons only, valued at US$ 833,000, accounting for 7.6% in volume of the total imports.

The other supplier countries of GI Sheet to Indonesia, which small quantities, were South Korea, Germany, Singapore and Finland. For details, see the following table.

Table - 13.5
GI Sheet Imports by Country of Origin,
1987 - 1991

Tons
US$'000

Country of origin	1987	1988	1989	1990	1991
Japan	1,994	2,940	9,759	12,835	15,593
	1,217	2,163	8,393	9,932	11,672
South Korea	109	490	51	654	51
	53	406	39	520	39
Australia	757	1,711	1,377	1,531	1,377
	370	844	833	1,068	833
Singapore	15	-	96	19	96
	16		69	22	69
F.R. Germany	-	-	199	5	199
			329	3	329
Finland	-	-	-	-	399
					247
Others	-	67	6	94	114
	3	109	14	113	96
T o t a l	2,875	5,208	11,486	15,138	18,203
	1,658	3,522	9,677	11,658	14,435

Source : Central Bureau of Statistics

13.6. Export Development

13.6.1. Export by Volume and Value

In period from 1987 to 1991, GI Sheet exports has been fluctuating with a tendency to increase. In 1987, there was no GI Sheet exports, but in the following year exports amounted to 5,350 tons, valued at US$ 2,563,000, and increased sharply to 24,223 tons, valued at US$ 20,218,000 - up by almost four times in volume from the previous year.

After declining in 1990, GI Sheet exports rose again to 28,169 tons, valued at US$ 19,761,000 in 1991 - up by 141.7% in volume from the previous year.

Table - 13.6
G.I Sheet Exports,
1987 - 1991

Year	Volume (Ton)	Value (US $ '000)
1987	-	-
1988	5,350	2,563
1989	24,223	20,218
1990	11,655	8,130
1991	28,169	19,761

Source : Central Bureau of Statistics

13.6.2. Export by Country of Destination

In 1989, when the number of export market rose further, Iraq was the biggest export market. Export to that country amounted to 12,658 tons, valued at US$ 11,309,000, accounting for 52.2% in volume of the total exports. Singapore was second after Iraq, importing 4,182 tons, valued at US$ 3,151,000, accounting for 17.3% in volume of the total export.

According to the Central Bureau of Statistics, in the last two year, Singapore was the biggest export market. In 1990, exports to Singapore amounted to 10,744 tons, valued at US$ 7,515,000, accounting for 92.2% in volume, while in 1991, exports amounted to 27,902 tons, valued at US$ 19,502,000, accounting for 99.1% in volume of the total exports.

Table - 13.7
GI Sheet Exports by Country of Destination, 1987 - 1991

Ton
US$'000

Country of destination	1988	1989	1990	1991
Hongkong	4,685	3,744	414	-
	2,147	2,891	281	
Singapore	648	4,182	10,744	27,902
	404	3,151	7,515	19,502
Philippines	-	99	250	-
		55	150	
P.R. China	-	1,547	-	-
		1,202		
South Korea	-	1,005	-	-
		794		
Pakistan	17	681	18	-
	11	520	6	
Iraq	-	12,656	-	-
		11,309		
U S A	-	222	10	-
		230	9	
Vietnam Rep. Soc.	-	-	200	18
			151	14
Sri Lanka (Ceylon)	-	-	19	-
			16	
Burma	-	-	-	247
				206
Others	-	-	1	2
			2	39
T o t a l	5,350	24,223	11,655	28,169
	2,563	20,218	8,130	19,761

Source : Central Bureau Statistic

13.7. Supply Development

The amount of supply can be estimated by adding imports to domestic production less exports. On this basis, it is estimated that supply in period from 1987 to 1991, increased by an average of 1.7% only annually, from 197.897 tons in 1987 to 196,970 tons in 1991.

After decline in 1988 and 1989, supply rose in the last two year. In 1990, supply rose to 175,436 tons - up by 23.4% in volume from the previous year, while in 1991 increased by 12.3%. For details, see the following table.

Table - 13.8
Estimated GI Sheet Supply, 1987 - 1991

Year	Production	Import	Export	Supply	Growth (%)
1987	194,022	2,875	-	196,987	-
1988	149,067	5,208	5,350	148,925	- 24.4
1989	154,942	11,486	24,223	142,205	- 4.5
1990	171,953	15,138	11,655	175,436	23.4
1991	196,936	28,203	28,169	196,970	12.3
Average (%)					1.7

Source : Data Consult.

14. TINPLATE

14.1. Number of Companies and Their Production Capacities

PT Pelat Timah Nusantara (Latinusa) is the only tinplate producer in Indonesia. The company, which set up in 1982 under the domestic invesment scheme (PMDN) and its palnt in Cilegon, West Java, is a joint venture between two state companies, namely ; PT Krakatau Steel and PT Tambang Timah, and a domestic provate company, PT Nusantara Ampera Bhakti (Nusamba). The company's shareholding composition is as follow: PT Tambang Timah 61.&%, PT Krakatau Steel 14.3% and PT Nusamba 24%.

14.2. Production Development

PT Latinusa started production in 1985, produced only 5,639 tons, but its production continued to rise in the following year. After dropped sharply by 37.3% to 82.144 tons in 1989, tinplate prόduction rose again in the last two year. In 1990, production rose by 34.3% and in 1991 rose again to 130,983 tons - up by 18.7% from the previous year.

In terms of capacity utilization, PT Latinusa's capacity utilization reached its optimum level in 1991 when its production reached its peak.

Table - 14.1
Tinplate Production,
1987 - 1991

Year	Production (Ton)	Increase (%)
1987	100,000	-
1988	130,000	30.1
1989	82,144	-37.3
1990	110,356	34.3
1991	130,983	18.7

Source : Department of Industry

14.3. Import Development

14.3.1. Import by Volume and Value

The domestic requirement for tinplate is met by the domestic production and by imports. The types of tin plate imported especially those not yet produced wiyhin the country.

In the period from 1987 to 1991, tinplate imports continued to increased. The biggest volume of imports was achieved in 1990 at 37,452 tons, valued at US$ 27,782,000 - up by 23.1% in volume from the previous year.

In 1991, tinplate imports dropped to 27,619 tons, valued at US$ 23,087,000 - down by 26.3% in volume from the previous year.

Table - 14.2
Tinplate Imports, 1987 - 1991

Tons
US$'000

Type	1987	1988	1989	1990	1991
- Tinned plaste and sheet lackquared.	650 240	10 10	-	-	-
- Tinned plaste and sheet of iron and steel not further-ed worked.	19,803 12,521	25,148 15,578	25,981 21,325	36,710 27,214	27,578 23,069
- Other tinned plate and sheet of iron and steel not furthered worked.	744 285	517 373	4,455 3,121	-	-
- Sheets and plates thickness > 0.5mm plated/coated with tin, carb >0.6%.	-	-	-	2 9	-
- Flat rolled products plated/coated with tin thick >0,5mm, not surf. treat.	-	-	-	307 252	-
- Flat rolled pro-ducts plated or coated with tin thickness < 0.5mm	-	-	-	431 307	41 18
T o t a l	21,197 13,046	25,675 15,961	30,436 24,461	37,452 27,782	27,619 23,087

Source : Central Bureau of Statistics

14.3.2. Import by Country of Origin

Indonesia imports tinplate from various countries in Asia, Europe and USA. In the periode from 1987 to 1991, Japan was the main supplier of tinplate to Indonesia.

Japan dominated Indonesia's tinplate imports in the 1987 - 1991 period. In 1987, imports from Japan amounted to 10,130 tons, valued at US$ 8,217,000, accounting for 47.8% in volume of the total imports, while in 1991, imports from Japan amounted to 22,025 tons, valued at US$ 19,351,000, accounting for 79.7% in volume of the total imports. In second place after Japan was USA, in 1991, that country supplying 1,383 tons, valued at US$ 861,000, accounting for 5% only in volume of the total imports.

Other suppliers included South Korea, Austrlia, United Kingdom, France and Netherland. For details, see the following table.

Table - 14.3
Tinplate Imports by Country of Origin, 1987 - 1991

Tons
US$'000

Country of Origin	1987	1988	1989	1990	1991
Japan	10,130 8,217	10,751 8,990	21,996 19,288	26,595 21,051	22,025 19,351
South Korea	1,211 536	84 72	1,706 1,598	1,666 1,057	1,285 749
Australia	1,936 843	662 206	1,520 754	2,119 1,618	890 705
U.S.A.	2,970 1,174	1,282 872	523 276	2,275 1,297	1,363 861
Canada	650 240	-	-	-	200 117
Brazil	248 105	1,623 615	-	-	-
Netherlands	175 64	2,397 1,333	357 161	357 161	165 87
France	1,365 708	960 471	455 216	569 351	183 102
F.R. Germany	-	1,335 761	407 250	-	-
United Kingdom	-	3,986 1,786	692 249	2,466 874	-
Malaysia	-	-	-	-	268 219
Taiwan	-	-	-	1,021 982	-
Others	2,512 1,159	2,595 855	2,780 1,669	382 234	1,240 896
T o t a l	21,197 13,046	25,675 15,961	30,436 24,461	37,450 27,782	27,619 23,087

Source : Central Bureau of Statistics.

14.4. Export Development

14.4.1. Export by Volume and Value

Although still small quantities, Indonesia has been exporting tin plate since 1987 under direct purchase or counter trade arrangements. In the period from 1987 to 1991, exports has been fluctuating with a tendency to decline. The highest exports was achieved in 1988 at 17,770 tons, valued at US$ 10,315,000. In the following year, exports dropped sharply to 3,083 tons, valued at US$ 2,519,000 - down by 82.7% in volume in the previous year.

In 1991, tinplate exports dropped again to 1,459 tons, valued at US$ 984,000 - down by 74.8% in volume from the previous year.

Table - 14.4
Tinplate Exports, 1987 - 1991

Tons
US$'000

Type	1987	1988	1989	1990	199
Sheets and plates thicknes > 0.5mm plated/coated with tin, carb. >0.6 %	-	-	-	-	11 6
Tinned plated and sheet of iron and steel not further worked	9,377 6,196	16,761 9,819	2,250 1,684	5,795 4,539	1,17 74
Other tinned plate and sheet of iron and steel	1,412 851	1,009 496	833 635	-	
Others flt rolled products plated or coated with tin thickness <0.5mm)	-	-	-	-	17 17
T o t a l	10,789 7,047	17,770 10,315	3,083 2,519	5,795 4,539	1,45 98

Source : Central Bureau of Statistics

14.4.2. Export by Country of Origin

Tinplate exports from Indonesia are still limited to a few countries, especially Asian countries, namely; Singapore, Hongkong and Thailand. The European export markets include Spain, Italy and Belgium & Luxemburg.

In 1988, Thailand was the biggest export market, importing 5,781 tons, valued at US$ 3,049,000, followed by Singapore in second place, with 5,698 tons, valued at US$ 3,209,000.

In the same year, Italy importing 3,011 tons, valued at US$ 2,017,000 and Spain importing 2,896 tons, valued at US$ 1,819,000. In the following year, there were exportto the European countries.

In 1991, the biggest tinplate export went to Singapore, amounted to 1,134 tons, valued at US$ 716,000, acoounting for 77.7% in volume of the total export. The rest in the small quantities went to Hongkong, Malaysia and Thailand, For details, see the rollowing table.

Table - 14.5
Tinplate Export by Country of Destination, 1987 - 1991

Ton
US$'000

Country of destination	1987	1988	1989	1990	1991
Singapore	3,577 2,827	5,698 3,209	993 731	-	1,134 716
Thailand	2,827 1,772	5,781 3,049	-	-	38 24
Hongkong	-	190 108	1,610 1,209	-	193 211
Malaysia	-	-	424 340	-	94 33
Spain	4,299 3,016	2,896 1,819	-	-	-
Italy	63 42	3,011 2,017	-	-	-
Belgium & Luxemburg	-	182 105	-	-	-
Iraq	-	-	-	5,795 4,537	-
Others	23 8	12 8	56 239	- 2	-
T o t a l	10,789 7,047	17,770 10,315	3,083 2,519	5,795 4,539	1,459 984

Source : Central Bureau Statistics

14.5. Supply Development

The supply of tinplate in Indonesia in the five year period from 1987 to 1991 continued to increase, except in 1989 when there was a significant decline of 20.6% from the previous year. Overall, supply in that period increased by 11.2% annually.

The amount of tinplate supply within the country can be estimated by adding imports to domestic production less exports. On this basis, tinplate supply was 110,408 tons in 1987 and increased to 157,143 tons in 1991. The estimated supply is as follows:

Table - 14.6
Estimated Supply of Tinplate,
1987 - 1991

Ton

Year	Production	Import	Export	Supply	Growth (%)
1987	100,000	21,197	10,789	110,408	-
1988	130,000	25,675	17,770	137,905	24.9
1989	82,144	30,436	3,083	109,502	-20.6
1990	110,356	37,452	5,795	142,013	29.6
1991	130,983	27,629	1,459	157,143	10.7
Average (%)					8.8

Source : Data Consult.

15. C-CHANNEL

15.1. The Number of Companies and Their Capacities

At present, there are 22 C-channel producers in Indonesia, with a total production capacity of 261,400 tons per year. Most of them are small to medium size companies, as indicated by their production capacities and the absence of large - scale steel companies in C-channel manufacturing.

All the C-channel producers within the country are domestic investment (PMDN) and Non-facilities schemes. Of the existing producers only 5 have production capacities above 10,000 tons per year and the rest have production capacities below that.

In terms of production capacity, the biggest producers is PT Gunung Kawi Jaya has a production capacity of 86,400 tons per year. Other major producers in the terms of production capacity are PT Continental Steel and CV Ahli Tekknik Indonesia , with also produces other steel products, besides C-channel. PT Continental Steel has a production capacity of 28,000 tons and CV Ahli Teknik Indonesia has a production capacity of 24,000 tons per year.

The other C-Channel producers with also produce other steel products or have a sister companies producing other steel products include PT Aneka Jakarta, PT Lion Metal Works, PT Super Tata Raya and PT Raja Besi.

C-Channel producers which have small production capacities do not produce other steel products and most of them do not belong to the steel manufacturing group, for example CV Jasa Karya and CV Perjuangan. For details, see the following table :

Table - 15.1
C-Channel Producers and Their Production Capacities, 1991

Name of Company	Production Capacity (Ton/Year)	Status
CV. Ahli Teknik Indonesia	24,000	PMDN
PT. Super Tata Raya	20,000	PMDN
PT. Lion Metal Works	19,000	PMDN
PT. Continental Steel	28,000	Non-Facility
PT. Aneka Jakarta	9,400	PMDN
CV. Wira Mustika Indah	9,000	PMDN
PT. Raja Besi	6,000	PMDN
PT. Sarana Steel	5,000	PMDN
PT. Jatim Mustika Sarana	7'000	PMDN
PT. Spindo	5,000	PMDN
PT. Jaya Pari Steel	5,000	PMDN
PT. Gunung Kawi Jaya	86,400	PMDN
PT. Rajin Steel	7,000	PMDN
NV. Djohan Trading Co.	2,400	PMDN
CV. Jasa Karya	1,500	Non-facility
PT. Estindo Utama Indonesia	1,000	PMDN
PT. Growth Sumatra	2,000	PMDN
PT. Muara Pluit	5,000	PMDN
PT. Cahaya Baja Tama	6,000	Non-Facility
PT. The Master Steel	5,000	PMDN
PT. Interworld Steel	3,000	PMDN
CV. Perjuangan	4,500	Non-facility
T o t a l	261,400	

Source : Department of Industry

15.2. Production Development

C-channel production in the period from 1987 to 1991 contiued to declined from 48,085 tons in 1987 to 44,848 tons in 1991 or average by 0.7% annually.

The highest C-channel prodution level in that period was achieved in 1990 at 52,786 tons - up by 23.7% from the previous year. In the following year, production dropped sharply to 44,848 tons - down by 15% from the previous year. For details, see the following table.

Table - 15.2
C-Channel Production, 1987 - 1991

Year	Production (Ton)	Growth (%)
1987	48,085	-
1988	44,055	-8.4
1989	42,679	-3.2
1990	52,786	23.7
1991	44,848	-15.0
Average (%)		- 0.7

Source : Department of Industry

15.3. Production by Company

As a pointed out earlier, C-channel production in Indoneisa in 1990 was 44,848 tons, which means that only 17.2% of the country's production capacity was utilized - a very low capacity utilization rate.

Low capacity utilization has been experiences by all the major producers and most of the smaller producers. For Example, PT Continental Steel produced only 15,633 tons in 1991 or 55.8% of its production capacity. Low capacity utilization rate were achieved by PT Super Tata Raya and PT Lion Metal Works.

The smaller producers were able to achieve higher capacity utilization rates. For example, PT Raja Besi produced 5,761 tons or 96% of its production capacity. PT Jatim Mustika Sarana, PT Aneka Jakarta and PT Sarana Steel respectively had capacity utilization rates of 65.8%, 79% and 121.4%. For details, see the following table.

Table - 15.3
C-channel Production by Company, 1991

Name of Company	Production (ton)	Capacity Utilization (%)
CV. Ahli Teknik Indonesia	0	0
PT. Super Tata Raya	2,031	10.2
PT. Lion Metal Works	0	0
PT. Continental Steel	15,633	55.8
PT. Aneka Jakarta	7,430	79.0
CV. Wira Mustika Indah	0	0
PT. Raja Besi	5,761	96.0
PT. Sarana Steel	6,070	121.4
PT. Jatim Mustika Sarana	4,605	65.8
PT. Spindo	2,093	41.9
PT. Jaya Pari Steel	2	0
PT. Gunung Kawi Jaya	0	0
PT. Rajin Steel	425	6.1
NV. Djohan Trading Co.	0	0
CV. Jasa Karya	323	2.1
PT. Estindo Utama Indonesia	107	10.7
PT. Growth Sumatra	0	0
PT. Muara Pluit	0	0
PT. Cahaya Baja Tama	0	0
PT. The Master Steel	0	0
PT. Interworld Steel	0	0
CV. Perjuangan	368	8.2
T o t a l	44,848	17.2

Source : Department of Industry

15.4. New Projects

In the period from 1990 to 1991, the Investment Coordinating Board (BKPM) issued 8 permits for C-channel plant projects, with a total production capacity of 233,000 ton per year. In terms of production capacity, PT Alim Ampuh Jaya Steel appears to be the largest with a production capacity of 100,000 ton per year. The samllest is PT Bangun Sarana Baja, with a production capacity of 6,000 tons per year.

Two projects, PT Bangun Bajasewaka (10,000 tons) and PT Bangun Sarana Baja (6,000 tons), are expected to com-

pleted in 1993. PT Sri Rejeki Perdana Steel (45,000 tons), PT Alim Ampuh Jaya Steel (100,000 tons) and PT Erabaja Prima Sukses (12,000 tons) are expected to be completed in 1993. The rest are expected to completed in 1994, except PT Akurasi Kuatama, with a production capacity of 15,000 tons per year is expected to be completed in 1995. For details, see the following table.

Table - 15.4
New Projects oi C-channel Plants,
1991

Name of Company	Production Capacity (Tons/Year)	Start Operation Planned
PT Bangun Bajasewaka	10,000	1992
PT Bangun Sarana Baja	6,000	1992
PT ALim Ampuh Jaya Steel	100,000	1993
PT Sri Rejeki Perdana Steel	45,000	1993
PT Erabaja Prima Sukses	12,000	1993
PT Cakung Prima Steel	30,000	1994
PT Karyasugih Perkasa	15,000	1994
PT Akurasi Kuatama	15,000	1995
T o t a l	233,000	

Source : The Investment Coordinatting Board and Department of Industry

15.5. Import Development

15.5.1. Import by Volume and Value

The weak demand for C-channel within the country is evident not only in the decline of production but also in the trend of imports. C-channel imports countinued to decline from 1987 to 1988 and in the following year there were no imports.

In 1988, C-channel imports declined to 494 tons, valued at US$ 383,000 - down by 35% from the previous year.

Table - 15.5
C-Channel Imports, 1987 - 1991

Year	Volume (Ton)	Value (US$'000)
1987	760	284
1988	494	383
1989	-	-
1990	-	-
1991	-	-

Source : Central Bureau of Statistics

15.5.2. Import by Country of Origin

Most of Indonesia's C-channel imports come from Japan, and the rest from other countries, including Singapore, Brazil and USA.

In the 1988, imports from Japan amounted to 664 tons, valued at US$ 247,000, accounting for 87% in volume of the total imports. In the following year, imports from Japan amounted 252 tons, valued at US$ 176,000, accounting for 51% in volume of the total imports. For details, see the following table.

Table - 15.6
C-channel Imports by Country of Origin,
1987 - 1991

Ton
US$'000

Country of origin	1987	1988	1989	1990	1991
Japan	664 247	252 176	-	-	-
Singapore	47 6	96 31	-	-	-
U.S.A.	11 16	8 6	-	-	-
Brazil	-	119 62	-	-	-
Others	38 15	19 108	-	-	-
T o t a l	760 284	494 383	-	-	-

Source : Central Bureau of Statistics

15.6. Supply Development

The supply of C-channel within the country in the period from 1987 to 1991 shows an average decline by 1.3% annually, from 48,845 tons in 1987 to 44,848 tons in 1991.

In 1990, C-channel supply increased to 52,786 tons - up by 23.7% from the previous year, but in 1991, supply declined to 44.848 tons - down by 15% from the previous year. For details, see the following table.

Table - 15.7
Estimated of C-Channel Supply,
1987 - 1991

(Ton)

Year	Production	Imports	Supply	Growth (%)
1987	48,085	760	48,845	-
1988	44,055	494	44,549	-8.8
1989	42,679	-	42,679	-4.9
1990	52,786	-	52,786	23.7
1991	44,848	-	44,848	-15.0
Average (%)				-1.3

Source : Data Consult.

16. STEEL STRIP

16.1. The Number of Producers and Their Production Capacity

According to the Department of Industry, there are 8 steel strip producers in Indonesia, with a production capacity of 67,600 tons per year.

In terms of production capacity, the biggest producer is PT Super Tata Raya, with a production capacity of 20,000 tons per year, followed by PT Aneka Jakarta, with a production capacity of 12,000 tons per year. The other major producers are PT Fonder Steel and PT Cemara Indah Pipe Industry, with a production capacity of 10,000 tons per year each.

The other producers which have smaller production capacities but are more prominent in other steel manugacturing include PT Jaya Pari Steel, which is known as a producer of HR Plate product, and PT Alim Surya Steel, which known as a producer of various steel product.

Table - 16.1
Steel Strip Producers and Their Production Capacities, 1991

Name of Company	Production Capacity (Ton/year)	Status
PT. Super Tata Raya	20,000	PMDN
PT. Aneka Jakarta	12,000	PMDN
PT. Fonder Steel	10,000	PMDN
PT. Cemara Indah Pipe Industry	10,000	Non-Facility
PT. Cigading Habeam Center	10,000	PMDN
PT. Jaya Pari Steel	5,000	PMDN
PT. Alim Surya Steel	3,400	PMDN
PT. Tomy Kencana	1,200	-
T o t a l	71,600	

Source : Department of Industry

16.2. Production Development

Steel strip production in the period from 1987 to 1991 shows increases, execpt in 1991. The biggest increase at 84.2% was achieved in 1988 when production reached 22,227 tons. In the following years, production also shows a small increase. Production in 1987 - 1991 period shows an average increase of 11.1% annually.

Table - 16.2
Steel Strip Production,
1987 - 1991

Year	Production (Ton)	Growth (%)
1987	12,069	-
1988	22,227	84.2
1989	22,925	3.1
1990	24,133	5.3
1991	12,476	-48.3
Average (%)		11.1

Source : Department of Industry

16.3. Production by Company

The average capacity production utilization rate of the domestic steel strip producers is still low, becaused a several of them were not able to produce, like PT Super Tata Raya, PT Aneka Jakarta Iron Steel and PT Alim Surya Steel. As pointed out earlier, steel strip production in 1991 was 12,476 tons, which means that only 18.5% of the country's production capacity.

PT Fonder Steel was able to produce 7,500 tons or 75% of its production capacity in 1991. In the same time, PT Cigading H-Beam Center was able to produced 3,900 tons or 65% of its production capacity. Steel strip producer which achived low capacity utilization rates included PT Jaya Pari Steel and PT Tomy Kencana, which produced only 516 tons and 560 tons respectively. The following table shows steel strip production by company in 1991 :

Table - 16.3
Steel Strip Production by Company, 1991

Name of Company	Production (Ton)	Capacity Utilization (%)
PT. Super Tata Raya	-	-
PT. Aneka Jakarta Iron Steel	-	-
PT. Fonder Steel	7,500	75.0
PT. Cemara Indah Pipe Industry	-	-
PT. Cigading Habeam Center	3,900	65.0
PT. Jaya Pari Steel	516	10.3
PT. Alim Surya Steel	-	-
PT. Tomy Kencana	560	46.7
T o t a l	12,476	18.5

Source : Department of Industry

16.4. Import Development

16.4.1. Import by Volume and Value

In the period from 1987 to 1991, steel strip imports has beem fluctuating with a tendency to decline. The biggest volume of steel strip imports in that period occured in 1988 at 13,251 tons, valued at US $ 14,108,000 almost double in volume from the previous year.

In the following years, steel strip imports continued to decline, in 1991, imports amounted to 812 tons, valued at US$ 4,180,000 - down by 19.4% in volume from the previous year. In that period, imports declined sharply occured in 1990 at 1,007 tons, valued at US$ 4,081,000 - down by 90.7% from the previous year. For details, see the following table.

Table - 16.4
Steel Strip Imports, 1987 - 1991

Ton
US$'000

Type	1987	1988	1989	1990	1991
Tape band hope for hand	4,409	7,584	7,960	452	363
	3,068	5,585	5,108	995	856
Other hoop and strips of iron or steel	1,444	2,786	1,435	-	-
	949	2,156	683		
Hoop and strips of high carbon	53	260	139	50	46
	130	380	594	110	91
Hoop and strips of alloy steel	904	2,621	1,499	505	403
	1,923	5,987	1,554	4,081	3,233
Total	6,810	13,251	11,033	1,007	812
	6,070	14,108	7,940	4,081	4,180

Source : Central Bureau of Statistics

16.4.2. Import by Country of Origin

In the period from 1987 to 1991, South Korea and Japan were the biggest supplier of steel strip to Indonesia for three year from 1987 to 1989. In 1987, South Korea was the biggest supplier, supplying amounted to 3,162 tons, valued at US$ 1,669,000, accounting for 46.4% in volume of the total importd. Followed by Japan at 2,213 tons, valued at US$ 2,756,000, accounting for 32.5% in volume of the total imports.

In the following year, Japan was the biggest supplier, supplying amounted 5,243 tons, valued at US$ 7,557,000, accounting for 36.9% in volume of the total imports.

In 1991, when steel strips import declined sharply, Japan still was the biggest supplier. Imports from Japan amounted 173 tons, valued at US$ 1,134,000, accounting for 21.3% in volume of the total imports. Followed by PR. China at 153 tons, valued at US$ 78,000. For details, see the following table.

Table - 16.5
Import of Steel strip by country of Destination, 1987 - 1991

Ton
US$'000

Country of Destination	1987	1988	1989	1990	1991
Japan	2,213 2,756	5,243 7,557	4,444 2,348	198 774	173 1,134
South Korea	3,162 1,669	4,429 2,766	1,191 652	38 53	42 127
Singapore	111 123	1,175 1,169	663 658	-	105 191
PR China	277 130	496 247	1,983 1,187	-	153 78
Taiwan	-	947 1,139	341 216	-	121 330
Australia	553 525	-	-	-	49 316
United Kingdom	25 817	38 169	-	-	-
USA	-	-	-	-	137 1,064
Others	469 891	923 1,061	2,411 2,879	-	32 940
T o t a l	6,810 6,070	13,251 14,108	11,033 7,940	1,007 4,081	812 4,180

Source : Central Bureau of Statistics

16.5. Supply Development

The amount of steel strip supply in Indonesia can be estimated by adding imports to domestic production. Supply in the period from 1987 to 1991 shows a low growth rate of only 2.7% annually.

The biggest increase in supply occurred in 1988, when supply reached 35,478 tons - up by 87.9% from the previous year. In the following years, supply continued to decline. In 1991, supply amounted only to 13,288 tons - down by 47.1% from the previous year.

Table - 16.6
Steel Strip Supply, 1987 - 1991

(Ton)

Year	Production	Imports	Supply	Growth (%)
1987	12,069	6,800	18,879	-
1988	22,227	13,251	35,478	87.9
1989	22,925	11,033	33,958	-4.3
1990	24,133	1,007	25,140	-25.7
1991	12,476	812	13,288	-47.1
Average (%)				2.7

Source : Data Consult

* * *

17. RECENT ECONOMIC DEVELOPMENTS AND PROSPECT OF 1992

17.1. Indonesia's economic activity slowed in 1991 and expected to remain so in 1992

Indonesia's economic structure has been unuergoing a process of change towards a stronger economy, especially as a result of the greater role and diversification of economic activities of the private and public sectors. This develop ment has brought about a fairly high economic growth in the country in 1989 and 1990, at 7.5% and 7.4% respectively, higher than the annual growth target set for the current five-year development period (Pelita V) at 5%. This is interesting tc note, as the world's economy recorded an average growth rate of only 2.8% in the same years and many countries were struggling to prevent an economic decline.

In 1991, however, the economic situation was not so favourable. It was widely believed that Indonesia's economic activities in 1991 were influenced by the Tight Money Policy (TMP), the high inflation rate and high interest rates plus current accounts which registered an increasingly high defi cit. The country's economic growth rate in 1991 was estimat edly only 6.1%.

The agricultural sector was affected by the long drought which caused production of rise and other food crops to drop to the extent that BULOG had to import 600,000 tons of rice. In 1991 the growth of the agricultural sector is estimated as having been only 2.1%.

In 1991 the mining sector grew at a slower pace as oil prices are estimated to have averaged only US$ 20 per barrel (Minas), below the 1990 average of US$ 22 per barrel. The price of some minerals rose, while the price of others dropped. The average increase in the mining sector in 1991 is estimated to have been only 1.8%.

The industrial sector was hard hit by the Tight Money Policy (TMP) and high interest levels and thus the growth rate in 1991 was only 9.5% in comparison with 12.3% in 1990. The industrial sector also includes oil and LNG refineries, whose production cost dropped slightly in line with drops in the price of crude oil.

Two sectors which played quite a big rose are trading and tourism sectors which were able to register higher growth

rates than in 1990, i.e. 6.8% in comparison with 6.62% in 1990. This reasonable increase derived mainly from the activities of hotels and restaurants which made good progress in 1991.

In 1991, banks and financial institutes suffered certain drawback due to changes in Government policy and the TMP. Thus their growth level was only 5.6% in comparison with 11.65% in 1990. The construction sector was also adversely affected by TMP and thus the growth rate in this sector was only 11.2% in comparison with 14.24% in 1990.

The transportation and communication sector were affected by the slackness experienced in other sectors and thus the growth rate was only 8.8% in 1991 in comparison with 9.98% in 1990. Overall Indonesia's economy is estimated to have grown 6.1% in 1991 in comparison with 7.5% in 1990 and 7.4% in 1989 (see Table - I.1).

Table - 17.1

Indonesia's economic growth by sector 1)
1984 - 1992

(In percent)

Economic sector	1984	1985	1986	1987	1988	1989	1990	1991 2)	1992 3)
1. Farming, livestock, fishery and forestry	4.21	4.25	2.59	2.14	4.67	4.33	2.76	2.12	2.50
2. Mining and quarrying	6.29	-9.58	5.35	0.35	-2.89	5.25	4.28	2.51	1.80
3. Manufacturing	22.05	11.19	9.29	10.61	11.99	9.89	12.30	9.55	11.50
4. Electricity, gas and clean water	3.22	11.39	19.09	15.08	10.97	12.55	17.88	18.36	19.10
5. Construction	-4.42	2.60	2.24	4.21	9.50	11.77	14.24	11.24	9.30
6. Trade, hotel and restaurant	3.44	4.98	8.06	7.15	9.06	10.05	8.31	9.21	9.10
7. Transportation and communication	8.42	0.99	4.04	5.79	5.53	8.74	9.98	8.79	8.70
8. Banking and other financial institution	19.94	6.76	15.32	5.06	2.54	14.29	11.65	5.65	4.80
9. Housing rent	2.38	2.05	3.42	4.27	4.08	4.27	4.20	4.36	4.40
10. Government and defence	4.99	7.64	6.31	7.24	7.68	5.86	4.60	4.52	4.70
11. Services	3.87	2.03	2.78	3.74	4.32	4.09	4.48	4.38	4.50
Gross Domestic Product (GDP)	6.98	2.46	5.87	4.93	5.73	7.54	7.37	6.14	6.40

1) Gross Domestic Product (GDP)
2) DATA CONSULT's estimate
3) Projection by DATA CONSULT
Source: CBS (Processed)

There have been a lot of predictions about 1992. The Governor of Bank Indonesia, Adrianus Mooy, like other Government officials has expressed his confidence that the Indonesian economy in 1992 and the years to follow will continue to develop well. The TMP will be relaxed in 1992 by, for example reducing the interest rate of Bank Indonesia's certificates (SBI) and extending more money market securities by charging better interest rate (SBPU).

It is expected that interest rates will drop in 1992 pioneered by all state-owned banks and 8 private banks. It is expected that interest rates will drop by at least 2 - 3% below the current levels of between 26 - 28% a year for working capital credit.

The prediction of the Minister for Finance, J.B. Sumarlin, is even more explicit i.e. that the Indonesian economy will grow at a rate of 6%, slightly higher than the average of 5% targeted for Repelita V. The Finance Minister stated that TMP is to be relaxed, but gradually to prevent this policy boomeranging. Prof. Sadli, the former Minister for Mining also estimates that the Indonesian economy will grow at a rate of 6% a year.

Prof. Sumitro Djojohadikusumo, the former Minister for Trade and a senior economic expert is of the opinion that it is not the TMP which has caused slow economic growth, but the unfavourable conditions of Indonesian economy in 1991 and most likely in 1992. According to Prof. Sumitro, the results of TMP have been more acute because the business world has a liquidity preference and thus need more money, which is already in short supply, becoming even scarcer.

Prof. Sumitro has also stated that economic slackness is likely to continue to up to the middle of 1993 in line with the cycles that after 2 - 4 years of economic progress there is a recession and economic slackness.

The above comments are similar in that they are not all that optimistic, but present hope for improvement. The rate of economic growth is estimated at around 6% a year. However Kwik Kian Gie, another prominent economic observer is more pessimistic. He has stated that Indonesia's economy is moving towards a depression in 1992 and that it will be difficult to avoid bankruptcies and lay-offs.

The economic prospects of 1992 will be influenced greatly by the agricultural sector whose role still accounts for 19% of the total GDP. In 1992 rice and food crops production

will be greatly influenced by drought. Thus the growth rate will continue low i.e. 2.5% a year.

The mining sector will be greatly influenced by the price of oil which is expected to drop to an average of US$ 18 per barrel as Kuwait's and Iraq's oil production will increase. This sector is expected to register a growth rate of 1.8% in 1992.

The electricity sector is expected to improve in the second half of 1992. Thus activity in the industrial sector should increase as long as there is no problem with marketing local production domestically or overseas. Several industrial sectors, such as the automotive industry, will continue to be slack. In fact some people predict that this industry will register a negative growth rate of minus 12% due to liquidity problems and the increase in sales tax on luxury items which will mean an increase of around 10% in the price of vehicles.

Industries which are expected to make good progress are labour-intensive industries such as the leather goods industry, footwear, textiles and ceramics. It is these types of industries which will push industrial growth up by 11.5% this year. Other sectors which are expected to register in creased growth rates this year are trade and tourism which are estimated to rise by 7.1%.

Overall economic growth for 1992 is estimated to be 6.4%, slightly better than in 1991 (see Table - I.2). As has been stated, the business climate is expected to improve as the TMP will be relaxed and the supply of electricity will improve. However there will continue to be hindrances to development such as drought, high interest rates and inflation.

17.2. The economic structure is changing

The relatively high growth rate experienced by the manufacturing sector in contrast to the slowly growing agricultural sector has been changing the structure of Indonesian economy toward a more industrialized stage as presented in Table - I.2.

The manufacturing industry is moving to the top started in 1991 replacing agriculture, followed by the trade and tourism sector as number 3 sector. Public and defence sector and construction and transportation sectors have also moved up, but they are still below the public and defence sector. The relatively high income shared by the public sector and defence is indicating that in Indonesia, the public sector is

still important although deregulation process has aken place for quite a long time.

The Government has also attempted to increase productive activities through deregulation measures in the real sector, resulting in an impressive increase in industrial output. In the 1984 - 1991 period, the manufacturing sector grew by 15.7% annually, increasing its contribution to the country's GDP to 19.8% in 1991 from 14.5% in 1984. The growth of the manufac turing sector was in line with the Government's policy as contained in the Fifth Five-Year Development Plan (Repelita V), which calls for the creation of balance between the indus trial and agricultural sectors, which is expected to have a positive impact on the country's economic growth. During the same period, the agricultural sector dropped from 22.3% to 19.1%, and the mining sector from 20.6% to 14.9%. Trade and tourism sector, like manufacturing, increased its contribution from 14.2% to 16.2% during the same period.

Table - 17.2

Economic Distributions by Sector

(In percent)

Economic sector	1984	1985	1986	1987	1988	1989	1990	1991 1)	1992 1)
1. Farming, livestock, fishery and forestry	22.29	22.68	21.98	21.40	21.18	20.58	19.58	19.06	18.50
2. Mining and quarrying	20.62	18.20	18.10	17.31	15.90	15.59	15.19	14.92	14.03
3. Manufacturing	14.55	15.79	16.29	17.18	18.19	18.48	19.29	19.82	20.81
4. Electricity, gas and clean water	0.39	0.48	0.48	0.52	0.55	0.57	0.63	0.75	0.78
5. Construction	5.29	5.30	5.12	5.08	5.26	5.48	6.71	7.22	6.23
6. Trade, hotel and restaurant	14.22	14.57	14.87	15.19	15.07	16.06	18.64	18.78	17.03
7. Transportation and communication	5.35	5.27	5.18	3.23	5.21	5.28	6.39	6.62	5.80
8. Banking and other financial institution	3.41	3.55	3.87	3.87	3.75	4.00	4.79	4.82	4.07
9. Housing rent	2.91	2.89	2.83	3.81	2.78	2.68	3.00	2.92	2.51
10. Government and defence	7.22	7.59	7.62	7.79	7.94	7.82	8.78	8.62	7.37
11. Services	3.75	3.74	3.66	3.60	3.57	3.46	3.45	3.38	3.00
Gross Domestic Product (GDP)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

1) DATA CONSULT's estimate
Source: CBS (Processed)

Another feature of Indonesia's economic progress is the decline in the number of people living under the poverty line from 30 million at the end of 1987 to 27.2 million or about 15% of Indonesia's population in 1990. The decline in the number of poor people living in the rural areas was even bigger than that in the number of people living in the urban areas, reflecting an improvement in the quality of the lives of people in the rural areas, who account for the majority of the Indonesian people.

The Government's efforts to achieve national economic developments, namely: growth, stabi ity and equality, are pursued through economic reforms, which essentially aim at the restructuring of Indonesia's economic system through more effective and efficient utilization of economic potentials. Escalated economic development since the 1980s, following the decline in the price of oil in the world market in 1986/87, has brought about substantial and fundamental changes in Indonesia's economy as a whole. This is reflected in, among other things, a greater share of private enterprises in investments in various sectors, resulting in the growth of production centers and a greater capacity of the domestic market.

Another change is the increase in the share of non-oil/gas exports in the country's export earnings, reducing Indonesia's dependence on oil and gas export earnings and strengthening the country's economic base. These developments have been the key elements in Indonesia's economic development in the past decade.

Those developments have been supported by the growth of financial institutions and the capital market, which has accelerated the mobilization of public funds and increased domestic investments, creating a more stimulating business climate. The Indonesian Government has attempted to ensure that there is a continuous interaction between the financial and real sectors because it makes possible economic transactions and greater economic growth. However, many observers maintain that the Government has not been fully successful in this regard, as the real sector has not been handled properly.

17.3. Globalization demands adjustments

Although it has been able to reduce its economic dependence on external factors, especially on the world demand for oil and gas, which continues to fluctuate, as an open country Indonesia is still subject to the effects of world economic developments, especially in relation to the price of oil and

gas, foreign currency exchange rates, interest rates on foreign loans and direct private investments.

With the growing international money and capital market, Indonesia has now become part of the globalized trading and financing systems.

In the globalized economic system at the moment, competition among nations, especially in trade and investments, is becoming more intense, in which countries with economic efficiency will benefit from the merging of major economic systems, as a result of the growing imbalance in international trade and foreign exchange transactions.

Both the Government and observers agree that Indonesia can not sit back and wait for changes to occur in the world's economy before making adjustments. They also concur that Indonesia can not escape the current globalization trend, which is affecting the country's economy directly or indirectly.

They believe that Indonesia should increase its economic efficiency and productivity and pursue market expansion abroad. Apart from that, the country should become part of the globalized economy and adapt to the rhytm and course of the world's economy.

Under such circumstances, Indonesia is expected to benefit from the merging of world economic systems and to exploit each opportunity arising from changes in the world's economy which is in favor of Indonesia.

Unlike some countries, economic growth and stability is of great importance to Indonesia, because the country adopts a free system of foreign currency traffic, which involves the risk of capital flow from the country in the event of unfavorable economic developments in the country. Consistent application of a free system of foreign currency traffic, accompanied by economic restructuring towards greater efficiency and productivity has produced rapid and fundamental changes in Indonesia's economy. These changes have also been made possible by support from the business sector and greater confidence of the international community in Indonesia's ability to manage its economy.

Indonesia enjoys a considerable advantage in being located in the world's region with the most rapid and dynamic economic development in the past decade. Impressive economic developments in East and South East Asia have brought about an

increase in investment, trade and in the flow of capital between countries in the regions, which include Indonesia.

Indeed, the 1980s and the early 1990s have witnessed economic awakenings in many developing countries in the world. At the moment, no fewer than a dozen developing nations are carrying out major economic reforms towards a more open economy.

In the global context, this development may accelerate the flow of trade and capital in the world, promising a better world economic situation. However, for developing countries this trend may intensify competition in international trade and in obtaining foreign loans and investments.

Fundamental changes have been taking place in the economic and political systems of socialist and communist countries, like the Soviet Union, China, Vietnam, East European countries, Latin American and African countries, which are moving towards the market-economy system. The reunification of Germany is likely to influence the course and amount of funds from industrial to developing countries.

The failure of the Uruguay Round and the continuing practices of protectionism by advanced industrial countries and the tendency of a number of countries to form economic cooperation groupings are believed to be favorable for certain countries but not for the creation of an open world trade.

For developing countries in general, international trade has a substantial share in their national income and constitutes a major source of foreign exchange. In the world's economic history, international trade has been credited as a source of economic reforms and technological transfer, which has aided developing countries in stepping up economic growth and in improving living standards. Therefore, a slow growth in the world's economy will not be helpful to efforts to reduce the level of poverty, which is still widespread in the world, and to efforts to create a sounder and more equitable world economic order.

18. Development of Manufacturing Industry

18.1. Production Development

The Department of Industry puts manufacturing industries in three groups, namely: Basic Chemical Industries, Machine and Basic

Metal Industries and Multifarious Industries, and each group is supervised by a Directorate General.

In the past five years, most of the existing manufacturing industries have been growing significantly, especially those which have successfully gained access to export markets.

The following table shows the production trends of the existing manufacturing industries in Indonesia, based on data collected by the Department of Industry.

The table is based on the fiscal year which begins in April each year and ends in March in the following year, in accordance with the Five Year Development Plan (Repelita), which is also based on the fiscal year. However, sometimes the Department of Industry does not consistently use the fiscal year as a base and treats production figures based on the calendar year as production figures based on the fiscal year.

Table - 18.1

Production Development of Basic Chemical Industries, 1983/84 - 1990/91

No.	Type of Product	Unit	1983/84	Repelita IV					Repelita V	
				1984/85	1985/86	1986/87	1987/88 1)	1988/89 2)	1989/90	1990/91
I.	RUBBER AND CELLULOSE PRODUCT									
1.	Paper	000 tons	369	543	552	629	792	948	1,149	1,400
2.	Pulp	000 tons				85	95	104	211	377
3.	Car tires	000 pac	3,673	3,944	4,086	4,935	5,086	6,396	7,377	8,220
4.	Motor bike tires	000 pac	2,439	2,230	2,313	3,093	3,370	4,869	5,490	5,829
5.	Bicycle tires	000 pac	8,031	9,235	10,327	11,200	9,856	10,049	13,393	16,158
II.	AGROCHEMICALS									
6.	U r e a	000 tons	2,255	3,044	3,690	3,957	4,046	4,246	4,892	5,131
7.	Amonosium Sulphate (ZA)	000 tons	208	356	482	575	604	586	615	636
8.	TSP Fertilizer	000 tons	783	1,027	1,051	1,169	1,177	1,166	1,273	1,245
9.	Amoniac	000 tons	177	258	336	272	298	357	369	313
10.	Pesticide Formulation	000 tons	41	53	55	58	36	36	21	35
11.	Pesticide Active - Ingredients	000 tons	-	1	3	3	4	3	1	2
III.	ORGANIC CHEMICALS									
12.	Synthetic Resin	000 tons	11	38	45	46	52	46	53	81
13.	Nylon Tyre Cord	000 tons	-	-	6	7	11	13	16	21
14.	PVC Resin	000 tons	64	69	73	88	83	82	108	162
15.	Formalin	000 tons	111	269	289	314	545	560	n.a.	n.a.
16.	CA and AS Citrat	000 tons	5	10	7	10	6	15	16	21
17.	Textile Chemicals	000 tons	11	11	13	15	15	15	19	23

Table - 18.1 (cont'd)

No.	Type of Product	Unit	1983/84	Repelita IV					Repelita V	
				1984/85	1985/86	1986/87	1987/88 1)	1988/89 2)	1989/90	1990/91
18.	Pigment and Dispersion	000 tons	1	2	1	2	2	2	2	3
19.	Sodium Lauryl Sulphate (SLS) & Sodium Lauryl Ethyl Sulphate (SLES)	000 tons	-	9	9	11	11	14	27	29
20.	ABS (Alky Benzene - Sufonate)	000 tons	39	52	60	62	53	59	61	76
21.	Explosive	000 tons	1	1	1	1	1	1	1	1
22.	Alcohol & Spirits	Kilo ltrs	33	34	30	34	37	55	80	91
23.	Polystyrene	000 tons	-	-	8	14	12	14	13	14
24.	Dioctyl Phatalic	000 tons	-	-	10	24	22	23	n.a.	n.a.
25.	G.A	000 tons	31	34	36	45	50	61	75	81
26.	M S G	000 tons	33	37	39	49	57	65	79	88
27.	P T A	000 tons	-	-	-	56	122	121	117	106
28.	Methanol	000 tons	-	-	-	100	190	253	215	194
29.	Alkyl Benzene	000 tons	-	-	9	50	55	72	69	77
30.	Heavy Alkylate	000 tons	-	-	3	14	9	13	9	11
31.	Sorbitol	000 tons	-	-	-	1	2	4	6	9
32.	Active Carbon	000 tons	-	-	-	-	3	4	7	8
33.	Polyprophylene	000 tons	-	-	8	14	12	6	4	6
36.	Adhesive resin	000 tons	111	269	289	314	547	646	728	854
37.	Polyol	000 tons	-	-	-	-	-	-	7	19
38.	Asetate Acids	Kilo ltrs	-	-	-	-	-	-	3,226	11,245
39.	Ethyl Acids	Kilo ltrs	-	-	-	-	-	-	3,307	4,950
40.	Benzene	000 tons	-	-	-	-	-	-	-	9
41.	Paraxylene	000 tons	-	-	-	-	-	-	-	20
IV.	ANORGANIC CHEMICALS									
42.	Portland Cement (PC)	000 tons	8,102	8,821	9,805	10,941	12,331	15,218	14,099	15,783
43.	White PC	000 tons	69	80	84	88	112	125	101	107
44.	Sheet Glass	000 tons	146	152	182	189	225	313	320	354
45.	Fiber Glass	tons	-	-	-	-	-	-	500	4,000
46.	Soda	000 tons	14	23	34	35	36	38	104	207
47.	Sulphuric Acids	000 tons	224	411	715	775	812	876	891	894

Table - 18.1 (cont'd)

No.	Type of Product	Unit	1983/84	Repelita IV					Repelita V	
				1984/85	1985/86	1986/87	1987/88 1)	1988/89 2)	1989/90	1990/91
48.	Alumunium Sulphate	000 tons	31	39	37	45	49	60	61	67
49.	Oxygen	000 m3	31,709	46,700	49,290	54,327	59,800	68,770	79,085	90,948
50.	Carbon Dioxide and Dry Ice	000 tons	12	19	19	20	21	23	27	31
51.	Acetylene	000 m3	1,504	1,824	1,596	1,637	1,687	1,985	2,283	2,625
52.	Zinc Oxide	000 tons	2	3	3	4	5	5	6	6
52.	Chloric Acids	000 tons	11	14	24	39	76	79	79	92
53.	Sodium sulphate	000 tons	21	23	24	36	30	36	45	46
54.	Zinc Chloride	000 tons	1	4	4	5	7	7	6	7
55.	Sodium Silicate	000 tons	4	65	69	71	72	72	73	73
56.	Calcium Carbonate	000 tons	7	14	13	41	56	71	72	78
57.	Alumunium Flouride	000 tons	-	1	6	6	7	10	8	9
58.	Gypsum	000 tons	-	30	135	230	339	490	472	479
59.	Nitrogen	000 m3	14,877	23,841	25,030	26,280	31,700	32,754	37,521	41,273
60.	Argon	000 m3	283	301	372	375	393	420	450	480
61.	Hidrogen	000 m3	826	879	881	692	826	931	1,070	1,231
62.	Nitrous Oxide	000 m3	41	42	55	56	72	78	86	94
63.	Sodium Hydroxide (100%)	000 tons	14	23	34	35	37	38	n.a.	n.a.
64.	Sodium Tripoly Phosphate (STPP)	000 tons	-	-	-	-	-	-	-	12
65.	Salt	000 tons	620	370	762	318	1,255	749	457	900

Notes: 1) Revised figures
2) Preliminary figures
Source : Ministry of Industry

Table 18.2

Production Development of Multifarious Industries, 1983/84 - 1990/91

No.	Product	Unit	1983/84	Repelita IV					Repelita V	
				1984/85	1985/86	1986/87	1987/88 1)	1988/89	1989/90	1990/91
I.	FOOD MANUFACTURING INDUSTRY									
1.	Coconut Cooking Oil	000 tons	382	267	396	257	446	478	486	490
2.	Palm Cooking Oil	000 tons	342	605	490	588	664	728	846	969
3.	Margarine (incl.shortening)	000 tons	85	34	17	19	27	34	38	44
4.	Clove Cigarettes	million pcs	68,200	79,677	84,144	96,300	112,300	124,200	130,400	139,300
5.	White Cigarettes	million pcs	28,065	27,065	24,049	21,200	21,470	17,600	30,300	34,800
6.	Milk Powder	tons	27,900	29,500	28,600	27,300	28,660	19,900	39,100	42,900
7.	Condensed Sweetened Milk	4)	5,335	5,132	5,084	4,737	4,620	97	101	113
8.	Fresh Milk	000 litres	18,643	25,100	1,700	18,200	16,160	19,740	13,300	21,500
9.	Frozen Prawn and Fish	000 tons	40	45	47	48	49	53	n.a.	n.a.
10	Sacharine & syclamate	tons	5,561	3,599	5,481	4,780	5,277	6,700	8,820	6,550
11.	Wheat Flour	000 tons	1,722	1,293	1,502	1,591	1,702	1,185	1,260	1,252
12.	Canned Fruits and Vegetable	tons	34,494	40,861	51,418	96,300	100,350	112,300	114,000	114,900
13.	Canned Fish	tons	91,640	103,560	128,470	150,100	157,610	164,200	186,300	194,500
14.	Animal Feed	000 tons	1,240	1,501	1,601	1,747	1,961	2,242	2,458	2,650
15.	Tonic Food and Drink	tons	n.a	n.a	2,594	2,875	3,294	n.a.	n.a.	n.a.
16.	Instant Coffee	tons	n.a	n.a	496	551	606	n.a.	n.a.	n.a.
17.	Sweets	000 tons	n.a	n.a	26	28	29	n.a.	n.a.	n.a.
18.	Beer 3)	000 litres	96,256	47,404	60,831	63,965	82,787	n.a.	n.a.	n.a.
II.	TEXTILE INDUSTRY									
	Staple Fibres	tons	86,510	105,157	109,150	120,164	139,685	160,200	170,700	177,000
19.	Rayon Fibres	tons	30,000	31,822	34,200	40,544	46,148	n.a.	n.a.	70,400
20.	Polyster Fibres	tons	56,510	73,335	74,950	79,620	93,267	105,996	104,663	106,600

Table - 18.2 (cont'd)

No.	Product	Unit	1983/84	Repelita IV					Repelita V	
				1984/85	1985/86	1986/87	1987/88 1)	1988/89	1989/90	1990/91
	Yarns including Filament									
21.	Weaving Yarns	000 bales	1,662	1,782	1,465	1,621	2,041	2,712	3,405	3,573
22.	Polyster Filament Yarn	tons	50,558	62,812	63,200	83,962	88,153	n.a.	n.a.	n.a.
23.	Nylon Filament Yarn	tons	9,333	11,300	11,680	11,680	12,019	n.a.	n.a.	12,870
	C l o t h e s									
24.	Woven Fabrics	million metres	2,347	2,402	2,124	2,347	2,833	2,965	n.a.	4,319
25.	Knitted Fabrics	million metres	152	163	375	414	200	n.a.	n.a.	762
26.	Garment	million dozens	22	26	27	29	34	39	49	59
27.	Textile Colouring Materials	tons	175	175	603	1,081	1,550	2,080	3,981	5,200
III.	CHEMICAL INDUSTRY									
28.	PVC Pipes	tons	31,628	48,650	51,800	55,750	57,558	60,200	61,800	74,700
29.	Imitation Le ther	000 metres	43,763	40,000	34,846	34,263	35,014	36,800	37,500	43,100
30.	Formica	000 sheets	1,000	732	780	-	-	-	-	-
31.	Paint and polish	tons	59,988	60,000	62,715	70,363	71,166	73,400	79,700	116,200
32.	Washing Soap	tons	109,000	160,000	161,368	162,335	164,166	165,500	165,700	191,200
33.	Toilet Soap	tons	58,200	133,000	150,300	158,510	165,454	174,800	177,900	202,900
34.	Detergent	000 tons	75,500	118,000	144,590	160,453	162,070	175,000	193,200	212,600
35.	Matches	million boxes	817	1,525	2,214	2,364	2,425	2,669	2,807	2,908
36.	Tooth Paste	tubes	165,120	240,000	351,000	474,750	484,200	515,000	573,000	635,000
37.	Printing ink	tons	4,042	6,560	7,661	8,289	8,612	10,100	12,100	13,600
38.	Cardbroad boxes	tons	95,347	180,000	184,200	191,891	186,726	195,700	209,500	263,300
39.	Crumb Rubber	tons	639,800	825,000	824,670	883,653	946,552	961,300	1026,800	1037,500
40.	Rubber/Canvas Shoes	000 pairs	28,400	31,240	33,327	35,619	40,002	44,600	156,700	142,700
41.	Plastic Sacks	million sheets	203	284	376	390	401	442	442	468
42.	Fish nets	tons	3,750	3,850	3,986	4,075	4,305	4,312	4,700	5,200
43.	Diazo paper	tons	-	800	900	1,000	1,000	960	1,104	1,159
44.	Glycerol/Glycerine	tons	-	-	-	-	-	-	9,200	13,300
45.	Fatty Acid	tons	-	-	-	-	-	-	51,000	58,900
46.	Disposable Syringe	million pcs	-	-	-	-	-	-	145	159

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Table 18.2 (cont'd)

No.	Product	Unit	1983/84	Repelita IV					Repelita V	
				1984/85	1985/86	1986/87	1987/88 1)	1988/89	1989/90	1990/91
IV.	ELECTRIC & ELECTRICITY INDUSTRY									
47.	Motorcycle	Units	379,335	272,218	226,788	310,776	249,573	264,000	n.a.	n.a.
48.	Batteries	000 units	4,080	5,339	5,688	5,844	6,151	6,147	6,412	7,980
49.	Radio Cassette	000 units	1,503	1,577	1,883	1,650	1,080	1,681	n.a.	n.a.
50.	Television sets	000 units	623	773	750	700	640	530	n.a.	n.a.
51.	Sewing Machines	000 units	290	253	171	128	137	52	34	29
52.	Dry Batteries	million units	634	772	952	1,000	1,001	1,017	1,078	1,158
53.	Flourescent Lampe	million units	55	53	86	88	92	108	138	172
54.	Refrigerator	000 units	139	119	149	148	159	104	138	159
55.	Sprayer	000 units	170	188	230	243	249	249	284	311
56.	Amplifier	000 units	16	99	111	120	110	53	n.a.	n.a.
57.	Decorative lamp	000 units	3,908	4,221	5842	212,449	12,494	n.a.	n.a.	n.a.
58.	Ballast	000 units	-	3,892	540	401	981	n.a.	n.a.	n.a.
59.	Starter	000 units	16,620	20,920	17,190	17,362	17,487	17,890	n.a.	n.a.
60.	Air Conditioner	000 units	69	59	53	47	49	67	79	99
61.	Electric/Telephone Cable	000 tons	50	52	58	59	59	59	65	72
62.	Fans	000 units	891	895	992	720	568	664	825	924
63.	Variable Resistor	000 units	2,20	2,083	2,462	3,029	2,152	2,977	n.a.	n.a.
64.	Tuner	000 units	182	136	187	201	209	150	n.a.	n.a.
65.	Cassette Recorder	000 units	288	461	353	306	239	337	n.a.	n.a.
66.	Pressure Lamp	C00 units	1,600	624	531	502	409	440	n.a.	n.a.
67.	Fire Extinguisher	000 units	76	105	43	26	26	26	n.a.	n.a.
68.	Bicycle	000 units	1,400	1,437	1,365	1,400	1,440	1,450	1,476	1,608
69.	Camera	000 units	-	-	-	-	-	574	1,278	1,643
70.	Bolt & Nuts	000 tons	-	-	-	-	-	14	15	22
71.	Nail	000 tons	-	-	-	-	-	210	214	225
72.	Steel Wire	000 tons	-	-	-	-	-	131	143	156
73.	Can Making	000 tons	-	-	-	-	-	-	99	108
V.	BUILDING MATERIALS INDUSTRY AND OTHERS									
74.	Sawntimber	000 cu.m	8,180	8,786	9,437	9,900	10,183	10,319	10,854	11,100
75.	Plywood	000 cu.m	2,566	4,249	4,715	5,175	6,160	6,940	7,691	8,370
76.	Decorative Plywood	000 sheets	14,515	19,574	21,746	22,339	25,865	28,999	30,874	40,810
77.	Particle Board	000 cu.m	-	186	216	250	264	329	337	405

Table 18.2 (cont'd)

No.	Product	Unit	1983/84	Repelita IV					Repelita V	
				1984/85	1985/86	1986/87	1987/88 1)	1988/89	1989/90	1990/91
77.	Particle Board	000 cu.m	-	186	216	250	264	329	337	405
78.	Furniture	000 cu.m	-	-	-	-	-	1,174	1,339	1,877
79.	Door/Window Frame	000 cu.m.	-	-	-	-	-	406	426	639
80.	Woodworking	000 cu.m.	1,450	1,600	1,768	1,831	1,159	349	804	1,304
81.	Glasses and Bottles	000 tons	102	108	125	126	126	128	137	146
82.	Asbestos cement sheet	000 tons	283	297	297	298	301	313	324	329
83.	Wall tile	000 units	6,316	6,587	7,073	7,200	7,339	7,500	7,809	8,910
84.	Sanitary goods	000 units	749	997	1,104	1,110	1,113	1,115	1,120	1,290
85.	Organ, piano, pianica	units	19,248	12,990	13,112	13,169	16,142	17,100	18,500	19,700
86.	Pencil	000 gross	775	1,161	1,207	1,350	1,358	1,429	1,504	1,590
87.	Ballpoint	000 gross	346	505	626	631	1,737	1,805	1,893	1,972
88.	Leathers	000 tons	15	16	15	18	19	21	26	28
89.	Leather Shoes	000 pairs	11,933	13,530	15,194	16,803	17,891	19,300	19,500	24,500
90.	Marble	000 cu.m.	504	877	1,095	1,165	1,283	1,288	1,415	1,590
91.	Gunny Sack	000 units	-	46,915	47,886	48,500	49,096	49,200	51,790	51,970
92.	Processed Rattan	tons	-	120,409	154,223	219,050	260,100	270,000	311,600	349,300
93.	Cement Roofing Tiles	000 units	-	19,809	23,242	33,546	33,928	34,825	35,645	39,670
94.	Concrete Electric Poles	units	-	325,460	344,586	386,954	393,493	389,700	509,600	639,000
95.	Prefab Housing	units	-	-	-	-	-	16,000	16,295	17,313
96.	Umbrella	dozen	n.a	584,885	615,293	700,000	714,255	725,500	n.a.	n.a.
97.	Chopstick	boxes	-	240,340	353,345	381,500	507,000	525,000	n.a.	n.a.

Notes : 1) Revised figures
2) Excluding others Wood Working
3) CBS figures (Economic Indicator, Augst 1988)
4) 1983/84 up to 1987/88 in 000 boxes; 1988/89 up to 1990/91 in 000 tons

Source : Ministry of Industry
Notes on 1991/92 State Budget

Table - 18.3

Production of Machinery and Basic Metal Industries 1983/84 - 1990/91

Nbr.	Type of Product	Unit	1983/84	REPELITA IV					REPELITA V	
				1984/85	1985/86	1986/87	1987/88	1988/89 1)	1989/90 1)	1990/91 2)
	I. MACHINE TOOLS INDUSTRY									
1.	Lathes	Units	183	300	212	136	241	19	30	33
2.	Drilling Machine	Units	130	225	372	280	286	177	110	180
3.	Milling Machine	Units	25	50	71	133	232	24	27	41
4.	Grinding Machine	Units	-	25	20	16	6	36	60	67
5.	Table Grinding Machine	Units	-	50	90	100	12	30	24	20
6.	Sawing Machine	Units	30	150	170	300	260	170	50	78
7.	Bending Machine	Units	25	15	238	270	116	40	60	276
8.	Scrapping Machine	Units	20	50	137	150	54	n.a.	n.a.	n.a.
9.	Rolling Machine	Units	15	25	230	150	70	n.a.	n.a.	n.a.
10.	Shearing Machine	Units	20	50	137	150	54	n.a.	n.a.	n.a.
11.	Dies, Mould, Jigs and Fixture	Units	150	1,000	1,950	2,500	2,550	n.a.	n.a.	n.a.
	Cutting Machine	Units	-	-	-	-	-	80	45	48
	II. AGRICULTURAL MACHINES AND EQUIPMENT INDUSTRY									
12.	Hand Tractor	Units	1,065	1,091	973	1,891	3,000	2,490	5,533	6,330
13.	Mini Tractor	Units	68	71	43	29	30	14	14	7
14.	Large Tractor	Units	-	22	27	38	84	188	51	200
15.	Rice Huller	Units	467	1,788	2,771	1,212	1,976	830	1,263	1,337

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Table 18.3 (cont'd)

Nbr.	Type of Product	Unit	1983/84	REPELITA IV					REPELITA V	
				1984/85	1985/86	1986/87	1987/88	1988/89 1)	1989/90 1)	1990/91 2)
16.	Thresher	Units	248	688	420	1,134	460	500	826	909
17.	Polisher	Units	235	300	413	1,036	824	150	362	665
18.	Rice Milling Unit	Units	392	401	516	960	530	400	301	468
19.	Irrigation Pumps	Units	3,065	3,486	1,971	2,749	4,017	10,800	6,728	7,973
III.	CONSTRUCTION AND HEAVY EQUIPMENT INDUSTRY									
20.	Stone Crusher Plant	Units	18	40	39	24	63	26	18	43
21.	Plate Compactor	Units	385	300	325	336	28	14	8	8
22.	Asphalt Sprayer	Units	15	35	30	32	46	60	25	70
23.	Asphalt Mixing Machine	Units	5	7	9	8	8	2	3	5
24.	Road/Vibro Roller	Units	404	277	340	173	8	46	10	15
25.	Wheel Loader	Units	1	16	64	93	113	154	150	187
26.	Motor Grader	Units	1	7	54	51	50	61	108	135
27.	Excavator	Units	5	150	196	133	109	366	632	428
28.	Buldozer	Units	22	210	150	292	192	475	449	643
29.	Forklift	Units	50	58	183	84	271	513	425	1,248
30.	Bucket Elevator	Units	20	40	130	-	-	-	-	-
31.	Concrete Mixer	Units	1,080	1,100	1,460	1,300	1,400	406	532	616
32.	Crane	Tons	400	800	1,200	1,200	1,500	120	60	81
IV.	ELECTRICAL MACHINES INDUST.									
33.	Power Transformer	Units	7	75	83	57	90	65	12	21
34.	High and Low Voltage Electric Panel	Pcs	14,000	18,000	11,000	10,000	20,000	10,160	6,468	7,870
35.	Welding Generator	Pcs	1,800	2,840	485	1,702	2,500	2,610	526	787

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Table 18.3 (cont'd)

Nbr.	Type of Product	Unit	1983/84	REPELITA IV 1984/85	1985/86	1986/87	1987/88	1988/89 1)	REPELITA V 1989/90 1)	1990/91 2)
36.	K.W.H. Meter	000 Pcs	500	603	998	975	1,160	1,433	1,310	1,760
37.	M.C.B.	000 Pcs	500	1,000	1,053	1,731	1,629	1,858	1,700	3,075
38.	Distribution Transformer	Units	5,567	5,839	12,124	7,977	9,500	15,850	13,755	15,208
39.	Generating Set (Genset)	Units	33,771	32,450	20,833	19,425	15,000	6,570	7,580	8,265
40.	Electromotor	Units	5,530	36,000	5,667	21,307	16,500	24,780	23,000	26,240
V.	PROFESSIONAL ELECTRONIC GOODS INDUSTRY									
41.	Automotic Telephone exchange and PABX Line	Line Units	45,000	62,000	86,628	70,168	27,000	148,850	169,021	205,960
42.	HF - SSB	Units	2,500	2,700	1,957	2,794	3,500	2,610	4,688	5,750
43.	Radio Broadcaster	Units	20	20	5	5	10	10	10	10
44.	Radio Transmitter	Units	10	30	13	15	45	48	50	69
45.	PCM/Multiplex	Units	2,500	6,500	7,622	2,200	17,500	28,900	27,721	37,554
46.	Small Earth Station	Units	8	10	10	10	20	13	20	29
47.	VHF/UHF Single Channel	Units	1,400	2,250	4,022	8,376	4,080	1,850	4,916	6,256
48.	TV Relays Station	Units	50	120	30	40	33	129	129	138
49.	Integrated Circuit	Mill.Units	639	601	275	36	30	41	60	26
50.	Telephone Sets	Units	40,300	37,500	112,022	114,937	240,000	115,900	68,700	223,000
51.	Mobil Radio Telephone									
	- Radio Base Station	Units	3	0	1	1	-	-	-	-
	- Radio Mobile/Subscriber	Units	600	1,200	1,060	5,123	2,145	146	871	1,196
52.	Rural Telephone	Base/Sall	15/750	28/1500	10/500	27/1350	27/1400	-	-	-
53.	Micro Computer	Units	-	5	2,561	6,814	10,500	7,869	12,238	30,000
54.	Radio/Radio Cassette	000 Units	-	-	-	-	-	1,536	2,339	3,092
55.	Television	000 Units	-	-	-	-	-	522	797	1,082
56.	Mobil Radio/Radio Cassette	000 Units	-	-	-	-	-	445	2,240	3,798
57.	Amplifier	000 Units	-	-	-	-	-	136	136	168
58.	Tuner	000 Units	-	-	-	-	-	154	234	685
59.	Loudspeaker	000 Units	-	-	-	-	-	18,240	22,800	24,656
60.	Resistor	000 Units	-	-	-	-	-	2,975	4,549	13,000

Table 18.3 (cont'd)

Nbr.	Type of Product	Unit	1983/84	REPELITA IV					REPELITA V	
				1984/85	1985/86	1986/87	1987/88	1988/89 1)	1989/90 1)	1990/91 2)
VI.	MOTOR VEHICLES									
61.	Four wheel motor-vehicles:									
	a. Commercial	Units	131,546	130,302	115,516	128,765	130,856	166,700	174,800	271,400
	b. Passenger	Units	24,183	23,368	4,205	33,772	29,471	n.a.	n.a.	n.a.
	Motorcycles	Units	-	-	-	-	-	255,900	281,000	410,000
62.	Car Components:									
	a. Shock Absorber	000 Units	1,304	1,102	819	1,075	1,054	757	1,202	3,491
	b. Radiator	000 Units	42	139	121	137	128	144	171	244
	c. Exhaust System	000 Units	132	267	209	237	276	234	311	226
	d. Oil and Air Filter	000 Units	1,414	1,555	3,586	3,758	3,026	2,989	3,559	4,217
	e. Piston	000 Units	270	297	327	400	663	718	570	628
	f. Piston Ring	000 Units	1,918	2,108	2,372	2,441	2,933	2,725	3,010	3,664
	g. Sparkplugs	000 Units	14,272	15,700	12,497	14,200	24,772	22,972	27,196	30,806
	h. Diesel Engine	Units	-	-	11,502	28,841	33,105	47,800	35,900	45,900
	i. Gasoline Engine	Units	-	-	48,045	87,550	123,455	19,600	156,600	136,700
	j. Cabin	Units	-	126,000	103,637	122,000	115,870	115,000	128,200	138,700
	k. Chasis Frame	Units	131,655	130,202	115,548	135,715	131,124	122,300	183,000	235,600
	l. Axle	Units	-	2,080	62,415	153,739	131,124	120,300	138,200	96,000
	m. Propeler Shaft	Units	-	3,080	62,415	153,739	131,157	120,300	138,200	96,000
	n. Rear Body	Units	-	95,629	83,933	70,140	60,003	48,200	53,000	66,900
	o. Brake System	Units	-	-	15,000	229,309	215,502	291,900	273,200	319,600
	p. Wheel Rim	Pcs	-	649,046	447,399	645,341	663,764	695,700	759,800	995,600
	q. Fuel Tank	Pcs	131,655	134,828	88,548	203,183	226,734	135,300	143,700	167,200
	r. Leaf Spring	Tons	-	10,123	8,874	13,474	15,046	18,990	22,217	25,280
	s. Seat & Seat Frame	Sets	131,655	130,302	114,966	128,786	171,536	380,500	244,400	199,700
	t. Transmission	Units	-	-	-	60,000	157,340	126,400	146,800	209,400
	u. Clutch System	Sets	-	-	-	45,139	119,764	119,600	129,500	144,800
	v. Steering System	Sets	-	-	-	128,675	63,577	158,000	133,800	153,600
	w. Cable Control	Pcs	-	-	1,352	2,553	4,093	-	-	-
	x. Wiring Harnes	Sets	-	-	115,516	128,630	62,496	-	-	-
	y. Brake Drum	Pcs	-	-	141,541	185,925	267,773	-	-	-
	z. Brake Shoes	Pcs	-	-	-	185,872	200,800	-	-	-

Table 18.3 (cont'd)

Nbr.	Type of Product	Unit	1983/84	REPELITA IV					REPELITA V	
				1984/85	1985/86	1986/87	1987/88	1988/89 1)	1989/90 1)	1990/91 2)
VII.	RAILWAY ROLLING STOCK INDUSTRY									
63.	Freight Cars	Units	400	619	336	160	457	75	265	129
64.	Passenger Carriages	Units	-	16	64	75	60	15	-	-
VIII.	AIRCRAFT INDUSTRY									
65.	Fixed Wing Aircraft	Units	7	10	21	55	-	5	12	6
66.	Helicopter	Units	29	30	43	12	-	13	17	13
IX.	SHIP BUILDING INDUSTRY									
67.	New Steel Ships	BRT	7,865	20,950	18,220	7,745	17,990	17,360	22,490	32,620
		HP	n.a.	56,545	26,980	32,080	24,360	-	-	-
68.	Repairs of Steel Ships	BRT	391,600	1003,540	892,560	1024,885	3810,140	4276,000	3965,300	5181,100
		HP	n.a.	111,825	125,805	148,975	982,120	-	-	-
69.	Ship Breakers	Tons	n.a.	64,617	14,875	29,385	28,305	-	-	-
70.	Offshore Structures	Tons	n.a.	59,279	30,284	14,850	6,800	7,380	4,220	15,780
X.	FACTORY EQUIPMENT AND MACHINES INDUSTRY									
71.	Diesel Engine	Units	52,775	48,000	41,553	23,945	31,472	32,424	44,345	49,660
72	Tea Processing Machine	Tons	-	-	-	-	-	800	800	934
73.	Palm Oil Processing Machine	Tons	3,400	9,420	10,200	4,800	5,800	5,600	6,650	8,000
74.	Sugar Milling Machine	Tons	5,850	6,500	8,500	6,000	8,000	6,000	5,200	6,000
75.	Coffee Milling Machine	Tons	30	1,350	1,000	161	165	211	240	250
76.	Crumb Rubber Milling Machine	Tons	200	1,050	1,675	1,600	1,600	1,600	1,200	1,400
77.	Steel Tanks	Tons	10,000	11,300	10,000	7,500	8,500	12,000	18,000	15,000
78.	Small Boiler up to 5 ton of steam/hour	Units	20	7	9	13	75	68	131	160
79.	Large Boiler over 5 ton of steam/hour	Units	4	16	23	43	71	68	53	68
80.	Blower	Units	100	450	600	650	800	425	209	175
81.	Steel Structures	Tons	25,000	19,445	22,000	46,000	49,000	38,000	44,784	49,759

Table 18.3 (cont'd)

Nbr.	Type of Product	Unit	1983/84	REPELITA IV					REPELITA V	
				1984/85	1985/86	1986/87	1987/88	1988/89 1)	1989/90 1)	1990/91 2)
XI.	BASIC METAL INDUSTRY									
	A. STEEL INDUSTRY									
82.	Sponge Iron	000 Tons	541	757	1,087	1,283	1,337	985	1,210	1,357
83.	Steel Ingot/Billet	000 Tons	883	901	1,023	1,145	1,337	1,361	1,583	1,988
84.	Reinforcing Rod and Light Steel Profile	000 Tons	724	649	671	716	895	830	928	1,391
85.	Wire Rod	000 Tons	300	207	321	407	446	452	449	537
86.	Steel Wire	000 Tons	110	150	99	115	120	-	-	-
87.	Steel Slab	000 Tons	108	269	429	681	728	722	800	904
88.	H.R.C. Steel Sheet	000 Tons	127	242	342	685	814	944	1,300	1,325
89.	G.I. Sheet	000 Tons	332	253	274	196	186	159	144	159
90.	Straight Welded Steel Pipe	000 Tons	216	195	218	229	210	213	203	253
91.	Spiral Welded Steel Pipe	000 Tons	31	16	41	31	34	31	70	74
92.	Tin Plate	000 Tons	-	-	13	77	101	131	72	110
93.	Ferro Silicon	000 Tons	-	-	-	-	-	4	5	6
94.	C.R.S.	000 Tons	-	-	-	-	-	452	454	475
	B. NON-FERROUS METAL INDUST.									
95.	Aluminium Ingot	000 Tons	115	212	218	219	199	199	196	207
96.	Aluminium Extrussion	000 Tons	11	10	11	12	13	15	17	40
97.	Aluminium Sheet	000 Tons	8	25	27	25	29	33	29	47
98.	Copper Rod	000 Tons	15	17	20	9	22	35	39	50
99	Aluminium Foil	000 Tons	-	-	-	-	-	3	3	3

Notes: 1) Revised figures
2) Preliminary figures
Source: Ministry of Industry

Table 18.4

Index of Manufacturing Production by Selected Industry Group, 1986 - 1990 a)

Code of Industry Group	Description b)	1986	1987	1988	1989	1990 c)
31121	Condensed and dried milk, creamery and processed butter, fresh and preserved cream (6)	87.5	94.0	123.3	122.5	141.7
31330	Malt liquor and malt (5)	94.4	113.2	116.4	117.2	131.3
31420	Clove cigarettes (80)	147.4	166.5	177.7	196.2	227.7
31430	Other cigarettes (13)	78.8	81.9	79.2	78.2	81.2
32111	Yarn and thread (53)	129.9	130.5	169.0	196.2	263.4
32112	Weaving mills (except jute weaving products (409)	130.7	144.3	172.9	188.0	224.8
32114	Batik (65)	95.8	81.8	83.9	111.1	141.6
32130	Knitting mills (73)	219.2	233.2	239.8	312.8	378.1
32400	Footwear (32)	113.1	91.5	111.2	184.9	208.2
33113	Plywood (40)	139.3	192.7	242.1	266.2	244.6
34111	Paper manufacture (all kinds) (23)	159.2	159.7	242.0	251.5	292.1
35110	Basic chemicals (except fertilizer) (50)	119.0	156.4	139.0	152.9	172.3
35120	Fertilizer (10)	166.0	121.8	129.7	144.0	155.3

Table 18.4 (cont'd)

Code of Industry Group	Description b)	1986	1987	1988	1989	1990 c)
35210	Oaint, varnish, and lacquers (25)	135.6	126.5	91.2	129.9	161.3
35232	Matches (8)	108.7	142.3	175.5	154.4	163.5
35510	Tyres and tubes (22)	109.5	79.2	109.7	141.2	175.6
36210	Glass and glass products (21)	178.0	149.3	124.6	145.2	170.9
36310	Cement (7)	144.4	150.9	149.8	198.1	192.4
37100	Basic iron and steel industries (16)	154.9	147.1	167.4	199.0	287.8
38130	Structural metal products (59)	110.2	118.7	125.7	180.6	199.0
38312	Drycell batteries (7)	123.9	115.5	158.6	156.3	169.2
38320	Radio, TVs, cassettes, other communication ment equipment and apparatus (23)	90.6	86.9	118.1	153.9	182.9
38430	Motor vehicles assembly and manufacture (23)	114.7	126.8	115.8	132.5	183.3
38440	Motorcycles and three wheel motor vehicles, assembly and manufacture (11)	98.0	81.3	76.8	106.0	96.7
	GENERAL INDEX	124.8	143.5	164.2	184.1	211.9

Notes: a) The annual figures shown here are calculated as the average of quarterly indices.
b) Figures in brackets "( )" indicate the number of establishments covered in that group.
c) Average of three quarters, very preliminary.

Source: Central Bureau of Statistics

18.2. Production Value

The production value of the manufacturing sector is obtained by multiplying the price per unit by the volume of production. The production value does not immediately show the contribution of the manufacturing sector to the GDP (Gross Domestic Product), as this is calculated on the basis of the final costs of manufactured goods, including their added values.

However, the production value established on that basis gives an idea of the contribution of the manufacturing sector to the national economy.

The following table shows the production value of the manufacturing sector in 1990.

Tabel 18.5

Production Value by Industry Sector.

Commodity	Value
CELLULOSE & RUBBER PRODUCTS	
Paper	1,851,352.00
Pulp	413,677.00
Tyre	672,328.00
Rubber Products	4,532.00
SUBTOTAL	2,941,889.00
AGROCHEMICAL	
Urea Fertilizer	711,160.50
Z.A	152,020.50
TSP	492,251.70
Ammonia	71,847.20
Dolomite Fertilizer	3,525.20
Phospate Fertilizer	3,154.10
Mix Fertilizer	4,417.60
Pesticide	211,616.20
DDT Pesticide	18,033.00
Pesticide Active Ingredient	27,411.00
SUBTOTAL	1,695,437.00
ORGANIC CHEMICALS PRODUCTS	
Formic Acid	9,700.00
Tyre Cord	242,100.00
PTA	136,800.00
Methanol	140,700.00
DOP/DBP	47,100.00
Sorbitol	10,400.00
PA	31,900.00
MA	2,000.00
Polyol	12,400.00
Active Carbon	15,000.00
Special Chemicals	65,000.00
Adhesive Resin	440,700.00
Alkyd Resin	44,600.00
Synthetic Resin	150,400.00
Chemical products for Textile	41,900.00
Pigment	20,200.00
ABS	91,400.00
SLS/SLES	59,300.00
Alcohol	58,800.00
Calcium Citrate	8,800.00

Table 18.5 (cont'd)

Commodity	Value
Citric Acid	15,000.00
AB	120,600.00
Heavy Alcylate	8,400.00
Glutamic Acid	187,400.00
Mono Sodiume Glutamat	268,000.00
Acetic Acid	9,700.00
Ethyl Acetate	3,600.00
PVC Resin	260,700.00
Polystyrene	24,300.00
Polypropylene	10,200.00
PVC Compound	24,500.00
VCM	26,200.00
EDC	7,200.00
Brake Fluid	1,500.00
PST	1,000.00
Carbon Black	9,000.00
Benzoic Acid	4,000.00
Na Benzoat	3,600.00
SUBTOTAL	2,614,100.00
ANORGANIC CHEMICALS PRODUCTS	
Portland Cement	1,398,839.72
White Cement	34,140.70
Sheet Glass	277,571.74
Sulphic Acid	167,365.00
Aluminium Sulphate	20,300.00
Aluminium Fluoride	15,530.00
Cement Retarder	14,151.98
Gypsum	1,469.71
Natrium Sulphate	11,500.00
Zinc Chloride	5,071.30
Zinc Oxide	12,893.04
Calcium Carbonate	10,206.61
Caustic Soda	121,924.64
Chloric Acid	17,415.00
Natrium Silicate	19,710.00
Calcium Carbide	26,909.00
Oxygen	106,627.43
Nitrogen	41,372.05
CO2 and Dry Ice	20,645.38
Nitrous Oxide	819.96
Acetylene	12,157.95
Argon	3,699.92
Hidrogen	1,458.48
Salt	70,926.40
SUBTOTAL	2,412,706.01

Table 18.5 (cont'd)

Commodity	Value
FOOD INDUSTRY	
Coconut Coocking Oil	653,746.91
Palm Palm Oil Coocking oil	975,486.31
Margarine & Shortening	129,284.13
Clove Cigarette	4,211,402.45
Cigarette	148,912.05
Milk	321,532.56
Condensed Milk	298,084.68
Liquid Milk	25,966.41
Fish & Shrimp Frozen	746,846.09
Artificial Sweetener	38,111.54
Wheat Flour	701,021.00
Fruit & Vegetable Canning	169,097.72
Fish Canning	467,005.20
Animal Feed	1,040,884.93
Tonic Food Drink	34,535.46
Instant Coffee	11,025.53
Confectionery	124,349.53
Beer	161,798.00
SUBTOTAL	10,259,090.50
TEXTILE INDUSTRY	
Rayon Fiber	309,176.68
Polyester Fiber	341,242.08
Polyester Filament Yarn	559,418.03
Nylon Filament Yarn	61,777.48
Weaving Yarn /Spun Yarn	3,043,790.50
Woven Fabric	6,095,322.40
Knitted Fabric	1,075,647.60
Coloring Materials for Textile	108,137.12
Garment	3,278,800.00
SUBTOTAL	14,873,311.89
MISCELLANIOUS INDUSTRY	
Plastic Bag	166,300.20
Paint	238,582.30
Bath Soap	273,291.13
Wash Soap	138,380.30
Detergent	223,930.59
Tooth Paste	291,589.25
Printing Ink	31,507.54
Matches	64,443.59
Crumb Rubber	1,092,269.32
Sport Shoes	1,664,052.46
PVC Pipe	146,218.40
Imitation Leather	135,282.31
Audio Cassette	163,963.64
Video Cassette	37,290.03
Cosmetics	167,585.00
OPP Film	83,070.00

Table 18.5 (cont'd)

Commodity	Value
Plastic Sack	84,743.50
Glycerol/Glycerin	31,147.20
Fatty Acid	24,480.00
SUBTOTAL	5,058,126.76
ELECTRIC AND METAL APPLIANCES	
Hand sprayer	16,619.52
Hand Tool	3,597.83
Sewing Machine	1,872.72
Pressure Lamp	5,461.89
Air Coditioner	45,801.26
Refrigerator	54,009.00
Fans	34,657.14
Electric Iron	10,171.50
Rice Cooker	12,129.79
Accumulator	241,568.84
Dry Battery	236,852.95
Tubular Lamp (TL)	69,371.97
Bulb Lamp	104,496.99
Decorative Lamp	12,214.56
Telephone Cable	45,000.00
Electric Cable	214,077.60
Fire Extinghuiser	2,913.75
Bicycle	166,478.77
Accecories for TL	7,455.00
Washing Machine	13,451.25
Gas Stove	6,688.50
Bolt & Nut	33,747.93
Nails	146,601.00
Household Electric Pumps	6,219.19
Electric Fitting	6,913.13
Spring Bed	4,252.50
Can Making	291,781.87
Carrugated Carton Box	248,340.20
Electronic Organ	57,128.00
Piano	15,762.00
Camera Photography	66,067.16
Watch	58,126.93
Hand Watch	255,902.50
SUBTOTAL	2,495,733.24
BUILDING MATERIALS INDUSTRY	
Sawn Timber	2,779,252.65
Plywood	3,683,560.05
Decorative Plywood	246,391.30
Particle Board	106,332.76
Furniture	1,687,490.36
Wood working,Moulding	259,908.45
Other woodworking	508,971.68
Chopstick	297,314.94

Table 18.5 (cont'd)

Commodity	Value
Chippedwood	81,227.06
Processed Ratan	978,168.41
Asbestos Cement	120,332.99
Cement Roof	18,118.60
Electric Concrete Pole	96,466.00
Sanitary Ware	26,398.53
Wall Tile	72,773.36
Ceramic Ware	142,984.69
Marble	46,697.09
Prefabricated House	104,547.41
Ready Mix Concrete	114,793.79
SUBTOTAL	11,371,730.12
Tanned Hide	262,945.58
Leather Shoe	435,012.92
Glass & Bottle	58,240.00
Glass Ware	66,676.94
Pencil	18,699.80
Ball Point	30,630.40
Gunny Bag	67,561.18
Zipper	85,146.60
Umbrella	41,025.22
Mirror	11,028.65
SUBTOTAL	1,076,967.29
AGRICULTURE MACHINES	
Hand Tractors	10,065.75
Mini Tractor	302.34
Irrigation Pump	5,031.84
Rice Milling Unit	426.93
Rice Huller	1,027.43
Thresher	416.30
Polisher	431.41
SUBTOTAL	17,702.00
HEAVY EQUIPMENT	
Crawler Buldozer	448,000.00
Wheel Loader	128,000.00
Motor Grader	109,000.00
Hydraulic Excavator	310,000.00
Forklift	871,000.00
Road Roller	15,000.00
Large Tractor	98,000.00
Stone Crusher	2,730.50
Concrete Mixer	1,024.72
Asphalt Mixing Plant	705.00
Plate Compactor	13.33
Crane	1,814.40

Table 18.5 (cont'd)

Commodity	Value
Dies,Mould,Jigs and Fixture	3,401.50
Asphalt Sprayer	1,568.00
SUBTOTAL	1,995,257.45
FACTORY MACHINE AND EQUIPMENT	
Sugar Processing Machine	12,741.52
Palm Oil Processing Machine	17,995.44
Weaving Machine	6,199.25
Crumb Rubber Processing	3,990.32
Cofee Processing	1,554.81
Diesel Engine	91,138.02
Boiler	49,820.00
Steel Structure	65,313.37
Lathe Machine	331.11
Table Grinding Machine	38.40
Milling Machine	351.86
Grinding Machine	118.09
Shearing Machine	196.25
Sawing Machine	49.61
Bending Machine	394.13
Rolling Machine	185.80
SUBTOTAL	250,417.98
ELECTRICAL MACHINE	
Generator	8,722.95
Generator Set	6,328.07
Distribution Transformer	48,358.29
Power Transformer	2,138.10
Other Transformer	840.58
Electrical Panel	7,557.35
KWH Meter (1 Phase)	46,020.45
Electromotor	1,747.59
Welding Generator	914.49
Mini Circuit Breaker (MCB)	10,343.29
Switches	2,844.39
Cable shoes/Cable Plug	96.26
Fuse	121.80
Lighting Arrester	339.74
Load break switch	234.37
Circuit Breaker (CB)	3,173.87
Cut Out	18,771.53
SUBTOTAL	158,553.12
SHIP BUILDING INDUSTRY	
New Steel Ship	86,740.00
Repairs of Steel Ship	112,440.00
Ship Breakers	0.00
Offshore Structure	187,240.00
SUBTOTAL	386,420.00

Table 18.5 (cont'd)

Commodity	Value
MOTOR VEHICLE	
Commercial Car	3,281,763.00
Passenger Car	2,363,700.00
2 Wheels Vehicle	576,511.00
SUBTOTAL	6,221,974.00
CAR COMPONENT	
Brake system	64,884.64
Cabin	64,925.04
Chasis/frame	90,003.44
Rear Body	15,140.75
Engine / Motor Bensin	454,406.21
Engine / Motor Diesel	0.00
Axle & Propeller shaft	41,678.76
Steering system	64,174.59
Transmission	132,428.84
Cluth System	13,677.88
Shock Absorber	28,083.37
Radiator	18,021.33
Muffler & Tail Pipe	5,106.04
Air/Oil Filter	17,182.18
Piston	3,128.89
Piston Ring	2,998.30
Wheel Rim	66,189.19
Fuel Tank	7,272.91
Leaf Spring	34,605.24
Seat & Seat Frame	34,272.35
Spark Plug	27,133.21
Brake Drum	6,436.10
Brek Shoes	2,033.67
Cable Control	52,462.36
Wiring Harness	22,747.80
Car AC	56,283.99
Brake Fuel/Tube	8,132.35
Gasket	882.17
Rubber Part	12,100.40
V - Belt	9,736.61
Altenator	22,710.23
Starter	22,056.28
Jack	975.92
Horn	1,105.79
SUBTOTAL	1,402,976.83
BASIC METAL INDUSTRY	
Sponge Iron	345,856.99
Steel Slab	453,491.24
Steel Billet	1,036,714.72
Steel Ingot	53,567.30
Profile	948,598.76
Wire Rod	467,553.68
Steel Wire	0.00
Electric Welded Wire	26,437.73

Table 18.5 (cont'd)

Commodity	Value
Wire Rope	41,946.44
HRC Plate	1,144,201.65
Straight Welded Steel Pipe	327,366.93
Spiral Welded Steel Pipe	108,810.87
Coil Center	47,084.21
C Channel	56,455.42
CRS	584,551.36
GI Sheet	313,765.40
Colored GI Sheet	27,675.59
Steel Strip	38,376.39
Tin Plate	165,761.42
Alumunium Ingot	710,837.79
Alumunium Extrusi	192,087.99
Alumunium Sheet/Roofing	224,556.46
Alumunium Foil	41,364.42
Copper Wire Rod	264,826.28
Ferro Silicon	11,219.80
Casting Product (Ferro&Non Ferro)	0.00
Heavy Profile	44,869.51
Tin	0.00
SUBTOTAL	7,677,978.35
CONSUMER ELECTRONIC GOOD	
Color TV	262,035.00
B & W TV	47,000.00
Radio / Raddio Cassete	102,026.00
Cassete Recorder (Incl. Tape)	20,288.24
Car Audio (Radio mobil, Car R/C)	24,288.00
Video Cassete Recorder	14,777.13
Amplifier	12,592.64
Loudspeaker	12,017.39
SUBTOTAL	495,024.40
COMMUNICATION	
Central Telephone Equipment (Incl.Rural)	90,912.84
Transmission Equipment	30,443.81
Radio Communication	36,275.62
Terminal Devices	75,518.60
SUBTOTAL	233,150.87
DATA PROCESSOR, INSTRUMENTATION AND CONTROL DEVICES	67,552.25
SUB ASSY AND ELECTRONIC COMPONENT	160,545.31

Tabel 18.6

ABC LIST OF INDUSTRY BY VALUE,1990

Sector of Industry	Value (Rp.million)	(US$ million)
Fabrics (Woven&Knitted fabric)	7,170,970.00	3,774
Commercial & Passenger Car	5,645,463.00	2,971
Cigarette	4,360,314.50	2,295
Plywood	3,929,951.35	2,068
Garment	3,278,800.00	1,726
Weaving Yarn	3,043,790.50	1,602
Sawn Timber	2,779,252.65	1,463
Pulp & Paper	2,265,029.00	1,192
Furniture	1,687,490.36	888
Sport Shoes	1,664,052.46	876
Cement	1,432,980.42	754
Fertilizer	1,355,432.70	713
HRC Plate	1,144,201.65	602
Crumb Rubber	1,092,269.32	575
Animal Feed	1,040,884.93	548
Steel Billet	1,036,714.72	546
Processed Ratan	978,168.41	515
Palm Oil Cooking Oil	975,486.31	513
Reinforcing Rod	948,598.76	499
Forklift	871,000.00	458
Frozen Fish, shrimp	746,846.09	393
Aluminium Ingot	710,837.79	374
Wheat Flour	701,021.00	369
Coconut Cooking Oil	653,746.91	344
Tyre & Rubber Products	649,220.00	342
Milk	645,583.65	340
CRS/Coil	584,551.36	308
Motor Cycle	576,511.00	303
Polyester Filament Yarn	559,418.03	294
Other Wood Working	508,971.68	268
Wire Rod	467,553.68	246
Fish Canning	467,005.20	246
Car Engine	454,406.21	239
Steel Slab	453,491.24	239
Crawler Buldozer	448,000.00	236
Adhesive Resin	440,700.00	232
Welded Steel Pipe	436,177.80	230
Leather Shoes	435,012.92	229
Soap	411,671.43	217
Sponge Iron	345,856.99	182
Galvanized Iron Sheet	341,440.99	180
Polyester Fiber	341,242.08	180

Table 18.6 (cont'd)

Sector of Industry	Value (Rp.million)	(US$ million)
Watch	314,029.43	165
Hydraulic Excavator	310,000.00	163
Rayon Fiber	309,176.68	163
Television Set	309,035.00	163
Chopstick	297,314.94	156
Can Making	291,781.87	154
Tooth Paste	291,589.25	153
Sheet Glass	277,571.74	146
Mono Sodiume Glutamate	268,000.00	141
Copper Wire Rod	264,826.28	139
PVC Resin	260,700.00	137
Wood Working,Moulding	259,908.45	137
Electric Cable	259,077.60	136
Corrugated Carton Box	248,340.20	131
Tyre Cord	242,100.00	127
Accumulator	241,568.84	127
Paint	238,582.30	126
Dry Battery	236,852.95	125
Heavy Profile	233,436.23	123
Aluminium Sheet	224,556.46	118
Detergent	223,930.59	118
Pesticide	211,616.20	111
Tanned Hide	204,123.38	107
Aluminium Extrussion	192,087.99	101
Glutamic Acid	187,400.00	99
Offshore Structure	187,240.00	99
Fruit and Vegetable canning	169,097.72	89
Cosmetics	167,585.00	88
Sulphuric Acid	167,365.00	88
Bicycle	166,478.77	88
Plastic Sack	166,300.20	88
Tin Plate	165,761.42	87
Audio Cassette	163,963.64	86
Beer	161,798.00	85
Electronic Part And Component	160,545.31	84
Synthetic Resin	150,400.00	79
Nails	146,601.00	77
PVC Pipe	146,218.40	77
Ceramic Ware	142,984.69	75
Methanol	140,700.00	74
PTA	136,800.00	72
Imitation Leather	135,282.31	71
Transmission	132,428.84	70
Margarine & Shortening	129,284.13	68
Wheel Loader	128,000.00	67

Table 18.6 (cont'd)

Sector of Industry	Value (Rp.million)	(US$ million)
Glass Ware	124,916.94	66
Confectionery	124,349.53	65
Caustic Soda	121,924.64	64
A.B (Alkyl Benzene)	120,600.00	63
Asbestos Cement	120,332.99	63
Rady Mix Concrete	114,793.79	60
Motor Grader	109,000.00	57
Textile Colouring Materials	108,137.12	57
Oxygen	106,627.43	56
Particle Board	106,332.76	56
Prefabricated Housing	104,547.41	55
Bulb lamp	104,496.99	55
Radio Cassette	102,026.00	54
Large Tractor	98,000.00	52
Concrete Electric Pole	96,466.00	51
Repair of Steel Ship	95,020.00	50
ABS (Alkyl Benzene Sulphonate)	91,400.00	48
Central Telephone	90,912.84	48
Chasis/Frame	90,003.44	47
Zipper	85,146.60	45
Plastic Sack	84,743.50	45
OPP Film	83,070.00	44
Chipped Wood	81,227.06	43
Telephone Terminal Equipment	75,518.60	40
Wall Tile	72,773.36	38
Diesel Engine	72,323.64	38
Ammonia	71,847.20	38
Salt	70,926.40	37
Fluorecent Lamp	69,371.97	37
Gunny Bag	67,561.18	36
Computer And Control Equipment	67,522.25	36
Wheel Rim	66,189.19	35
Camera Photography	66,067.16	35
Steel Construction	65,313.37	34
Special Chemical	65,000.00	34
Car Cabin	64,925.04	34
Brake System	64,884.64	34
Matches	64,443.59	34
Steering System	64,174.59	34
Nylon Filament Yarn	61,777.48	33
SLS/SLES	59,300.00	31
Alcohol	58,800.00	31
Electric Organ	57,128.00	30
C Channel	56,455.42	30
Car AC	56,283.99	30

Table 18.6 (cont'd)

Sector of Industry	Value (Rp.million)	(US$ million)
Refriqerator	54,009.00	28
Computer	54,000.00	28
Steel Ingot	53,567.30	28
Cable Control	52,462.36	28
Distribution Transformer	48,358.29	25
DOP	47,100.00	25
Steel Cutting	47,084.21	25
Marble	46,197.09	25
New Steel Ships	46,100.00	24
KWH Meter	46,020.45	24
Air Conditioner	45,801.26	24
Alkyd Resin	44,600.00	23
Steel Wire Rope	41,946.44	22
Coloring Materials for Textile	41,900.00	22
Axle & Propeller Shaft	41,678.76	22
Nitrogen	41,372.05	22
Aluminium Foil	41,364.42	22
Umbrella	41,025.22	22
New Steel Ships	40,640.00	21
Boiler	39,644.00	21
Steel Strip	38,376.39	20
Artificial Sweatener	38,111.54	20
Video Cassette	37,290.03	20
Radio Communication Set	36,275.62	19
Electric Fans	34,657.14	18
Leaf Spring	34,605.24	18
Tonic Food Drink	34,535.46	18
Seat & Seat Frame	34,272.35	18
Bolt & Nut	33,747.93	18
PA	31,900.00	17
Printing Ink	31,507.54	17
Glycerol/Glycerin	31,147.20	16
Ball Point	30,630.40	16
Radio And TV Transmission	30,443.81	16
Shock Absorber	28,083.37	15
Pesticide Active Ingreedient	27,411.00	14
Spark Plug	27,133.21	14
Calcium Carbide	26,909.00	14
Electric Welded Wire	26,437.73	14
Sanitary Ware	26,398.53	14
VCM	26,200.00	14
PVC Compound	24,500.00	13
Fatty Acid	24,480.00	13
Polystyrene	24,300.00	13
Car Audio	24,288.00	13
Wiring Harness	22,747.80	12
Alternator	22,710.23	12
Motor Starter	22,056.28	12

US$ 1 = Rp. 1900

18.3. Steel Consumption

Steel consumption by type and sector, as shown in the following table, has been estimated on the basis of steel allocation data from PT Krakatau Steel, which have been processed and amended by incorporating data obtained from our field survey.

PT Krakatau Steel classifies the use of concrete bar (reinforcing bar/rebar) into two: Building Construction which includes house, buildings and other structures; and Civil Engineering Construction including dams, roads, bridges and irrigation works.

The data obtain from PT Krakatau Steel for 1991 do not seperate the steel allocation for building construction from that for civil engineering construction. The figures represented in table 18.7 includes both the allocation for building construction and civil engineering construction. According to PT Krakatau Steel, the allocation for civil engineering construction was about 15% of the total concrete bar allocation.

What are referred to as " sections' inthe Matrix of Indonesian Steel Allocatiaon are profiles and heavy profiles, which are produced by the rolling process. Heavy profiles which are produced from steel sheet by the welding process are included in the allocation for HRC/Sheet.

Table 18.7
Matrix of Indonesian Steel Allocation, 1990

(000 tons)

	Rebar	Section	Wire Rod	HR Sheet & Plate	Pipes & Tubes	CR-Sheet	GI-Sheet	Tinplate	Total	
	Qty	Qty	Qty	Qty	Qty	Qty	Qty	Qty	Qty	%
Construction	1,004.6	349.4	261.4	305.6	88.5	63.2	190.0	0.0	2,262.7	70.6%
	44.4%	15.4%	11.6%	13.5%	3.9%	2.8%	8.4%	00.0%	100.0%	
Shipbuilding	0.0	0.0	0.0	14.3	0.0	0.0	0.0	0.0	14.3	0.4%
	00.0%	00.0%	00.0%	100.0%	00.0%	00.0%	00.0%	00.0%	100.0%	
Automotive	0.0	0.0	5.0	60.0	0.0	83.2	0.0	0.0	148.2	4.6%
	00.0%	00.0%	3.4%	40.5%	00.0%	56.1%	00.0%	00.0%	100.0%	
Appliances	0.0	0.0	0.0	0.0	0.0	52.4	0.0	0.0	52.4	1.6%
	00.0%	00.0%	00.0%	00.0%	00.0%	100.0%	00.0%	00.0%	100.0%	
Cans	0.0	0.0	0.0	0.0	0.0	0.0	0.0	103.1	103.1	3.2%
	00.0%	00.0%	00.0%	00.0%	00.0%	00.0%	00.0%	100.0%	100.0%	
Container/Pack.	0.0	0.0	11.7	0.0	0.0	69.7	0.0	0.0	81.4	2.5%
	00.0%	00.0%	14.4%	00.0%	00.0%	85.6%	00.0%	00.0%	100.0%	
General Mfg.	11.6	0.0	68.8	92.2	0.0	102.5	0.0	0.0	275.1	8.6%
	4.2%	00.0%	25.0%	33.5%	00.0%	37.3%	00.0%	00.0%	100.0%	
Oil & Gas	0.0	0.0	0.0	0.0	265.5	0.0	0.0	0.0	265.5	8.3%
	00.0%	00.0%	00.0%	00.0%	100.0%	00.0%	00.0%	00.0%	100.0%	
Total	1,016.2	349.4	346.9	472.1	354.0	371.0	190.0	103.1	3,202.7	100.0%
	31.7%	10.9%	10.8%	14.7%	11.1%	11.6%	5.9%	3.2%	100.0%	

Matrix of Indonesian Steel Allocation, 1991
(000 tons)

(000 tons)

	Rebar	Section	Wire Rod	HR Sheet & Plate	Pipes & Tubes	CR-Sheet	GI-Sheet	Tinplate	Total	
	Qty	Qty	Qty	Qty	Qty	Qty	Qty	Qty	Qty	%
Construction	1,040.9	328.3	325.1	386.1	80.5	50.8	186.3		2398.0	68.8%
	43.4%	13.7%	13.6%	16.1%	3.4%	2.1%	7.8%	00.0%	100.0%	
Shipbuilding				49.1					49.1	1.4%
	00.0%	00.0%	00.0%	100.0%	00.0%	00.0%	00.0%	00.0%	100.0%	
Automotive			9.4	55.4		182.3			247.1	7.1%
	00.0%	00.0%	3.8%	22.4%	00.0%	73.8%	00.0%	00.0%	100.0%	
Appliances						48.0			48.0	1.4%
	00.0%	00.0%	00.0%	00.0%	00.0%	100.0%	00.0%	00.0%	100.0%	
Cans								103.0	103.0	3.0%
	00.0%	00.0%	00.0%	00.0%	00.0%	00.0%	00.0%	100.0%	100.0%	
Container/Pack.			15.5			58.0			73.5	2.1%
	00.0%	00.0%	21.1%	00.0%	00.0%	78.9%	00.0%	00.0%	100.0%	
General Mfg.	44.5		112.0	135.3		21.9			313.7	9.0%
	14.2%	00.0%	35.7%	43.1%	00.0%	7.0%	00.0%	00.0%	100.0%	
Oil & Gas					252.3				252.3	7.2%
	00.0%	00.0%	00.0%	00.0%	100.0%	00.0%	00.0%	00.0%	100.0%	
Total	1,085.4	328.3	462.0	625.9	332.8	361.0	186.3	103.0	3,484.7	100.0%
	31.1%	9.4%	13.3%	18.0%	9.6%	10.4%	5.3%	3.0%	100.0%	

19. PROCESSING OF DATA FROM QUESTIONNAIRE

As many as 89 companies completed and returned our questionnaire. They are located in a number of cities and towns, namely: Jakarta, Bekasi, Tangerang, Cilegon Bandung (West Java), Surabaya, Malang, Gresik, Sidoarjo (East Java), Semarang, Yogyakarta, Magelang and Solo (Central Java). A number of respondents located in other cities/towns were contacted by letter, fax or telephone.

19.1. Future Trends in Development of Steel Consuming Industries

19.1.1. Automotive and Car Body Making Industry

In the past three years, the development of the automotive industry has been fluctuating, showing a tendency to decline over the past year. Several big companies engaged in car body making, which are related to car assemblers, are still in operation, although their capacity utilization rates are very low. By contrast, many small car body makers which depend on orders from car dealers are having difficulties in maintaining their operation due to lack of orders.

From interviews with 15 car body makers, it is estimated that sales will decrease by 20% to 50% next year, particularly in the case of the small companies. Broadly speaking, car body makers are pessimistic about the present situation, which has been brought about by the people's low purchasing power and the Government's continuing tight money policy which does not stimulate the growth of the automotive industry in Indonesia.

However, PT Superior Coach and PT Nusa Cendana Harum, both related to the Astra Group, the biggest group of companies in the automotive industry, are still optimistic about their future and estimate that their sales will increase by more than 6% annually in the next five years.

19.1.2. Can Making Industry

Although in general can making companies are not very optimistic about the future trends in can sales due to the presence of cheaper substitutes, like plastic containers, some of them believe that they can still increase their sales. Two fairly big can makers, PT Putera Dharma and PT Ancol Terang Metal Printing, estimate that their sales may increase by more than 6% annually in the next five years. The biggest can maker in the country, PT United Can Co.,

however, projects an increase of 4% to 6% annually in its sales in the next five years.

19.1.3. Electrical and Electronic Appliance Industry

After slowing down from 1986 to 1988, the electrical and electronic appliance industry which produces such products as air conditioners, refrigerators, electric fans, TV sets and audio equipment, has been growing rapidly in the past few years as a result of increasing demand in the domestic and export markets.

It is believed that the rapid growth of this industry in the past two years will continue in the coming years. Sanyo and Nasional, two companies that have been engaged in electrical and electronic appliance manufacturing for quite some time in Indonesia, modestly project that the industry will grow by about 6% annually in the next five years. The reason for this modest projection is that it is believed that the people's purchasing power will increase in pace with the country's economic growth. Big domestic manufacturers of electrical and electronic appliances rely more on the domestic market than export markets. On the other hand, newly established manufacturers are keen on selling their products in export markets which are now more accessible to Indonesian products.

19.1.4. Galvanized Iron (GI) Sheet Industry

The galvanized iron (GI) sheet industry has been in existence for a long time in Indonesia. The industry has been declining since 1982 when the country went through an economic crisis as a result of the drop in the price of oil, which had an adverse impact on the construction sector. It is becoming more difficult for GI sheet, which is mostly used for roofing for low cost houses, to compete with substitute roofing materials, such as clay and cement roof tiles, which are cheaper. Because of the high cost of steel sheet, from which GI sheet is made, GI sheet can not compete in price with other roofing materials. As a result, many GI sheet manufacturers in Indonesia have gone out of business.

GI sheet production continued to decline from 1985 to 1990. In 1991, it rose slightly. Because of this slight increase in production, GI sheet manufacturers are not optimistic about the

future trends in GI sheet sales, as reflected in their projections which range from 3% to 6% annually in the next five years. There are even companies which project their sales to drop by as much as 10% annually in the coming years. Those projecting a drop in sales identify growing competition from substitute products as a serious problem that will continue to face domestic GI sheet manufacturers; while those projecting an increase in sales base their projection on the assumption that there will be an increasing demand in pace with the country's economic growth.

19.1.5. Heavy Equipment Industry

The production of several types of heavy equipment, such as wheel loaders, motor graders, excavators and forklifts, has been increasing in the past five years. Even so, the growth of the heavy equipment industry is considered slow, as its production is still small and many units of heavy equipment are still imported, although the Government officially limits imports of the types of heavy equipment already produced within the country.

The production of heavy equipment grouped as construction equipment, like excavators and motor graders, is greatly influenced by developments in the construction sector. The boom in the construction sector from 1988 to 1990 led to a sharp rise in the production of several types of heavy equipment. Now that the boom is over, the heavy equipment industry shows signs of slackness. Even so, there is a domestic heavy equipment producer projecting its sales to increase by more than 6% annually, on the ground that infrastructure development carried out by the Government and private companies will continue to need heavy equipment.

19.1.6. Machine Industry and Steel Fabrication

The machine industry did not begin to develop until recently, although a number of workshops had been making machines and equipment for sugar mills, coconut palm processing plants, etc.

However, tight competition with imported products has prevented the industry from growing rapidly. Besides producing plant machinery and equipment, machine making companies also performs engineering and fabricating jobs, producing such products as pressure vessels, storage tanks, steel containers and boilers.

In view of developments in the past five years, machine making and steel fabricating companies, especially those producing storage tanks, boilers, pressure vessels and ships, are optimistic about the future. The five shipbuilders interviewed project sales to increase by 10% to 20% annually in the next five years.

19.1.7. Steel Construction

The construction sector began to pick up in 1988 when Indonesia's economy grew rapidly as a result of the rapid growth of non-oil/gas exports. New plants, offices and various facilities were built to support fast growing export activities. This had a positive impact on the steel construction sector.

Steel construction undertakings performed are mostly steel structures for buildings, bridges, plant installations, industrial platforms, electrical installations, etc.

Of the nine steel construction companies interviewed, four project sales to increase by over 6% annually, two by 1% to 3%, and one 0%. However, in general steel construction companies believe that the steel construction sector will improve in the next five years, with growth rates estimated at 5% to 20%.

19.1.8. Steel Drum Industry

Steel drum making companies in Indonesia produce drums mainly to meet the requirements of the state oil company, Pertamina, for oil and lubricating oil packaging. Increases in the production of Pertamina's oil refineries and in the number of chemical manufacturers producing liquid chemicals will result in a greater demand for steel drums.

The two biggest steel drum makers in Indonesia project the steel drum making industry to grow by 5% to 10% annually in the next five years.

19.1.9. Steel Pipe Industry

The steel pipe industry in the country h[illegible] fairly stable in the past five years. During the [illegible] the highest increase in production occurred in 1990.

Several big companies that have acquired the capability of producing oil pipes are optimistic that their sales will increase in the coming years. PT Bakrie and Brothers and PT KHI project that the steel pipe industry will grow by 10% to 20% annually. On the other hand, several companies believe that their sales will drop, as the increased demand for pipes will be accompanied with the operation of new pipe plants in the near future. There is fear that the old plants which do not use sophisticated equipment will not be able to compete with the new ones which are equipped with sophisticated equipment. Apart from that, there is growing competition from plastic pipe manufacturers, mainly PVC pipe manufacturers, which also enjoy increasing production. In view of this, steel pipe manufacturers, especially those producing water pipes for buildings, see tougher competition in the future.

19.2. Procurement of Steel

In general, steel consumers obtain their supply from more than one company, except steel pipe and GI sheet manufacturers. Most steel pipe manufacturers obtain steel (in the form of steel sheet) direct from Krakatau Steel. Of the 12 steel pipe manufacturers selected as our respondents, 10 obtain steel only from Krakatau Steel and the other two obtain from Krakatau Steel and occasionally from coil centers. GI sheet manufacturers also obtain steel (CR Coil) from PT Krakatau Steel.

Other consumers of flat steel do not obtain steel direct from Krakatau Steel, but they have regular suppliers.

A number of respondents point out that it is easy to obtain steel in the open market. It has been found that a problem concerning steel supply is delivery time. For example, PT Bumi Kaya and PT Bakrie & Brother say that the delivery time of steel from PT Krakatau Steel may take up to three months, with the L/C having to be opened in advance, which means advance cash payment. As a result of long delivery time, many steel pipe manufacturers have to carry a fairly big steel sheet stock. For example, PT Bumi Kaya, which has a production capacity of around 70,000 tons/year, has to maintain a stock of over 10,000 tons, as Krakatau Steel only take orders which meet its minimum order requirements.

Steel pipe manufacturers maintain a big stock of steel sheet so that they may be able to meet the demand for pipes at a short notice, usually through tenders. Only those with an

tenders which call for the supply of steel pipes. Complaints about the difficulty in obtaining steel sheet have been voiced by steel pipe and GI sheet manufacturers, which are the major consumers of steel sheet.

Table- 19.1
Procurement of Flat Steel

CODEPT	NAME OF COMPANY	INDUSTRY SECTORS	NUMBER OF SUPPLIER			PROCUREMENT			Comment on proc.		
			1	2-5	>5	Easy	Diff.	Other	not soon	not avail	Other
057 PT	KTB	Automotive		X			X		X		
071 PT	Ancol Terang Metal Printing	Can Making	X			X					X
068 PT	Putera Dharma	Can Making		X		X			X		
036 PT	Almicos	Can Making	X			X					X
078 PT	United Can Co. Ltd	Can Making	X			X				X	
019 PT	Putera Berlian	Car Body Builder		X		X					X
052 PT	Kobutri	Car Body Builder	X			X					X
027 CV	Laksana Karoseri	Car Body Builder	X			X			X		
058 PT	Meridian Mustika	Car Body Builder	X			X					X
043 PT	Handayani	Car Body Builder	X			X					X
021 PT	Superior Coach	Car Body Builder	X			X					X
002 PT	Permorin	Car Body Builder	X			X					X
018 PT	Nasmoco	Car Body Builder	X			X					X
025 PT	Tugas Kita	Car Body Builder		X		X					X
013 PT	Mekar Armada Jaya	Car Body Builder		X			X			X	
33 PT	Podo Joyo	Car Body Builder		X		X					X
028 PT	Laksana	Car Body Builder		X		X			X		
024 PT	Trisakti Carrosery	Car Body Builder		X		X					X
054 PT	Adi Budaya Cipta	Car Body Builder		X		X					X
012 PT	Nusa Cendana Harum	Car Body Builder	X								
004 PT	Sanyo Industries Indonesia	Electric/Electronic		X		X					X
084 PT	Tjiparaj Permai	Electric/Electronic	X				X				X
031 PT	Honoris Perdana Indonesia	Electric/Electronic		X			X			X	
087 PT	Padi Komponen	Electric/Electronic		X		X			X		
064 PT	National Gobel	Electric/Electronic		X		X					X
009 PT	Semarang Makmur	GI Sheet	X				X		X		
014 PT	Fumira	GI Sheet	X			X					X

CODEPT	NAME OF COMPANY	INDUSTRY SECTORS	NUMBER OF SUPPLIER			PROCUREMENT			Comment on proc.		
			1	2-5	>5	Easy	Diff.	Other	not soon	not avail	Other
062 PT	Tumbak Mas Inti Mulia	GI Sheet		X		X					X
059 PT	Keris Mas Sukses	GI Sheet	X				X		X		
060 PT	United Tractors Pandu Engineering	Heavy Equipment		X		X					X
044 PT	Barata Indonesia	Heavy Equipment	X			X					
070 PT	Sakai Sakti	Heavy Equipment		X		X				X	
017 PT	Inti General Yaja Steel	Long Product Steel									
010 PT	Jadi Jaya makmur	Machinery & Engineering	X			X			X		
016 PT	Kubota Indonesia	Machinery & Engineering		X				X			X
011 PT	Tatung Budi Indonesia	Machinery & Engineering		X		X					X
001 PT	Hasuno Putra Utama	Machinery & Engineering		X		X					X
073 PT	Kerta Laksana	Machinery & Engineering	X			X					X
003 PT	Bukaka Kujang Prima	Machinery & Engineering		X		X			X		
046 PT	Babcock & Wilcox Indonesia	Machinery & Engineering		X		X					X
084 PT	Boma Stork	Machinery & Engineering	X			X					
072 PT	Carya Ltd.	Machinery & Engineering	X			X			X		
074 PT	Karpindo Bahagia	Machinery & Engineering		X		X					X
008 PT	Rabda	Machinery & Engineering		X		X					X
051 CV	Setia Logam	Machinery & Engineering		X		X					X
053 PT	Pindad Persero	Machinery & Engineering			X	X					X
026 PT	Kartika Indah	Machinery & Engineering		X			X		X		
076 PT	Aalborg Ciserv Jakarta	Machinery & Engineering		X		X					X
041 PT	Boma bisma Indra unit Bisma	Machinery & Engineering		X		X					X
007 PT	Kubota Indonesia	Machinery & Engineering		X		X					X
088 PT	Meco Inox Prima	Machinery & Engineering	X			X					
075 PT	Lee Won Industrial Co.	Machinery & Engineering		X		X					X
049 PT	Union Metal Work Product	Office Equipment		X		X					X
085 PT	INKA	Railway Industry			X			X		X	
045 PT	Bhiraw Steel	Reinforcing Rod/Bar		X		X					
065 PT	Inggom Shipyard	Shipbuilding		X			X		X		
022 PT	Dok & Perkapalan Kodja Bahari	Shipbuilding		X		X			X		
035 PT	PAL Indonesia	Shipbuilding		X		X			X		
023 PT	Jasa Marina Indah	Shipbuilding		X		X				X	

CODEPT	NAME OF COMPANY	INDUSTRY SECTORS	NUMBER OF SUPPLIER			PROCUREMENT			Comment on proc.		
			1	2-5	>5	Easy	Diff.	Other	not soon	not avail	Other
042 PT	Dok dan perkapalan Surabaya	Shipbuilding		X		X					X
048 PT	Berca Indonesia	Steel Construction		X			X		X		
034 PT	Bangun Sarana Baja	Steel Construction		X		X					X
037 PT	Jatim Mustika Sarana Steel	Steel Construction		X		X					X
020 PT	Amarta Karya	Steel Construction		X			X		X		
006 PT	Panca Jasa	Steel Construction			X	X				X	
0.7 PT	Nurinda	Steel Construction		X		X					X
063 PT	Jaya Steel Indonesia	Steel Construction		X		X			X		
038 PT	Ometraco Arya Samantha	Steel Construction		X		X					X
055 NV	Soedono & Co.	Steel Construction		X		X				X	
077 PT	Steel Center Indonesia	Steel Cutting	X				X		X		
050 PT	Afro Pacific Indah Steel	Steel Cutting		X		X					X
066 PT	Rheem Indonesia	Steel Drum		X		X			X		
067 PT	Poli Contindo Nusa	Steel Drum	X			X					X
032 PT	ISPAT INDO	Steel Mill									
081 PT	Pabrik Pipa Indonesia	Steel Pipe	X			X					X
005 PT	Bumi Kaya Steel	Steel Pipe	X			X			X		
039 PT	Radjin Steel Pipe Industry	Steel Pipe	X			X					X
030 PT	Bakrie and Brothers	Steel Pipe	X				X		X		
015 PT	Raja Besi	Steel Pipe		X			X			X	
080 PT	Wira Mustika Indah	Steel Pipe	X			X					
086 PT	Aneka Jakarta Iron Steel	Steel Pipe	X				X		X		
082 PT	Sinar Tangerang Steel	Steel Pipe	X								X
061 PT	KHI.Pipe Industries	Steel Pipe	X			X			X		
079 PT	Super Tata Raya Steel Corp	Steel Pipe	X			X					
029 PT	Indonesia Steel tube Works	Steel Pipe		X			X		X		
056 PT	Bakrie Pipe Industries	Steel Pipe	X				X		X		
040 PT	Jaya Pari Steel	Steel Sheet/Plate		X		X					X
069 PT	Pelat Timah Nusantara (LATINUSA)	Tin Plate		X			X		X		

Table- 19.2
Suppliers of Flat Steel and Volume of Supply

Code	Name of Company	Name of Suppliers	Flat Steel Purchaced (tons)
** Industry Sector: Automotive			
057	KTB	PT.Krakatau Steel	8400
** Subtotal **			8400
** Industry Sector: Can Making			
068	Putera Dharma	PT Latinusa	7200
		Cometa Trading	
		Multi Makmur	
036	Almicos	PT Latinusa	1240
071	Ancol Terang Metal Printing	PT.Krakatau Steel	9600
078	United Can Co. Ltd	Latinusa	18000
** Subtotal **			36040
** Industry Sector: Car Body Builder			
002	Permorin	Steel Center	240
012	Nusa Cendana Harum	Toyota Astra Motor	30000
013	Mekar Armada Jaya	PT Sarana Steel	1000
		PT Super Steel	
		PT Afro Pacific	
		PT Asahan Perindo Sakti	
018	Nasmoco	Toyota Astra	0
019	Putera Berlian	PT Krakatau Steel	130
		PT Steel Center Indonesia	
		PT Benteng Mas	
		Distributor2 KS	
021	Superior Coach	Toyota Astra	34000
024	Trisakti Carrosery	Toko Surabaya Baja	100
		Toko Cemerlang	
		PT Afro Pacific	
027	Laksana Karoseri	PT Tumbak Mas Inti	500
028	Laksana	PT Tumbak Mas Inti Mulia	800
		PT Afro Pacific	
043	Handayani	Sinar Mas, Jakarta	300
054	Adi Budaya Cipta	PT.Surabaya Baja	140
		PT.Afro Pacific	
025	Tugas Kita	PT Surabaya Baja	120
		PT Cahaya Benteng Mas	

033	Podo Joyo	Toko Sinarmas	5
		Toko Benteng Mas Abadi	
		Toko Bordes Nusantara	
058	Meridian Mustika	PT.Steel Center Indonesia	60
052	Kobutri	PT.SuperAsteeBandung	152
		PD.Toko Murni Bandung Selatan	
** Subtotal **			67547
** Industry Sector: Electric/Electronic			
004	Sanyo Industries Indonesia	PT Super Steel Indah	1486
		PT Steel Center	
		PT Continental	
		PT Sinar Steel	
031	Honoris Perdana Indonesia	Steel Center	500
		Krakatau Baja Pertama	
064	National Gobel	PT Steel Center Indonesia	2400
		PT Super Steel Indah	
083	Tjiparaj Permai	PT Steel Center Indonesia	800
087	Padi Komponen	PT. Steel Center	7000
		PT. Super Steel Indah	
** Subtotal **			12186
** Industry Sector: GI Sheet			
009	Semarang Makmur	PT Krakatau Steel	13269
014	Fumira	PT Krakatau Steel	36000
059	Keris Mas Sukses	PT.Krakatau Steel	30000
062	Tumbak Mas Inti Mulia	PT.Krakatau Steel	0
** Subtotal **			79269
** Industry Sector: Heavy Equipment			
060	United Tractors Pandu Engineering	PT Krakatau Steel	0
		Dealer-dealer resmi Krakatau S	
044	Barata Indonesia	PT.Krakatau Steel	2400
		Supplier Krakatau Steel	
		Toko-toko penjual baja	
070	Sakai Sakti	PT.Sumber Jaya	1000
		PT.Tiga Jaya	
** Subtotal **			3400
** Industry Sector: Long Product Steel			
017	Inti General Jaya Steel		0
** Subtotal **			0
** Industry Sector: Machinery & Engineering			
088	Meco Inox Prima	UD Waspada Jaya	110

041	Boma bisma ndra unit Bisma		3
046	Babcock & Wilcox Indonesia	Mitsubisi Jepang	1000
		Canada Trading Company-Canada	
		Sumitomo Metal Jepang	
001	Hasuno Putra Utama	NAGARA Jepang SURABAYA	50
		SINAR KENCANA, SURABAYA	
007	Kubota Indonesia	Toko Besi Merdeka	18
		Toko Sumber Teknik	
008	Rabda	PT Aneka Bearing, Semarang	20
		PT Logam Jaya	
010	Jadi Jaya makmur	PT Wijaya teknik	0
011	Tatung Budi Indonesia	PT PANCA SURYA GEMILANG	600
		PD PRIMA REJEKI ABADI	
		PD SUMBER MAS	
026	Kartika Indah	PT Toko besi Cemerlang	600
051	Setia Logam	PD.Toko Makmur Sentosa	240
		PD.UD.Sinar Harapan	
053	Pindad Persero	PT.Permata	2000
		PT.Krakatau Steel	
		Nisoiwai C.Itoh - Jepang	
		Sumitomo TRACO. - Jepang	
016	Kubota Indonesia	Toko Besi Merdeka	18
		Toko Sumber Teknik	
003	Bukaka Kujang Prima	KS	3660
		Dealer-dealer KS	
073	Kerta Laksana	PT. Rimba Insantek	113
		PT. Cipta Utama	
		PT. Makmur Santosa	
074	Karpindo Bahagia	PD.Toko Sinar Mas	630
		PD.Toko Sinar Surabaya	
		PD.Toko Baja Mas Inti	
		PT.Krakatau Steel	
076	Aalborg Ciserv Jakarta	PT.Krakatau Steel	7000
		Distributor Krakatau Steel	
084	Boma Stork		4800
072	Carya Ltd.	PT.Krakatau Steel	45000
075	Lee Won Industrial Co.	UD.Baja Mas Inti	785
		UD.Sinar Mas SEjahtera	
		UD.Husin	
** Subtotal **			66647
** Industry Sector: Office Equipment			
049	Union Metal Work Product	PT.Krakatau Steel	15000
** Subtotal **			15000
** Industry Sector: Railway Industry			
085	INKA	PT Krakatau Steel	1200
** Subtotal **			1200

** Industry Sector: Reinforcing Rod/Bar			
045	Bhirawa Steel	PT.Krakatau Steel PT.Ispat Indo	0
** Subtotal **			0
** Industry Sector: Shipbuilding			
022	Dok & Perkapalan Kodja Bahari	PT Krakatau Steel PT Tjahaya Agung Surabaya	8000
042	Dok dan perkapalan Surabaya	Krakatau Steel Agen KS	2600
065	Inggom Shipyard	Krakatau Steel Distributor KS	1800
035	PAL Indonesia	PT Krakatau Steel UD Cahaya Agung UD Cimindi UD Trisari Kumpul	3087
023	Jasa Marina Indah	Cahaya Agung	700
089	Dok & Perkapalan Kodja Bahari Unit Galangan IV		0
** Subtotal **			16187
** Industry Sector: Steel Construction			
047	Murinda	PT.Krakatau Steel UD.Toko Baja Mas	15000
006	Panca Jasa	UD Masa Kerja UD Bintang Mas UD Sumber hasil UD Bersatu	600
055	Soedono & Co.	PT.Besi Merdeka UD.Toko Baja Semarang	50
063	Jaya Steel Indonesia	Krakatau Steel Gunawan Dian Jaya Steel Jaya Pari Steel	500
034	Bangun Sarana Baja	Sumber Hasil Baja Masa Inti Bima Masa Adi Kerja	21000
037	Jatim Mustika Sarana Steel	Toko Masa Kerja Toko Sumber Hasil Toko Sabang	3300
038	Ometraco Arya Samantha	UD Sumber hasil UD Baja Mas Inti UD Masa Kerja	1100
048	Berca Indonesia	PT.Krakatau Steel	3600
020	Amarta Karya	PT Krakatau Steel PT Jaya Pari Steel PT Raja Besi PT Mitra Laksana	4230

** Subtotal **		49380
** Industry Sector: Steel Cutting		
050 Afro Pacific Indah Steel	PT.Krakatau Steel	30000
	PT.Cold Rolling Mills Indonesi	
077 Steel Center Indonesia	Krakatau Steel	14500
** Subtotal **		44500
** Industry Sector: Steel Drum		
066 Rheem Indonesia	PT Krakatau Steel	9500
	Distributor KS	
067 Poli Contindo Nusa	Krakatau Steel	7000
** Subtotal **		16500
** Industry Sector: Steel Mill		
032 ISPAT INDO		0
** Subtotal **		0
** Industry Sector: Steel Pipe		
056 Bakrie Pipe Industries	PT.Krakatau Steel	45000
039 Radjin Steel Pipe Industry	Krakatau Steel	33000
061 KHI.Pipe Industries	PT.Krakatau Steel	70000
005 Bumi Kaya Steel	PT Krakatau Steel	50000
030 Bakrie and Brothers	Krakatau Steel	70000
015 Raja Besi	PT Krakatau Steel	60
029 Indonesia Steel tube Works	Krakatau Steel	36000
	CRMI	
079 Super Tata Raya Steel Corp	PT Krakatau Steel	33000
080 Wira Mustika Indah	PT Krakatau Steel	30000
081 Pabrik Pipa Indonesia	PT Krakatau Steel	2000
082 Sinar Tangerang Steel	PT. Krakatau Steel	31000
086 Aneka Jakarta Iron Steel	PT Krakatau Steel	40000
** Subtotal **		440060
** Industry Sector: Steel Sheet/Plate		
040 Jaya Pari Steel		0
** Subtotal **		0
** Industry Sector: Tin Plate		
069 Pelat Timah Nusantara (LATINUSA)		120000
** Subtotal **		120000

19.3. Comparison of Local and Imported Steel

19.3.1. Quality

Of the 76 respondents answering the question about the quality of local and imported steel, as many as 24 say the quality is the same, 47 say local steel has lower quality than imported steel and only 5 say the opposite.

Most of the respondents in the steel pipe manufacturing industry say the quality of local and imported steel is the same, but local steel is often not uniform in thickness or width. Lack of uniformity in width causes significant wastes and lack of uniformity in thickness causes greater losses, as the material can not be used.

Lack of uniformity in width and thickness is the main complaint voiced by steel sheet consumers about local steel, as this causes significant losess on their part. It is usually difficult for them to make claims to Krakatau Steel. Claims to Krakatau Steel take a long time to process and may even be ignored.

Table 19.3

Materials Quality Local US Import

CODEPT	NAME OF COMPANY	INDUSTRY SECTORS	Material Quality Local VS Import Same	Worse
057 PT	KTB	Automotive	X	
071 PT	Ancol Terang Metal Printing	Can Making		X
068 PT	Putera Dharma	Can Making	X	
036 PT	Almicos	Can Making		
078 PT	United Can Co. Ltd	Can Making	X	
019 PT	Putera Berlian	Car Body Builder		
052 PT	Kobutri	Car Body Builder		
027 CV	Laksana Karoseri	Car Body Builder	X	
058 PT	Meridian Mustika	Car Body Builder	X	
043 PT	Handayani	Car Body Builder		
021 PT	Superior Coach	Car Body Builder		
002 PT	Permorin	Car Body Builder	X	
018 PT	Nasmoco	Car Body Builder		
025 PT	Tugas Kita	Car Body Builder		
013 PT	Mekar Armada Jaya	Car Body Builder		X
33 PT	Podo Joyo	Car Body Builder		X
028 PT	Laksana	Car Body Builder		X
024 PT	Trisakti Carrosery	Car Body Builder		X
054 PT	Adi Budaya Cipta	Car Body Builder		X
012 PT	Nusa Cendana Harum	Car Body Builder		
004 PT	Sanyo Industries Indonesia	Electric/Electronic		X
084 PT	Tjiparaj Permai	Electric/Electronic		X
031 PT	Honoris Perdana Indonesia	Electric/Electronic		X
087 PT	Padi Komponen	Electric/Electronic		X
064 PT	National Gobel	Electric/Electronic		X
009 PT	Semarang Makmur	GI Sheet		X
014 PT	Fumira	GI Sheet		X
062 PT	Tumbak Mas Inti Mulia	GI Sheet		X
059 PT	Keris Mas Sukses	GI Sheet		X
060 PT	United Tractors Pandu Engineering	Heavy Equipment	X	
044 PT	Barata Indonesia	Heavy Equipment		
070 PT	Sakai Sakti	Heavy Equipment		X
017 PT	Inti General Yaja Steel	Long Product Steel		
010 PT	Jadi Jaya makmur	Machinery & Engineering		X
016 PT	Kubota Indonesia	Machinery & Engineering		X
011 PT	Tatung Budi Indonesia	Machinery & Engineering		X
001 PT	Hasuno Putra Utama	Machinery & Engineering		X

CODEPT	NAME OF COMPANY	INDUSTRY SECTORS	Material Quality Local VS Import Same	Worse
073 PT	Kerta Laksana	Machinery & Engineering		X
003 PT	Bukaka Kujang Prima	Machinery & Engineering	X	
046 PT	Babcock & Wilcox Indonesia	Machinery & Engineering		X
084 PT	Boma Stork	Machinery & Engineering		X
072 PT	Carya Ltd.	Machinery & Engineering	X	
074 PT	Karpindo Bahagia	Machinery & Engineering		X
008 PT	Rabda	Machinery & Engineering		
051 CV	Setia Logam	Machinery & Engineering		X
053 PT	Pindad Persero	Machinery & Engineering		X
026 PT	Kartika Indah	Machinery & Engineering		X
076 PT	Aalborg Ciserv Jakarta	Machinery & Engineering		X
041 PT	Boma bisma Indra unit Bisma	Machinery & Engineering		
007 PT	Kubota Indonesia	Machinery & Engineering	X	
088 PT	Meco Inox Prima	Machinery & Engineering		X
075 PT	Lee Won Industrial Co.	Machinery & Engineering		X
049 PT	Union Metal Work Product	Office Equipment	X	
085 PT	INKA	Railway Industry		X
045 PT	Bhirawa Steel	Reinforcing Rod/Bar		
065 PT	Inggom Shipyard	Shipbuilding		X
022 PT	Dok & Perkapalan Kodja Bahari	Shipbuilding	X	
035 PT	PAL Indonesia	Shipbuilding	X	
023 PT	Jasa Marina Indah	Shipbuilding		X
042 PT	Dok dan perkapalan Surabaya	Shipbuilding	X	
048 PT	Berca Indonesia	Steel Construction		X
034 PT	Bangun Sarana Baja	Steel Construction		X
037 PT	Jatim Mustika Sarana Steel	Steel Construction		
020 PT	Amarta Karya	Steel Construction		X
006 PT	Panca Jasa	Steel Construction	X	
047 PT	Murinda	Steel Construction		X
063 PT	Jaya Steel Indonesia	Steel Construction		X
038 PT	Ometraco Arya Samantha	Steel Construction		X
055 NV	Soedono & Co.	Steel Construction		X
077 PT	Steel Center Indonesia	Steel Cutting		X
050 PT	Afro Pacific Indah Steel	Steel Cutting	X	
066 PT	Rheem Indonesia	Steel Drum		X
067 PT	Poli Contindo Nusa	Steel Drum		
032 PT	ISPAT INDO	Steel Mill		
081 PT	Pabrik Pipa Indonesia	Steel Pipe	X	
005 PT	Bumi Kaya Steel	Steel Pipe	X	
039 PT	Radjin Steel Pipe Industry	Steel Pipe		
030 PT	Bakrie and Brothers	Steel Pipe	X	
015 PT	Raja Besi	Steel Pipe		X
080 PT	Wira Mustika Indah	Steel Pipe	X	

CODEPT	NAME OF COMPANY	INDUSTRY SECTORS	Material Quality Local VS Import Same	Worse
086 PT	Aneka Jakarta Iron Steel	Steel Pipe		X
082 PT	Sinar Tangerang Steel	Steel Pipe		X
061 PT	KHI.Pipe Industries	Steel Pipe	X	
079 PT	Super Tata Raya Steel Corp	Steel Pipe	X	
029 PT	Indonesia Steel tube Works	Steel Pipe		X
056 PT	Bakrie Pipe Industries	Steel Pipe	X	
040 PT	Jaya Pari Steel	Steel Sheet/Plate		X
069 PT	Pelat Timah Nusantara (LATINUSA)	Tin Plate	X	

19.3.2. Price

Comments on the price of local and imported steel vary. Most steel consumers in Indonesia have never imported steel. In the past, steel sheet in the form of HRC and CRC could be imported only by PT Krakatau Steel and more recently CRC could be imported only by PT Giwang Selogam, which is the sister company of PT CRMIU. Following the deregulation of the steel industry, steel may be freely imported and several steel companies have been importing their requirements.

Most of the 39 respondents which say that the price of local steel is lower than imported steel point out that this is due to the high rate of import duty imposed on steel, which is already produced in Indonesia. Those which say that local steel is cheaper than imported steel also agree that the quality of local steel is lower than that of imported steel. Understandably, many steel consumers which do not have to conform to high quality steel requirements prefer to use local steel. For example, car body makers prefer to use local steel. For them, steel quality is not a great concern, as buyers of locally built cars are not greatly concerned with the quality of the steel used.

Those which use steel with certain specifications, which is produced in limited quantities by PT Krakatau Steel, think that the price of the local product is higher than the imported product. For example, shipbuilders say that the price of local steel is higher than that of imported steel. PT Krakatau Steel produces steel for ships in limited quantities, so domestic shipbuilders have to place special orders, which makes the price of local steel for ship higher than that of the imported product.

Prepared by P.T. Data Consult Inc.

Table 19.4

Flat Steel Price Local Us Import

CODEPT	NAME OF COMPANY	INDUSTRY SECTORS	Flat Steel Price Locl VS Import			Procurement of Flat Steel			
			Better	Same	Expen.	Cheap.	Import	Local	Imp+Loc.
057 PT	KTB	Automotive			X				X
071 PT	Ancol Terang Metal Printing	Can Making				X		X	
068 PT	Putera Dharma	Can Making		X					X
036 PT	Almicos	Can Making					X		
078 PT	United Can Co. Ltd	Can Making				X		X	
019 PT	Putera Berlian	Car Body Builder	X			X			X
052 PT	Kobutri	Car Body Builder	X			X		X	
027 CV	Laksana Karoseri	Car Body Builder				X		X	
058 PT	Meridian Mustika	Car Body Builder				X			X
043 PT	Nandayani	Car Body Builder						X	
021 PT	Superior Coach	Car Body Builder						X	
002 PT	Permorin	Car Body Builder		X					X
018 PT	Nasmoco	Car Body Builder							
025 PT	Tugas Kita	Car Body Builder	X			X		X	
013 PT	Mekar Armada Jaya	Car Body Builder				X			X
33 PT	Podo Joyo	Car Body Builder		X					X
028 PT	Laksana	Car Body Builder				X		X	
024 PT	Trisakti Carrosery	Car Body Builder			X				X
054 PT	Adi Budaya Cipta	Car Body Builder				X	X		
012 PT	Nusa Cendana Narum	Car Body Builder							
004 PT	Sanyo Industries Indonesia	Electric/Electronic				X			X
084 PT	Tjiparaj Permai	Electric/Electronic				X		X	
031 PT	Honoris Perdana Indonesia	Electric/Electronic			X				X
087 PT	Padi Komponen	Electric/Electronic				X			X
064 PT	National Gobel	Electric/Electronic				X			X
009 PT	Semarang Makmur	GI Sheet				X		X	

Prepared by P. T. Elsa Consulting

CODEPT	NAME OF COMPANY	INDUSTRY SECTORS	Flat Steel Price Loci VS Import			Procurement of Flat Steel			
			Better	Same	Expen.	Cheap.	Import	Local	Imp+Loc.
018	PT Fumira	GI Sheet				X		X	
062	PT Tumbak Mas Inti Mulia	GI Sheet			X			X	
059	PT Keris Mas Sukses	GI Sheet				X			X
060	PT United Tractors Pandu Engineering	Heavy Equipment		X				X	
044	PT Barata Indonesia	Heavy Equipment						X	
070	PT Sakai Sakti	Heavy Equipment		X				X	
017	PT Inti General Yaja Steel	Long Product Steel							
010	PT Jadi Jaya makmur	Machinery & Engineering				X			X
016	PT Kubota Indonesia	Machinery & Engineering				X		X	
011	PT Tatung Budi Indonesia	Machinery & Engineering				X			X
001	PT Nasuno Putra Utama	Machinery & Engineering				X			X
073	PT Kerta Laksana	Machinery & Engineering				X		X	
003	PT Bukaka Kujang Prima	Machinery & Engineering			X				X
046	PT Babcock & Wilcox Indonesia	Machinery & Engineering		X			X		
084	PT Boma Stork	Machinery & Engineering		X			X		
072	PT Carya Ltd.	Machinery & Engineering			X			X	
074	PT Karpindo Bahagia	Machinery & Engineering		X					X
008	PT Rabda	Machinery & Engineering	X			X		X	
051	CV Setia Logam	Machinery & Engineering				X		X	
053	PT Pindad Persero	Machinery & Engineering			X				X
026	PT Kartika Indah	Machinery & Engineering			X		X		
076	PT Aalborg Ciserv Jakarta	Machinery & Engineering				X			X
041	PT Boma bisma Indra unit Bisma	Machinery & Engineering						X	
007	PT Kubota Indonesia	Machinery & Engineering				X		X	
088	PT Meco Inox Prima	Machinery & Engineering			X		X		
075	PT Lee Won Industrial Co.	Machinery & Engineering		X					X
049	PT Union Metal Work Product	Office Equipment				X		X	
085	PT INKA	Railway Industry			X			X	
045	PT Bhirawa Steel	Reinforcing Rod/Bar						X	
065	PT Inggom Shipyard	Shipbuilding			X				X

CODE PT	NAME OF COMPANY	INDUSTRY SECTORS	Flat Steel Price Locl VS Import Better	Same	Expen.	Procurement of Flat Steel Cheap.	Import	Local	Imp+Loc.
022 PT	Dok & Perkapalan Kodja Bahari	Shipbuilding			X				X
039 PT	PAL Indonesia	Shipbuilding				X		X	
023 PT	Jasa Marina Indah	Shipbuilding			X			X	
042 PT	Dok dan perkapalan Surabaya	Shipbuilding				X		X	
048 PT	Berca Indonesia	Steel Construction			X			X	
034 PT	Bangun Sarana Baja	Steel Construction				X			X
037 PT	Jatim Mustika Sarana Steel	Steel Construction	X		X			X	
020 PT	Amarta Karya	Steel Construction			X				X
006 PT	Panca Jasa	Steel Construction			X			X	
047 PT	Murinda	Steel Construction				X			X
063 PT	Jaya Steel Indonesia	Steel Construction				X		X	
038 PT	Ometraco Arya Samantha	Steel Construction			X			X	
055 NV	Soedono & Co.	Steel Construction				X		X	
077 PT	Steel Center Indonesia	Steel Cutting				X			X
050 PT	Afro Pacific Indah Steel	Steel Cutting				X		X	
066 PT	Rheem Indonesia	Steel Drum			X			X	
067 PT	Poli Contindo Nusa	Steel Drum					X		
032 PT	ISPAT INDO	Steel Mill							
081 PT	Pabrik Pipa Indonesia	Steel Pipe			X			X	
005 PT	Bumi Kaya Steel	Steel Pipe			X			X	
039 PT	Radjin Steel Pipe Industry	Steel Pipe						X	
030 PT	Bakrie and Brothers	Steel Pipe			X				X
015 PT	Raja Besi	Steel Pipe			X				X
080 PT	Wira Mustika Indah	Steel Pipe				X		X	
086 PT	Aneka Jakarta Iron Steel	Steel Pipe			X			X	
082 PT	Sinar Tangerang Steel	Steel Pipe				X		X	
061 PT	KHI.Pipe Industries	Steel Pipe		X				X	
079 PT	Super Tata Raya Steel Corp	Steel Pipe			X			X	
029 PT	Indonesia Steel tube Works	Steel Pipe			X				X
056 PT	Bakrie Pipe Industries	Steel Pipe				X		X	
040 PT	Jaya Pari Steel	Steel Sheet/Plate					X		
069 PT	Pelat Timah Nusantara (LATINUSA)	Tin Plate				X	X		

Flat Steel Materials Specifications

Specifications of flat steel materials used by end-users are identified into 5 categories, namely; steel grade, tensile strength, type of alloying metal, width categories and thickness.

The detail of each categories are as follows:

Steel Grade :
- [A] Non Alloyed
- [B] Low Alloyed
- [C] High Alloyed

Tensile strength of non alloyed :
- [A] Low tensile strength
- [B] Medium tensile strength
- [C] High tensile strength

Width caregories :
- [A] ≤ 700 mm
- [B] 720 - 1000 mm
- [C] 1020 - 1300 mm
- [D] 1320 - 1600 mm
- [E] 1620 - 2000 mm
- [F] ≥ 2000 mm

Thickness categories:
- [A] < 1.8 mm
- [B] 1.8 - 2.5 mm
- [C] 2.51 - 4.76 mm
- [D] 4.77 - 12 mm
- [E] > 12 mm

The following tables show the specification of flat steel materials used by flat steel end-user based on data from the questionaires.

Table 19.5

Steel Grade and Tensile Strength for Non Alloyed of Flat Steel Materials

Code	Name of Company	Steel Grade of Materials 1st	2	3	4	Non Alloy 1st	2	3	4
** Line of Business: Automotive									
057	PT KTB								
** Line of Business: Can Making									
068	PT Putera Dharma								
036	PT Almicos								
071	PT Ancol Terang Metal Printing	B							
078	PT United Can Co. Ltd	B							
** Line of Business: Car Body Builder									
002	PT Permorin								
012	PT Nusa Cendana Harum								
013	PT Mekar Armada Jaya	A	A	A		B	B	A	
018	PT Nasmoco	B				B			
019	PT Putera Berlian	B							
021	PT Superior Coach								
024	PT Trisakti Carrosery								
027	CV Laksana Karoseri								
028	PT Laksana	B							
043	PT Handayani								
054	PT Adi Budaya Cipta	B				B			
025	PT Tugas Kita								
033	PT Podo Joyo								
058	PT Meridian Mustika	B				B			
052	PT Kobutri	B				-			
** Line of Business: Electric/Electronic									
004	PT Sanyo Industries Indonesia								
031	PT Honoris Perdana Indonesia	A				C			
064	PT National Gobel								
083	PT Tjiparai Permai								
087	PT Padi Komponen								
** Line of Business: GI Sheet									
009	PT Semarang Makmur								
014	PT Fumira								
059	PT Keris Mas Sukses								
062	PT Tumbak Mas Inti Mulia	A				B			

Code	Name of Company	Steel Grade of Materials 1st	2	3	4	Non Alloy 1st	2	3	4
** Line of Business: Heavy Equipment									
060	PT United Tractors Pandu Engineering								
044	PT Barata Indonesia								
070	PT Sakai Sakti	A				B			
** Line of Business: Long Product Steel									
017	PT Inti General Jaya Steel								
** Line of Business: Machinery & Engineering									
088	PT Meco Inox Prima								
041	PT Boma bisma Indra unit Bisma								
046	PT Babcock & Wilcox Indonesia	B							
001	PT Hasuno Putra Utama								
007	PT Kubota Indonesia								
008	PT Rabda								
010	PT Jadi Jaya makmur								
011	PT Tatung Budi Indonesia	A				B			
026	PT Kartika Indah								
051	CV Setia Logam	A							
053	PT Pindad Persero	B	C			C	B		
016	PT Kubota Indonesia								
003	PT Bukaka Kujang Prima								
073	PT Kerta Laksana	A	B			A	B		
074	PT Karpindo Bahagia	A				B			
076	PT Aalborg Ciserv Jakarta								
084	PT Boma Stork								
072	PT Carya Ltd.	A				B			
075	PT Lee Won Industrial Co.								
** Line of Business: Office Equipment									
049	PT Union Metal Work Product	B	B	B	B	B	B	B	B
** Line of Business: Railway Industry									
085	PT INKA								
** Line of Business: Reinforcing Rod/Bar									
045	PT Bhirawa Steel								
** Line of Business: Shipbuilding									
022	PT Dok & Perkapalan Kodja Bahari								
042	PT Dok dan perkapalan Surabaya								
065	PT Inggom Shipyard								
035	PT PAL Indonesia								
023	PT Jasa Marina Indah								

Code	Name of Company	Steel Grade of Materials 1st	2	3	4	Non Alloy 1st	2	3	4
089	PT Dok & Perkapalan Kodja Bahari Unit Galangan IV								
** Line of Business: Steel Construction									
047	PT Murinda	A				-			
006	PT Panca Jasa	A			B	A			B
055	NV Soedono & Co.	B	B	B		B	B	B	
063	PT Jaya Steel Indonesia	A	A			B	B		
034	PT Bangun Sarana Baja	A				A			
037	PT Jatim Mustika Sarana Steel								
038	PT Ometraco Arya Samantha								
048	PT Berca Indonesia								
020	PT Amarta Karya	A	C						
** Line of Business: Steel Cutting						B			
050	PT Afro Pacific Indah Steel	A	A	C	A				
077	PT Steel Center Indonesia	B							
						A	A	C	B
** Line of Business: Steel Drum						A			
066	PT Pheem Indonesia								
067	PT Poli Contindo Nusa								
** Line of Business: Steel Mill									
032	PT ISPAT INDO								
** Line of Business: Steel Pipe									
056	PT Bakrie Pipe Industries	-							
039	PT Radjin Steel Pipe Industry								
061	PT KHI.Pipe Industries	B							
005	PT Bumi Kaya Steel	A	A						
030	PT Bakrie and Brothers								
015	PT Raja Besi	C				B	B		
029	PT Indonesia Steel tube Works	A							
079	PT Super Tata Raya Steel Corp	A							
080	PT Wira Mustika Indah	A				B			
081	PT Pabrik Pipa Indonesia	A	A						
082	PT Sinar Tangerang Steel	A	A						
086	PT Aneka Jakarta Iron Steel								
						A	B		
** Line of Business: Steel Sheet/Plate									
j040	PT Jaya Pari Steel								
** Line of Business: Tin Plate									
069	PT Pelat Timah Nusantara (LATINUSA)	B							

Table 19.5

Width and Thickness Categories of Flat Steel Materials

Code	Name of Company	Width Categories of falt steel materials				Thickness			
		1st	2nd	3rd	4th	1st	2nd	3rd	4th
**	Automotive								
057	PT KTB	ABCD	BCD	BCD	CD	AB	ABCD	ABCD	AB
**	Can Making								
068	PT Putera Dharma								
036	PT Almicos					F			
071	PT Arcol Terang Metal Printing	AB				A			
078	PT United Can Co. Ltd	B				A			
**	Car Body Builder								
002	PT Permorin								
012	PT Nusa Cendana Harum								
013	PT Mekar Armada Jaya	B	C	D		A	A	A	
018	PT Nasmoco	C				A	B		
019	PT Putera Berlian	B	C			A	B		
021	PT Superior Coach								
024	PT Trisakti Carrosery								
027	CV Laksana Karoseri								
028	PT Laksana	C				A			
043	PT Handayani								
054	PT Adi Budaya Cipta	A				B			
025	PT Tugas Kita								
033	PT Podo Joyo								
058	PT Meridian Mustika	C				A			
052	PT Kobutri	A				A			
**	Electric/Electronic								
004	PT Sanyo Industries Indonesia					A	B	C	
031	PT Honoris Perdana Indonesia	A				A			
064	PT National Gobel								
083	PT Tjiparaj Permai								
087	PT Padi Komponen	BB							
**	GI Sheet								
009	PT Semarang Makmur								
014	PT Fumira								
059	PT Keris Mas Sukses								
062	PT Tunbak Mas Inti Mulia	BC				A			

Code	Name of Company	Width Categories of falt steel materials				Thickness			
		1st	2nd	3rd	4th	1st	2nd	3rd	4th
**	Heavy Equipment								
060	PT United Tractors Pandu Engineering								
044	PT Barata Indonesia								
070	PT Sakai Sakti	CDEF				ABCDE			
**	Long Product Steel								
017	PT Inti General Jaya Steel								
**	Machinery & Engineering								
088	PT Meco Inox Prima								
041	PT Boma bisma Indra unit Bisma								
046	PT Babcock & Wilcox Indonesia	ABCD				BCD			
001	PT Nasuno Putra Utama								
007	PT Kubota Indonesia								
008	PT Rabda								
010	PT Jadi Jaya makmur								
011	PT Tatung Budi Indonesia	B	C	E		A	B	C	D
026	PT Kartika Indah	C				ABCD			
051	CV Setia Logam					A			
053	PT Pindad Persero	ABCDEF	ABCDEF			ABCDEF	ABCDEF		
016	PT Kubota Indonesia					C	D		
003	PT Bukaka Kujang Prima								
073	PT Kerta Laksana	C	A			ABCDE	F		
074	PT Karpindo Bahagia	AB				ABD			
076	PT Aalborg Ciserv Jakarta								
084	PT Boma Stork								
072	PT Carya Ltd.	ABCD				ABCDEF			
075	PT Lee Won Industrial Co.								
**	Office Equipment								
049	PT Union Metal Work Product	BC	BC	BC	BC	BC	BC	BC	BC
**	Railway Industry								
085	PT INKA								
**	Reinforcing Rod/Bar								
045	PT Bhirawa Steel								
**	Shipbuilding								
022	PT Dok & Perkapalan Kodja Bahari								
042	PT Dok dan perkapalan Surabaya								
065	PT Inggom Shipyard								

Code	Name of Company	Width Categories of falt steel materials				Thickness			
		1st	2nd	3rd	4th	1st	2nd	3rd	4th
035	PT PAL Indonesia								
023	PT Jasa Marina Indah	DE				DE			
089	PT Dok & Perkapalan Kodja Bahari Unit Galangan IV								
**	Steel Construction								
047	PT Murinda	ABC				ABCD			
006	PT Panca Jasa	D	E	F	C	D	E	F	C
055	NV Soedono & Co.	C	C	C		D	D	D	
063	PT Jaya Steel Indonesia	C	C			D	F		
034	PT Bangun Sarana Baja								

Code	Name of Company	Wide				Thick ness			
		1	2	3	4	1	2	3	4
037	PT Jatim Mustika Sarana Steel								
038	PT Ometraco Arya Samantha								
048	PT Berca Indonesia								
020	PT Amarta Karya	C	C			BCD	D		
**	Steel Cutting								
050	PT Afro Pacific Indah Steel	BCD	BCD	BC	BC	ABCD	ABC	ABCDF	AB
077	PT Steel Center Indonesia	C				A			
**	Steel Drum								
066	PT Rheem Indonesia	B				F			
067	PT Poli Contindo Nusa	B,C				F			
**	Steel Mill								
032	PT ISPAT INDO								
**	Steel Pipe								
056	PT Bakrie Pipe Industries	------				------			
039	PT Radjin Steel Pipe Industry								
061	PT KHI.Pipe Industries	ABCDE				DF			
005	PT Bumi Kaya Steel	A	B	C	D	A	B	C	D
030	PT Bakrie and Brothers	ABC				BCDE			
015	PT Raja Besi								
029	PT Indonesia Steel tube Works	B				ABC			
079	PT Super Tata Raya Steel Corp					AC			

Code	Name of Company	Width Categories of felt steel materials				Thickness			
		1st	2nd	3rd	4th	1st	2nd	3rd	4th
080	PT Wira Mustika Indah					C			
081	PT Pabrik Pipa Indonesia					A	B		
082	PT Sinar Tangerang Steel	BC	BC			B	A		
086	PT Aneka Jakarta Iron Steel								
**	Steel Sheet/Plate								
040	PT Jaya Pari Steel								
**	Tin Plate								
069	PT Pelat Timah Nusantara (LATINUSA)	A				A			