４．鋼板の需要調査

4. 鋼板の需要調査

4-1. 鋼板の直接消費及び間接消費

4-1-1. 要約

- EISCOにおける生産量及び1991年から1995年までより入手したCAPMASの輸出入量に基づいて、鋼板の見掛け消費量を以下のように推定した。

(Unit: ton)

1991	1992	1993	1994	1995
722,186	635,807	652,396	722,707	833,915

- 1995年におけるサイズ別の鋼板の見掛け消費量は、以下のように推定される。

(Unit: ton)

	< 1,500mm	> 1,500mm	Total
t≦3mm	346,635	-	346,635
24mm≧t>3mm	355,885	50,335	406,220
t>24mm	10,214	11,315	21,529
Non coated Sub Total	712,734	61,650	774,384
Coated	59,531	-	59,531
Total	772,265	61,650	833,915

- IISI統計に基づく見掛け消費量は次の通りである。

(Unit: ton)

1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
582,000	612,000	513,000	577,000	657,000	592,000	715,000	801,000	604,000	725,000	602,000

1991年から1994年までの各年の数値は、EISCO及びCAPMASのデータから得られた見掛け消費量と異なるが、この期間における見掛け消費の総量ではほとんど同じになる。

・ 鋼板の間接消費は二つのタイプに分けられる。一つは乗用車やジープのボディのような組立用のパーツの輸入であり、もう一つは自動車や家電製品の完成品の輸入である。1995年の乗用車・ジープのボディの輸入による鋼板間接輸入量は次の通りである。

	Production (Units)	Unit consumption of flat steel (Tons)	Flat steel imported (Tons)
Passenger car	19,872	0.3	5,961.6
Jeep	2,000	0.5	1,000

通常、ボディ生産に必要な年間生産量は約3万台である。従って、近い将来、エジプトで乗用車及びジープのボディの生産を行うことは極めて困難である。

・ CAPMASデータに基づく自動車及び家電製品の完成品の輸入量は、以下の通りである。

(Unit: sets)

	1991			1992			1993		
	Import	Export	Net import	Import	Export	Net import	Import	Export	Net import
Refrigerator	299,777	6,981	292,796	81,274	2,370	78,904	28,221	759	27,462
Washing m/c	54,838	1,029	53,753	51,135	251	50,884	60,144	821	59,323
Motor vehicle	21,014	0	21,014	13,630	2	13,628	19,428	37	19,391
Trucks	11,358	12	11,346	1,710	139	1,571	1,543	17	1,526
Cruise ship	127	0	127	359	22	337	475	27	448
Welded pipe (ton)	63,000	25,000	38,000	40,000	15,000	25,000	32,000	9,000	23,000

4-1-2. 見掛け消費量

EISCOの生産量とCAPMAS輸出入数量を基に推定された鋼板の見掛け消費量は、以下の通りである。

(Unit: ton)

	Import	Production	Total
1991	234,000	488,186	722,186
1992	152,000	483,807	635,807
1993	186,000	466,396	652,396
1994	230,298	492,409	722,707
1995	287,159	546,756	833,915

Source: CAPMAS and EGITALEC

サイズ別の見掛け消費量は、見掛け消費の総量及び各需要セクターの消費量を用いて算出した（表4-1-1参照）。HSI統計により算出した見掛け消費量は表4-1-2に示す通りである。

個々の需要セクター（主要なユーザー産業は建設、造船、溶接鋼管、ガスボンベ、金属容器、鉄道、ボイラー、自動車、家電、食缶、金属家具及びその他政府系企業である）の消費量データは、第2次現地調査及び1996年9月30日付けGOFIからの情報により得られた（表4-1-1）。

見掛け消費と各需要セクターの消費量の合計との差量は、「その他」として分類した。

サイズ（板厚及び板幅）の分類は、新しい鋼板生産工場（HR及びCRのロール幅を1,500mmと推定）のプロダクト・ミックスを考慮して行った。

Table 4-1-1. APPARENT CONSUMPTION BY SIZE (1995)

(Unit: Ton/year)

	(1) Construction			(2) Shipyard			(3) Welded Pipe	(10) Gas Cylinder	(11) Metal Container	(9) Railway	(8) Boiler	(5) Auto	(4) Home Appliance	(6) Can	(7) Furniture	(12) Other Govern-mental	Others		Total		
	<1,500	>1,500	Total	<1,500	>1,500	Total	<1,500	<1,500	<1,500	<1,500	>1,500	<1,500	<1,500	<1,500	<1,500	<1,500	<1,500	Total	<1,500	>1,500	Total
t≤3mm	2,900		2,900	6,000		6,000	146,133			500	0	11,823	65,090		50,000	4,000	58,189	58,189	346,635	0	346,635
3mm<t≤24mm	130,050	23,000	153,050	9,400	26,300	35,700	98,756	48,960	10,000	5,324	1,035	19,964	657			21,900	10,874	10,874	355,885	50,335	406,220
t>24mm	9,400	11,000	20,400							514	315					300	0	0	10,214	11,315	21,529
Non coated Sub Total	142,350	34,000	176,350	15,400	26,300	41,700	246,889	48,960	10,000	6,338	1,350	31,787	65,747	0	50,000	26,200	69,063	69,063	712,734	61,650	774,384
Coated									13,500				6,502	17,279			22,250	22,250	46,031		59,531
Total	142,350	34,000	176,350	15,400	26,300	41,700	246,889	48,960	23,500	6,338	1,350	31,787	72,249	17,279	50,000	26,200	91,313	91,313	758,765	61,650	833,915

	Non coated ≤3mm	>3mm	Total	Coated ≤3mm	Total
Import(13)	126,672	101,872	228,544	58,615	287,159
Local(14)	219,963	325,877	545,840	916	546,756
Total	346,635	427,749	774,384	59,531	833,915

DATA SOURCE:

(1) Table 2-1-2 (p2-5)
(2) Table 2-1-8 (p2-9)
(3) Table 2-1-9 (p2-11)
(4) Table 2-1-13 (p2-15)
(5) Table 2-1-17-2 (p2-19)
(6) Table 2-1-18 (p2-20)
(7) Table 2-1-19 (p2-21)
(8) Table 2-1-21 (p2-22)
(9) Table 2-1-22 (p2-23)
(10) Table 2-1-24 (p2-24)
(11) Table 2-1-25 (p2-25)
(12) Table 2-1-26 (p2-26)
(13) Chapter 2-5-3 (p2-33)
(14) Chapter 2-4-2 (p2-31)

DISTRIBUTION OF SHEET ≤3mm thickness

	HR	CR	Total
Construction	2,900	0	2,900
Shipyard	6,000		6,000
Welded pipe	148,133		148,133
Railway	500		500
Automobile	1,495	10,328	11,823
Home appliance	0	65,090	65,090
Furniture	0	50,000	50,000
Other Government	1,000	3,000	4,000
Others	0	58,189	58,189
Total	160,028	186,607	346,635
share %	46%	54%	100%

Note: Estimated by the Study Team.

Table 4-1-2 APPARENT CONSUMPTION BASED ON IISI

(Unit: 1,000 ton)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
PRODUCTION											
Iron ore	1,955	2,066	1,974	2,122	2,274	2,461	2,432	2,371	2,062	2,409	2,460
Sinter	...	...	1,768	1,893	1,927	1,902	1,891	2,086	1,864	2,416	2,045
Pig iron	962	950	1,066	1,069	1,112	1,105	1,093	1,204	1,062	1,326	1,241
Ferro-alloys	5	6	7	8	8	7	8	8	...	...	...
Direct reduced iron			31	464	759	817	1,051	1,100	826	837	774
Total crude steel	928	1,028	1,013	1,433	2,025	2,114	2,247	2,556	2,524	2,772	2,791
(Ingots (a))	(230)	(265)	(264)	(61)	(315)	(372)	(78)	(270)	(230)	(367)	(194)
STEEL PRODUCTS											
Total Steel Products	794	1,257	1,802	2,043	2,322	2,009	2,101	2,284	2,239	2,316	2,392
Total Long Products	483	836	1,456	1,616	1,894	1,580	1,587	1,675	1,817	1,800	1,939
Total Flat Products	311	322	346	427	428	429	514	609	422	516	453
HR strip	134	165	177	212	209	152	148	175	143	154	174
CR strip	100	94	127	117	113	122	112	176	125	123	...
HR wide coil	...	...	...	...	...	51	73	56	65	136	...
HR and CR plate and shee	66	42	24	77	86	88	166	178	73	90	147
CR plate, sheet, and coil	9	17	15	16	16	11	11	19	12	10	130
Zinc coated sheet and strip	2	4	3	5	4	5	4	5	4	3	2
IMPORTS											
Pellets			150	800	850	1,000	1,250	900	1,150	1,180	...
Pig iron	...	38	11	0	...	30	144	204	97	...	...
STEEL PRODUCTS											
Total Steel Products	1,225	1,980	1,131	644	666	382	431	505	604	669	322
Ingots and semis	23	86	78	40	25	41	55	90	135	139	6
Total Long Products	670	1,400	740	393	267	71	96	86	208	217	54
Total Flat Products	271	290	167	150	229	163	201	192	182	209	149
HR strip	6	14	4	0	1	2	6	3	1	7	0
CR strip	5	8	4	3	5	2	3	3	3	6	3
HR wide coil	18	18	10	1	29	18	10	25	6	8	29
HR and CR plate (>=3mm)	61	65	40	34							
HR plate (>=3mm)					18	38	36	29	29	42	39
HR sheet (<3mm)	47	0	0	1	1	0	2	0	16	20	1
HR plate & sheet total (1	108	65	40	35	19	38	38	29	45	62	40
CR plate, sheet, and coil (2	34	65	20	22	49	19	39	31	22	21	18
HR & CR plate, sheet, coil total (1+2)	142	130	60	57	68	57	77	60	67	83	58
Electrical sheet and strip	3	3	3	3	3	3	5	2	3	3	4
Tinplate, TFS, and strip	59	66	48	61	97	47	56	62	58	55	33
Zinc coated sheet and strip	26	31	28	12	8	13	34	1	35	31	17
Other coated sheet and str	11	20	10	13	17	19	9	36	10	15	7
Total Tubes	233	194	143	55	133	93	63	115	62	82	106
EXPORTS											
STEEL PRODUCTS											
(Welded tubes)	(1)	(0)	(0)	(1)	(4)	(4)	(17)	(25)	(...)	(...)	(...)
Total Steel Products	11	17	38	61	66	70	175	190	425	460	503
Ref: APPARENT CONSUMPTION											
STEEL PRODUCTS											
Total Long Products	1,153	2,236	2,196	2,009	2,161	1,651	1,683	1,761	2,025	2,017	1,993
Total Flat Products	582	612	513	577	657	592	715	801	604	725	602
HR strip	140	179	181	212	210	154	154	178	144	161	174
CR strip	105	102	131	120	118	124	115	179	128	129	3
HR wide coil	18	18	10	1	29	69	83	81	71	144	29
HR and CR plate and shee	174	107	64	112	105	126	204	207	118	152	187
CR plate, sheet, and coil (2	43	82	35	38	65	30	50	50	34	31	148
HR & CR plate, sheet, coil total (1+2)	217	189	99	150	170	156	254	257	152	183	335
Electrical sheet and strip	3	3	3	3	3	3	5	2	3	3	3
Tinplate, TFS, and strip	59	66	48	61	97	47	56	62	58	48	48
Zinc coated sheet and strip	28	35	31	17	12	18	38	6	39	34	19
Other coated sheet and str	11	20	10	13	17	19	9	36	10	15	7

Note: (a) - 1984-87 data are calculated by subtracting continuous casting and liquid steel for castings from total crude steel production.

Sources Steel Statistics of Developing Countries 1994 and 1995 Edition, IISI

(Original: Egyptian Iron and Steel Co.; UK ISSB export statistics – data of major exporters only.)

4-1-3. 家庭電器製品及び自動車の輸出入

家庭電器用品及び自動車の輸出入は以下の通りである。

Table 4-1-3 IMPORT AND EXPORT OF HOME APPLIANCE AND AUTOMOBILE

Unit: Welded pipe: ton
Others: units

Product	1991					1992					1993				
	Import	Export	Net Import	Unit Weight	Indirect Import	Import	Export	Net Import	Unit Weight	Indirect Import	Import	Export	Net Import	Unit Weight	Indirect Import
REFRIGERATOR															
Domestic Ref. 240 l ~ 800 l	22,899	4,354	18,545			7,397	2,306	5,091			6,858	739	6,119		
Other capacity	266,478	2,600	263,878			60,716	10	60,706			13,995	2	13,993		
Other Ref.	6,508	25	6,483			6,089	54	6,035			1,332	8	1,324		
Others	3,892	2	3,890			7,072	0	7,072			6,036	10	6,026		
Total	299,777	6,981	292,796			81,274	2,370	78,904			28,221	759	27,462		
WASHING M/C															
DISH WASHING M/C (complete unit)	995	0	995			545	0	545			222	0	222		
DISH WASHING M/C (for assembling)	6,061	0	6,061			5,436	11	5,425			2,026	1	2,025		
WASHING & DRYING M/C	1,136	1,029	107			106	55	51			703	161	542		
WASHING M/C half auto	2,830	0	2,830			3,011	7	3,004			3,382	145	3,237		
WASHING M/C full auto	1,419	0	1,363			2,945	178	2,767			3,344	514	2,830		
OTHER WASHING M/C	2,897	0	2,897			2,391	0	2,391			2,464	0	2,464		
WASHING M/C full auto (not assembled)	39,500	0	39,500			36,701	0	36,701			48,003	0	48,003		
Total	54,838	1,029	53,753			51,135	251	50,884			60,144	821	59,323		
MOTOR VEHICLE															
Passenger Car 1,000 ~ 2,000 CC	11,711	0	11,711			10,922	0	10,922			15,102	0	15,102		
Bus & Microbus	7,242 *1	0	7,242			985 *2	2 *2	983			2,044 *3	37	2,007		
Others	2,061	0	2,061			1,723	0	1,723			2,282	0	2,282		
Total	21,014	0	21,014			13,630	2	13,628			19,428	37	19,391		
TRUCKS	11,358	12	11,346			1,710	139	1,571			1,543	17	1,526		
TRACTORS	2,851	1	2,850			2,490	10	2,480			1,592	25	1,567		
ARMORED FIGHTING VEHICLE	3,031	118	2,913			1,537	4,693	-3,156			2,471	1,445	1,026		
LORRIES WITH CEMENT MIX OR CR	127	0	127			105	6	99			149	0	149		
CRUISE SHIPS, EXCURSION BOAT, etc.	178	30	148			359	22	337			475	27	448		
WELDED PIPE	63,000t	25,000t	38,000t			40,000t	15,000t	25,000t			32,000t	9,000t	23,000t		

Note:
*1: Microbus; 7,217 Bus; 25
△2 Microbus
*2 Microbus; 759 Bus; 226
*3 Microbus; 1,812 Bus; 232

Source: CAPMAS

4-2. 国内需要予測

4-2-1. 要約

調査団は中期（2005年及び2006年）の鋼板需要量予測に際しては4-2-2に示した条件をもとにミクロ分析（各消費産業別予測需要を集計する）を適用した。

鋼板製造新工場が建設される場合、生産量が2005年に設計能力に達すると想定した。新工場建設の場合は種類別及び寸法別の鋼板需要量が必要となるのでミクロ分析が必要になる。

ミクロ分析によるエジプトの2005年及び2006年の国内需要は右頁に示した条件の下で各GDP成長率に対して下記の様になる。（表4-2-2参照）

年度	最低	中間	最高
2005	1,426,846トン	1,733,537トン	1,969,969トン
2006	1,505,772トン	1,865,584トン	2,147,473トン

長期予測についてはマクロ分析を使用した。マクロ分析としては下記を実施した。

1) 1983年から1993年までの鉄鋼需要の変化のうち1987年と1988年の需要量を除いて時系列で求めた。1987年と1988年を除いた理由は両年の鉄鋼見掛け需要がANSDKの生産開始等の理由から異常に高いためである。
2) 1984年から1993年までのうち1987年と1988年の両年を除いた鉄鋼需要とGDPの相関から求めた。
3) 1991年から1995年の5年間の鋼板需要から時系列で求めた。
4) 1991年から1994年の5年間の鋼板需要とGDPの相関から求めた。
5) 主要各国すべての1人当たりGDPと1人当たり鉄鋼消費の相関から求めた。
6) 1人当たり鉄鋼消費が150kg以下の主要各国の1人当たりGDPと1人当たり鉄鋼消費の相関から求めた。
   6-1)はエジプトの1人当たりGDPを調整したもの
   6-2)はエジプトの1人当たり鉄鋼消費を調整したもの

上記の方法で求めた2005年の需要量（鋼板）をまとめたものが以下の通りである。

THE FLAT STEEL DEMAND IN 2005

(Unit: 1,000 ton)

	R^2	GDP growth rate			Time series
		Lowest	Medium	Highest	
1	0.1982				1,021
2	0.0626	940	979	1,014	
3	0.3918				1,083
4	0.4446	1,230	1,440	1,628	
5	0.5558	1,174	1,274	1,330	
6-1	0.5665	1,261	1,403	1,526	
6-2	0.5665	1,211	1,379	1,470	

Source: Tables 4-2-4～4-2-7, 4-2-9～4-2-11

2015 年までの長期予測をするに当たっては本来過去のデータも長期間、しかも継続性のあるものが必要である。

エジプトにおいては石油価格の変動、中東における政治変動、計画経済から市場経済への移行等多くの状況変化があり、GDP もまた鉄鋼需要もそれ等の原因に大きく影響されて来た。そのためケース 1 からケース 4 に関しては相関が低い。ケース 5 及び 6 についてはケース 1～4 に比べ高い。

エジプトの過去のデータを使用しないマクロ予測の方法としては世界主要国の 1 人当たり GDP と 1 人当たり鉄鋼消費の相関をとる方法がある。この場合は鉄鋼需要は 1 人当たり GDP のある段階または 1 人当たり鉄鋼消費が 100kg を超すと急激に増加するなど、世界的傾向も考慮できる。世界の 1 人当たり GDP と 1 人当たりの鉄鋼需要の相関は高くはないが利用可能範囲である。

世界の 1 人当たり鉄鋼需要と 1 人当たり GDP の相関をとるにあたり世界全体の国を対象とする場合（ケース 5）と 1 人当たりの鉄鋼需要が 150kg 以下の国を対象とした場合（ケース 6）を検討した。

150kg 以下の国を対象とすることにより鉄鋼需要成長期をとらえることが出来る。

エジプトの為替レートは対外債務問題等から大幅に切り下げられた。このため US$表示の 1 人当たりの GDP の実質購買力は通常の為替レートで計算されたものより高い。

調整する方法としてエジプトの 1 人当たり GDP を相関曲線まで移動したケース 6-1 と 1 人当たり鉄鋼消費を移動したケース 6-2 を行った。両者の差は余り認められなかった。

上記の分析から、ケース6-1を2005年以後の予測に使用した。

(Unit: 1,000トン)

	最　低	中　間	最　高
2005	1,427	1,734	1,970
2010	1,663	2,086	2,562
2015	1,942	2,528	3,386

Source: Table 4-2-12

ミクロ分析による 2005 年の需要はマクロ分析のものより少し高い。これはミクロの場合、建設及び工業の GDP 伸び率を使用したのに対してマクロ分析では平均的 GDP 伸び率を使用したことによると思われる。

ケース 6-1 に対して工業セクターの GDP 伸び率を適用した場合、2005 年の鋼板需要量は最低の成長率の時 141 万 3,000 トン、中間成長率の場合 163 万 5,000 トン、最高の場合 180 万トンになりミクロで計算されたものとほとんど一致する。

いずれにしろミクロとマクロの分析の結果に大きな開きはなく、ミクロ分析の妥当性が認められる。

4-2-2. 国内需要予測の条件（ミクロ予測）

(1) GDP の成長率：これは 1996 年 6 月 26 日の覚書で確認されたものを使用する。

A. 最低の場合　：GDP 成長率　4%

B. 中間の場合　：GDP 成長率　5.5%

C. 最高の場合　：GDP 成長率　1995～2005 年 6.5%

2005～2020 年 8.5%

(2) 各部門の GDP 成長率は第 3 次発展計画の成長目標値から計算した（表 4-2-1 参照）。

Table 4-2-1　GROWTH RATE

(Unit: % p.a.)

	Base case	Lowest	Medium	Highest
Agriculture	3.5	2.8	3.85	4.55
Mining & industry	7.0	5.6	7.70	9.10
Petroleum	1.0			
Electricity	6.6			
Construction	7.2	5.76	7.92	9.36
Productive service sector	5.3			
Social service sector	5.7			
Total	5.1	4.0	5.5	6.5

Source: Calculated from Third Development Plan

(3) 鋼材に対する鋼板の比率は、鋼材の消費産業の構造が変わらないとの予測から現在の 30%が変わらないものとした。

(4) 耐久消費財（自動車と家庭電器製品）の急速な成長は 1996 年の 6 月 26 日付け覚書にあるように仮定しないことにした。

(5) 建設期間を考慮してフル操業に入る年は 2005 年とした。

- 1997 年中に F/S が完了して政府許可が下りる。
- 1998 年から 2002 年にかけて工場建設が行われる。工場建設には設計・インフラ整備・機器調達及び据付けが入る。
- 2003 年から試運転に入り 2004 年に稼働率をあげ 2005 年には設計値に達する。

4-2-3. 消費産業別の需要予測を積算しての予測（ミクロ予測）

調査団は 1995 年の個別消費産業の鋼板の需要を調査した。この結果と各消費産業の成長率から各産業別の 2005 年と 2006 年の需要を予測した。

2005 年と 2006 年の鋼板需要量の計算に使用した計数は次の通りである。年間成長率を成長比にする。（1＋成長比率）

GROWTH RATIO OF EACH SECTOR FOR THREE CASES

	Construction	Industry	Others
Lowest	1.0576	1.0560	1.0400
Medium	1.0792	1.0770	1.0550
Highest	1.0936	1.0910	1.0650

Source: Table 4-2-1

2005 (10th power)（1995年から2005年まで（10年間）の成長比）

Lowest	1.750710842	1.724404637	1.480244285
Medium	2.142986162	2.099698959	1.708144458
Highest	2.446724189	2.389172492	1.877137465

2006 (11th power)（1995年から2006年まで（11年間）の成長比）

Lowest	1.851551787	1.820971296	1.539454056
Medium	2.312710666	2.261375779	1.802092404
Highest	2.675737573	2.606587189	1.999151401

2005年と2006年の鋼板需要量は下表の通りである。産業別内訳については表4-2-2参照。

DEMAND FORECAST FOR FLAT STEEL IN 2005 AND 2006

(Unit: Ton/Year)

	2005	2006
Lowest growth	1,426,846	1,505,772
Medium growth	1,779,625	1,865,584
Highest growth	1,969,969	2,147,473

3mm以下の鋼板は熱圧と冷圧鋼板からなり1995年の分布は次の通りである。
産業別内訳は表4-1-1に示す通りである。

DISTRIBUTION OF SHEET OF THICKNESS OF LESS THAN 3MM IN 1995

<3mm	HR	CR	Total
Construction + Pipe	151,033		151,033
Other industries	8,995	128,418	137,413
Others	0	58,189	58,189
Total	160,028	186,607	346,635

Table 4-2-2 DEMAND FORECAST OF FLAT STEEL (1/4)

(2005) Lowest

(Unit: Ton/year)

	(1) Construction			(2) Shipyard			(3) Welded Pipe	(10) Gas Cylinder	(11) Metal Container	(9) Railway	(8) Boiler	(5) Auto	(4) Home Appliance	(6) Can	(7) Furniture	(12) Other Govern-mental	Others	Total		
	<1,500	>1,500	Total	<1,500	>1,500	Total	<1,500	<1,500	<1,500	<1,500	>1,500	<1,500	<1,500	<1,500	<1,500	<1,500	<1,500	<1,500	>1,500	Total
t≤3mm	5,077		5,077	10,346		10,346	259,338			862	0	20,388	112,241		86,220	6,898	86,134	587,505	0	587,505
3mm<t≤24mm	227,680	40,266	267,946	16,209	45,352	61,561	172,893	84,427	17,244	9,181	1,785	34,426	1,133			37,764	16,096	617,054	87,403	704,457
t>24mm	16,457	19,258	35,715							886	543					517	0	17,860	19,801	37,661
Non coated Sub Total	249,214	59,524	308,738	26,556	45,352	71,908	432,231	84,427	17,244	10,929	2,328	54,814	113,374	0	86,220	45,179	102,230	1,222,419	107,204	1,329,623
Coated									23,279				11,212	29,796			32,935	97,223		97,223
Total	249,214	59,524	308,738	26,556	45,352	71,908	432,231	84,427	40,524	10,929	2,328	54,814	124,587	29,796	86,220	45,179	135,166	1,319,642	107,204	1,426,846

(2005) Medium

(Unit: Ton/year)

	(1) Construction			(2) Shipyard			(3) Welded Pipe	(10) Gas Cylinder	(11) Metal Container	(9) Railway	(8) Boiler	(5) Auto	(4) Home Appliance	(6) Can	(7) Furniture	(12) Other Govern-mental	Others	Total		
	<1,500	>1,500	Total	<1,500	>1,500	Total	<1,500	<1,500	<1,500	<1,500	>1,500	<1,500	<1,500	<1,500	<1,500	<1,500	<1,500	<1,500	>1,500	Total
t≤3mm	6,215		6,215	12,598		12,598	317,447			1,050	0	24,825	136,669		104,985	8,399	99,395	711,583	0	711,583
3mm<t≤24mm	278,695	49,289	327,984	19,737	55,222	74,959	211,633	102,801	20,997	11,179	2,173	41,918	1,380			45,983	18,574	752,898	106,684	859,582
t>24mm	20,144	23,573	43,717							1,079	661					630	0	21,853	24,234	46,087
Non coated Sub Total	305,054	72,862	377,916	32,335	55,222	87,557	529,080	102,801	20,997	13,308	2,835	66,743	138,049	0	104,985	55,012	117,970	1,486,334	130,918	1,617,252
Coated									28,346				13,652	36,281			38,006	116,285		116,285
Total	305,054	72,862	377,916	32,335	55,222	87,557	529,080	102,801	49,343	13,308	2,835	66,743	151,701	36,281	104,985	55,012	155,976	1,602,619	130,918	1,733,537

Table 4-2-2 DEMAND FORECAST OF FLAT STEEL (2/4)

(2005) Highest

(Unit: Ton/year)

	(1) Construction			(2) Shipyard			(3) Welded Pipe	(10) Gas Cylinder	(11) Metal Container	(9) Railway	(8) Boiler	(5) Auto	(4) Home Appliance	(6) Can	(7) Furniture	(12) Other Governmental	Others	Total		
	≤1,500	>1,500	Total	≤1,500	>1,500	Total	≤1,500	≤1,500	≤1,500	≤1,500	>1,500	≤1,500	≤1,500	≤1,500	≤1,500	≤1,500	≤1,500	≤1,500	>1,500	Total
t≤3mm	7,096		7,096	14,335		14,335	362,441			1,195	0	28,247	155,511		119,459	9,557	109,229	807,068	0	807,068
3mm<t≤24mm	318,196	56,275	374,471	22,458	62,835	85,293	241,629	116,974	23,892	12,720	2,473	47,697	1,570			52,323	20,412	857,871	121,583	979,454
t>24mm	22,999	26,914	49,913							1,228	753					717	0	24,944	27,667	52,611
Non coated Sub Total	348,291	83,189	431,480	36,793	62,835	99,628	604,069	116,974	23,892	15,143	3,225	75,945	157,081	0	119,459	62,596	129,641	1,689,883	149,249	1,839,132
Coated									32,254				15,534	41,283			41,766	130,837		130,837
Total	348,291	83,189	431,480	36,793	62,835	99,628	604,069	116,974	56,146	15,143	3,225	75,945	172,615	41,283	119,459	62,596	171,407	1,820,720	149,249	1,969,969

≤3mm SHEET DISTRIBUTION

2005	HR	CR	Total
Lowest	279,926	307,579	587,505
Medium	342,548	369,034	711,583
Highest	391,027	416,042	807,068

Table 4-2-2 DEMAND FORECAST OF FLAT STEEL (3/4)

(2006) Lowest

(Unit: Ton/year)

	(1) Construction			(2) Shipyard			(3) Welded Pipe	(10) Gas Cylinder	(11) Metal Container	(9) Railway	(8) Boiler	(5) Auto	(4) Home Appliance	(6) Can	(7) Furniture	(12) Other Govern-mental	Others	Total		
	<1,500	>1,500	Total	<1,500	>1,500	Total	<1,500	<1,500	<1,500	<1,500	>1,500	<1,500	<1,500	<1,500	<1,500	<1,500	<1,500	<1,500	>1,500	Total
t≤3mm	5,370		5,370	10,926		10,926	274,276			910	0	21,529	118,527		91,049	7,284	89,579	619,450	0	619,450
3mm<t≤24mm	240,794	42,586	283,380	17,117	47,892	65,009	182,852	89,155	18,210	9,695	1,885	36,354	1,196			39,879	16,740	651,992	92,362	744,354
t>24mm	17,405	20,367	37,772							936	574					546	0	18,387	20,941	39,828
Non coated Sub Total	263,568	62,953	326,521	28,043	47,892	75,935	457,128	89,155	18,210	11,541	2,458	57,883	119,723	0	91,049	47,709	106,319	1,290,329	113,303	1,403,631
Coated									24,583				11,840	31,465			34,253	102,140		102,140
Total	263,568	62,953	326,521	28,043	47,892	75,935	457,128	89,155	42,793	11,541	2,458	57,883	131,563	31,465	91,049	47,709	140,572	1,392,469	113,303	1,505,772

(2006) Medium

(Unit: Ton/year)

	(1) Construction			(2) Shipyard			(3) Welded Pipe	(10) Gas Cylinder	(11) Metal Container	(9) Railway	(8) Boiler	(5) Auto	(4) Home Appliance	(6) Can	(7) Furniture	(12) Other Govern-mental	Others	Total		
	<1,500	>1,500	Total	<1,500	>1,500	Total	<1,500	<1,500	<1,500	<1,500	>1,500	<1,500	<1,500	<1,500	<1,500	<1,500	<1,500	<1,500	>1,500	Total
t≤3mm	6,707		6,707	13,568		13,568	342,589			1,131	0	26,736	147,193		113,069	9,046	104,862	764,900	0	764,900
3mm<t≤24mm	300,768	53,192	353,960	21,257	59,474	80,731	228,394	110,717	22,614	12,040	2,341	45,146	1,486			49,524	19,596	811,541	115,007	926,548
t>24mm	21,739	25,440	47,179							1,162	712					678	0	23,580	26,152	49,732
Non coated Sub Total	329,214	78,632	407,847	34,825	59,474	94,299	570,983	110,717	22,614	14,333	3,053	71,882	148,679	0	113,069	59,248	124,458	1,600,021	141,159	1,741,181
Coated									30,529				14,703	39,074			40,097	124,403		124,403
Total	329,214	78,632	407,847	34,825	59,474	94,299	570,983	110,717	53,142	14,333	3,053	71,882	163,382	39,074	113,069	59,248	164,554	1,724,424	141,159	1,865,584

Table 4-2-2 DEMAND FORECAST OF FLAT STEEL (4/4)

(2006) Highest

(Unit: Ton/year)

	(1) Construction			(2) Shipyard			(3) Welded Pipe	(10) Gas Cylinder	(11) Metal Container	(9) Railway	(8) Boiler	(5) Auto	(4) Home Appliance	(6) Can	(7) Furniture	(12) Other Govern-mental	Others	Total		
	<1,500	>1,500	Total	<1,500	>1,500	Total	<1,500	<1,500	<1,500	<1,500	>1,500	<1,500		<1,500	<1,500	<1,500	<1,500	<1,500	>1,500	Total
t≦3mm	7,760		7,760	15,640		15,640	396,365			1,303	0	30,818	169,663		130,329	10,426	116,329	878,632	0	878,632
3mm<t≦24mm	347,980	61,542	409,522	24,502	68,553	93,055	264,245	127,619	26,066	13,877	2,698	52,038	1,713			57,084	21,739	936,862	132,793	1,069,655
t>24mm	25,152	29,433	54,585							1,340	821					782	0	27,274	30,254	57,528
Non coated Sub Total	380,891	90,975	471,866	40,141	68,553	108,695	660,610	127,619	26,066	16,521	3,519	82,856	171,375	0	130,329	68,293	138,067	1,842,768	163,047	2,005,815
Coated									35,189				16,948	45,039			44,481	141,657		141,657
Total	380,891	90,975	471,866	40,141	68,553	108,695	660,610	127,619	61,255	16,521	3,519	82,856	188,323	45,039	130,329	68,293	182,549	1,984,425	163,047	2,147,473

≦3mm SHEET DISTRIBUTION

2006	HR	CR	Total
Lowest	296,025	323,425	619,450
Medium	369,637	395,263	764,900
Highest	427,571	451,061	878,632

Note: Calculated by the Study Team.

4-2-4. エジプトのGDPと鋼板消費による需要予測

過去のGDPと全鋼材の見掛け需要を図4-2-1に示した。

1987年と1988年の見掛け消費量は極めて高い。これはANSDKが1986年の中頃から生産を開始したことによる。

1989年には棒鋼類の過剰生産から既存棒鋼生産工場が閉鎖したことと、エジプト政府が同年製品販売統制を行ったことにより見掛け消費量は低下した。

鋼材の需要が落ちた別の重要な原因は石油価格の1989年における低下である。これはエジプトに限らず産油国では表4-2-3に示す様に鋼材の消費量が減少した。

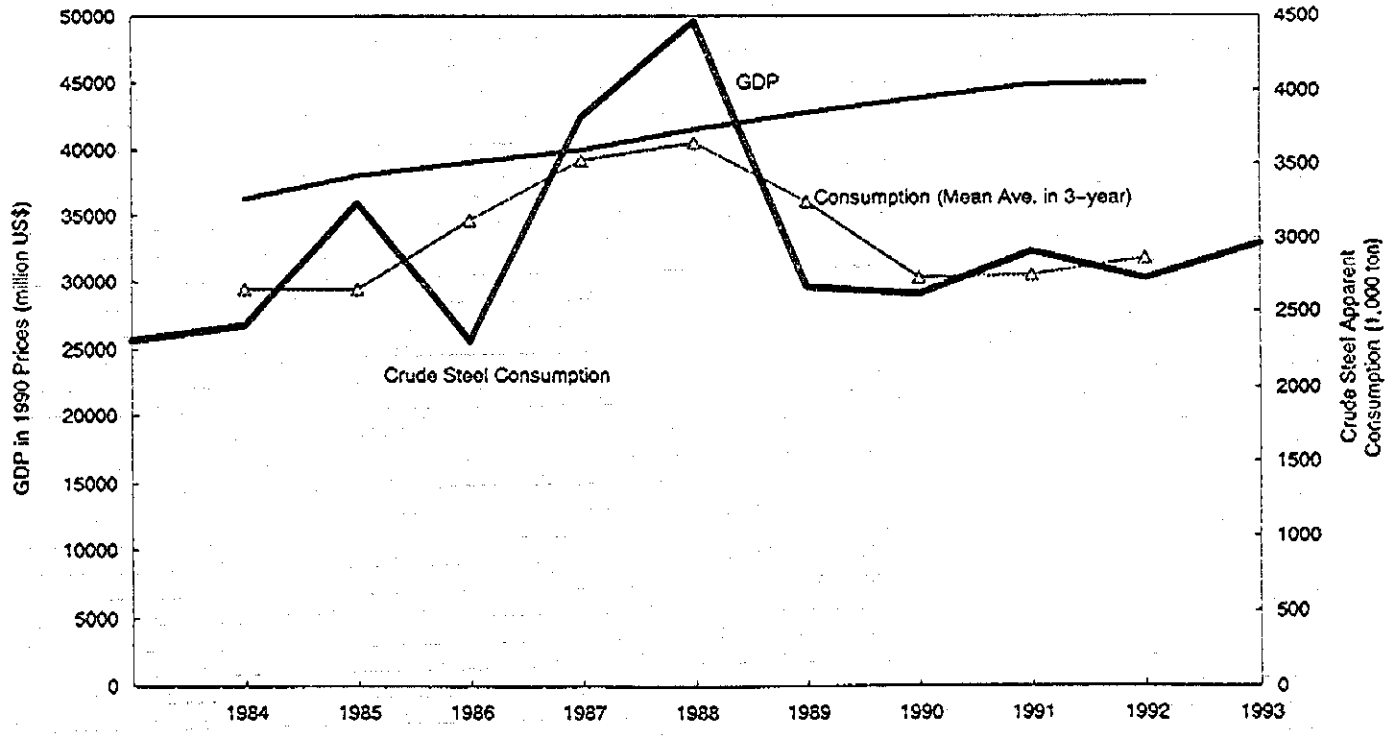
1990年後の見掛け消費量は中央計画経済から市場経済への移行期により低迷している。

下記ケースについて計算を行った。

1) 1983年から1993年までの鉄鋼需要の異常に見掛け消費量が大きかった1987年と1988年の需要量を除いて時系列で予測した場合2005年の需要量は102万1,000トンになる。（表4-2-4、図4-2-2、4-2-3参照）
2) 1984年から1993年までの鉄鋼需要の異常に見掛け消費量が大きかった1987年と1988年の需要量を除いてGDPとの相関による予測した場合2005年の需要量は最低のケースで94万トン、中間97万9,000トン、最高101万4,000トンになる。（表4-2-5、図4-2-4、4-2-5参照）
3) 1991年から1995年までの鋼板消費を直線で伸ばした場合の2005年の消費量は108万3,000トンになる。（表4-2-6と図4-2-6）
4) 1991年から1995年の5年間のGDPと鋼板見掛け消費の相関で計算した2005年の消費量は、最低の成長率の場合が123万トン、中間の場合が144万トン、最高の場合が162万8,000トンになる。（表4-2-7と図4-2-7、4-2-8参照）

上記の理由から、これら方法による計算による相関係数は低かった。

Figure 4-2-1
GDP AND CRUDE STEEL CONSUMPTION IN EGYPT



Sources: GDP: Refer to Tables 1-1-1
Consumption: Tekkoh Tokei Yoran 1992 through 1995 (Refer to Table 4-2-3)

Table 4-2-3 APPARENT CONSUMPTION OF STEEL IN MIDDLE EAST AND AFRICA

	Apparent Consumption (1,000 ton)								Per Capita Consumption (kg)							
	1986	1987	1988	1989	1990	1991	1992	1993	1986	1987	1988	1989	1990	1991	1992	1993
Iran	2,100	1,480	1,549	4,848	5,178	5,832	6,638	7,049	36	29	29	91	95	105	117	110
Egypt	2,304	3,825	4,462	2,662	2,617	2,907	2,722	2,962	46	75	86	52	50	54	49	52
Israel	713	788	767	825	908	1,031	1,103	1,295	157	180	173	183	195	208	215	246
Lebanon	209	111	114	50	40	101	180	133	71	40	41	20	16	39	67	47
Syria	228	104	114	158	226	252	655	551	20	10	10	14	19	20	51	47
Iraq	496	614	628	918	312	...	...	...	28	36	36	51	41	...	...	...
Saudi Arabia	2,973	2,838	3,195	2,966	2,814	2,885	3,405	3,770	234	227	245	206	189	175	203	220
Kuwait	418	63	147	53	63	49	380	361	221	34	75	26	30	24	272	253
Jordan	446	375	337	439	422	268	525	205	112	99	85	106	99	60	112	42
Bahrain	64	29	38	46	30	44	48	33	144	67	84	98	61	88	93	61
Middle East Total	15,253	10,227	11,351	15,101	15,120	15,930	17,900	17,826	-	-	-	-	-	-	-	-
South Africa	6,401	6,261	5,991	6,029	5,525	5,070	4,431	4,764	198	164	171	166	149	131	114	120
Algeria	3,182	2,968	2,841	1,811	1750	2,527	2,309	2,173	141	129	120	76	70	99	88	81
Libya	362	415	457	577	952	981	1,025	1,309	93	114	121	145	230	227	227	278
Nigeria	2,693	2,966	2,749	516	593	786	1,163	651	27	29	26	6	6	8	11	6
Morocco	517	567	591	697	664	804	976	907	23	25	25	29	27	32	38	35
Tunisia	511	494	599	576	692	627	915	900	69	65	77	73	86	76	109	105
Zimbabwe	164	153	173	408	499	449	563	292	20	18	20	45	53	44	54	27
Zaire	22	31	68	83	61	79	59	38	1	1	2	2	2	2	2	1
Kenya	173	266	213	223	215	232	251	169	8	12	9	9	9	9	10	6
Tanzania	48	59	57	64	62	45	65	69	2	3	2	3	2	2	2	3
Zambia	28	2	6	7	...	...	...	...	4		1	1	...	...	...	...
Other Africa	998	764	760	2,769	3,135	3,170	3,241	3,117	4	3	2	3	3	3		
Africa Total	13,696	14,917	12,213	13,790	14,148	14,770	14,998	14,389	-	-	-	-	-	-	-	-

Source: Tekkoh Tokei Yoran 1995 (in Japanese) (The Japan Iron & Steel Federation)
(Original data: IISI)

Table 4-2-4
PROJECTION OF FLAT STEEL CONSUMPTION IN EGYPT/CASE 1
(TIME SERIES ANALYSIS)

Regression Formula: Y = 38.257 x X +2,446.4, r2 = 0.1982
Where: Y=Total crude steel consumption (1,000 ton)
X="Number of Year" minus 1980 (i.e. 1998=18)
r2=Correlation coefficient

Projected ratio of flat steel consumption to total crude steel consumption = 0.3

	Total Crude Steel Consumption (1,000 ton)	Flat Steel Consumption (1,000 ton)
1983	2,306	
1984	2,405	582
1985	3,237	612
1986	2,304	513
1987	(3,825)	577
1988	(4,462)	657
1989	2,662	592
1990	2,617	715
1991	2,907	801
1992	2,722	604
1993	2,962	725
1994	2,982	602
1995	3,020	906
1996	3,059	918
1997	3,097	929
1998	3,135	941
1999	3,173	952
2000	3,212	963
2001	3,250	975
2002	3,288	986
2003	3,326	998
2004	3,365	1,009
2005	3,403	1,021
2006	3,441	1,032
2007	3,479	1,044
2008	3,518	1,055
2009	3,556	1,067
2010	3,594	1,078
2011	3,632	1,090
2012	3,671	1,101
2013	3,709	1,113
2014	3,747	1,124
2015	3,785	1,136

Sources: [ ] Total Crude Steel Consumption: Tekkoh Tokei Yoran 1992 through 1995 (Refer to Table 4-2-3)
Flat Steel Consumption: Refer to Table 4-1-2

Figure 4-2-2
TOTAL CRUDE STEEL CONSUMPTION IN EGYPT/CASE 1
(TIME SERIES ANALYSIS)

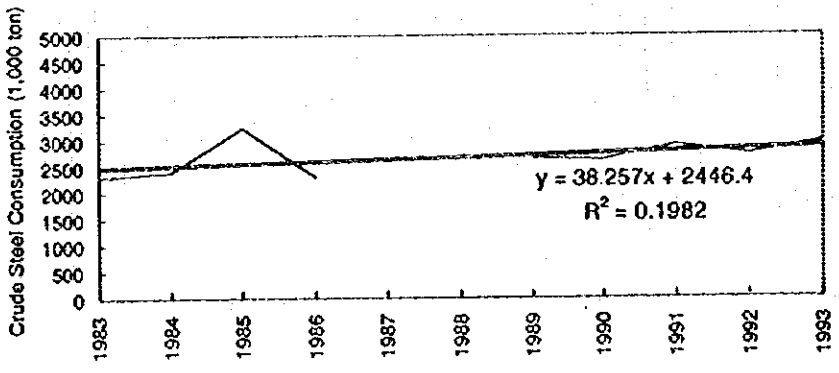


Figure 4-2-3
PROJECTED TOTAL STEEL AND FLAT STEEL CONSUMPTION IN EGYPT/CASE 1
(USING TIME SERIES ANALYSIS OF TOTAL STEEL CONSUMPTION)

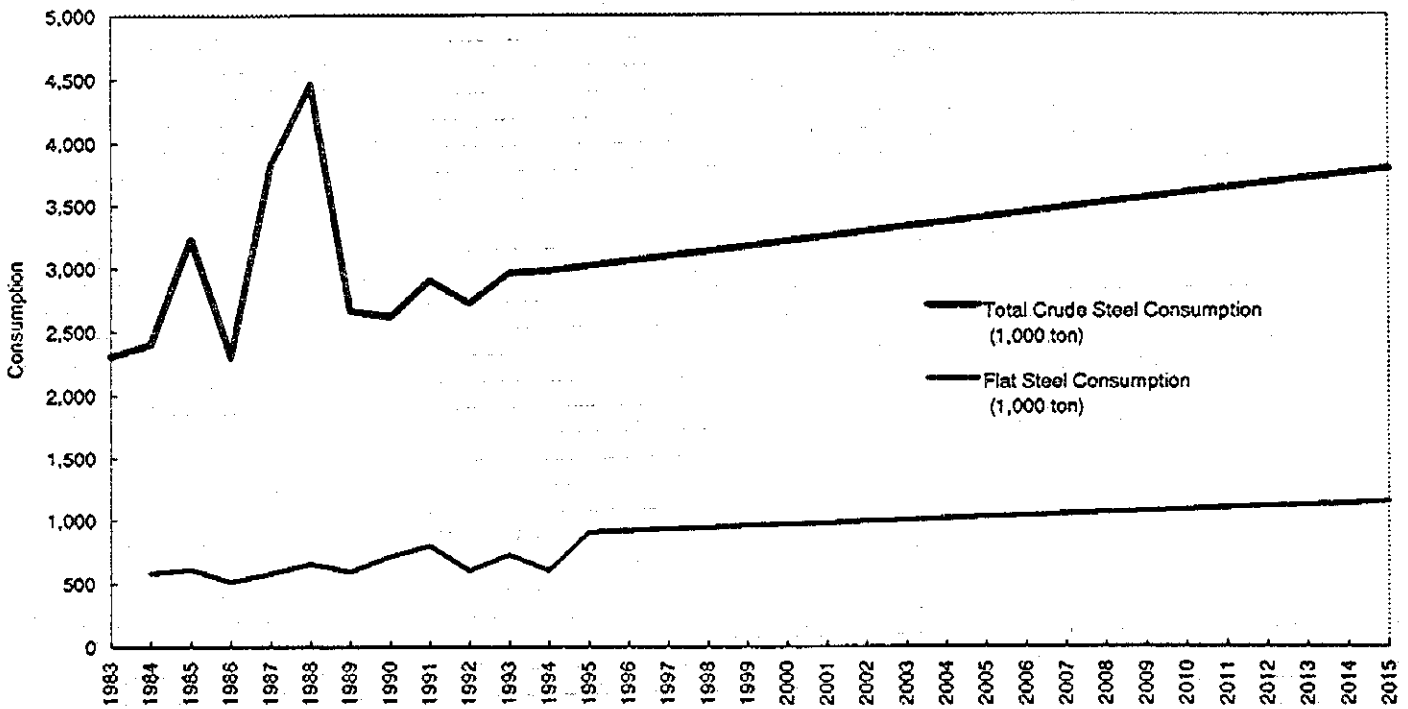


Table 4-2-5
PROJECTION OF FLAT STEEL CONSUMPTION IN EGYPT/CASE 2
(USING CORRELATION BETWEEN TOTAL GDP AND TOTAL CRUDE STEEL

Regression Formula: Y = 0.005 x X + 2,291.2, r2 = 0.0626
Wher Y=Total crude steel consumption (1,000 ton)
X=Total GDP in 1990 LE (million LE)
r2=Correlation coefficient
Projected ratio of flat steel consumption to total crude steel consumption = 0.3

	GDP in 1990 LE (million LE)			Total Crude Steel Consumption (1,000 ton)			Flat Steel Consumption (1,000 ton)		
1983				2,306					
1984		63,130		2,405			582		
1985		70,785		3,237			612		
1986		77,203		2,304			513		
1987		82,144		(3,825)			577		
1988		86,610		(4,462)			657		
1989		90,916		2,662			592		
1990		96,100		2,617			715		
1991		97,137		2,907			801		
1992		101,443		2,722			604		
1993		104,360		2,962			725		
1994		108,517		2,834			602		
1995		113,834		2,860			858		
	Low Case	Med. Case	High Case	Low Case	Med. Case	High Case	Low Case	Med. Case	High Case
1996	118,387	120,095	121,233	2,883	2,892	2,897	865	868	869
1997	123,123	126,700	129,113	2,907	2,925	2,937	872	877	881
1998	128,048	133,669	137,506	2,931	2,960	2,979	879	888	894
1999	133,170	141,020	146,444	2,957	2,996	3,023	887	899	907
2000	138,496	148,776	155,952	2,984	3,035	3,071	895	911	921
2001	144,036	156,959	166,100	3,011	3,076	3,122	903	923	937
2002	149,798	165,592	176,897	3,040	3,119	3,176	912	936	953
2003	155,790	174,700	189,395	3,070	3,165	3,233	921	949	970
2004	162,021	184,308	200,640	3,101	3,213	3,294	930	964	988
2005	168,502	194,445	217,695	3,134	3,263	3,380	940	979	1,014
2006	175,242	205,139	236,199	3,167	3,317	3,472	950	995	1,042
2007	182,252	216,422	256,276	3,202	3,373	3,573	961	1,012	1,072
2008	189,542	228,325	278,059	3,239	3,433	3,681	972	1,030	1,104
2009	197,124	240,883	301,694	3,277	3,496	3,800	983	1,049	1,140
2010	205,009	254,132	327,338	3,316	3,562	3,928	995	1,069	1,178
2011	213,209	268,109	355,162	3,357	3,632	4,067	1,007	1,090	1,220
2012	221,737	282,855	385,351	3,400	3,705	4,218	1,020	1,112	1,265
2013	230,607	298,412	418,106	3,444	3,783	4,382	1,033	1,135	1,315
2014	239,831	314,825	453,645	3,490	3,865	4,559	1,047	1,160	1,368
2015	249,424	332,140	492,205	3,538	3,952	4,752	1,061	1,186	1,426

Sources: GDP: Refer to Table 1-1-1
Total Crude Steel Consumption: Tekkoh Tokei Yoran 1992 through 1995 (Refer to Table 4-2-3)
Flat Steel Consumption: Refer to Table 4-1-2

Figure 4-2-4
CORRELATION BETWEEN TOTAL GDP AND TOTAL CRUDE STEEL CONSUMPTION
(CASE 2)

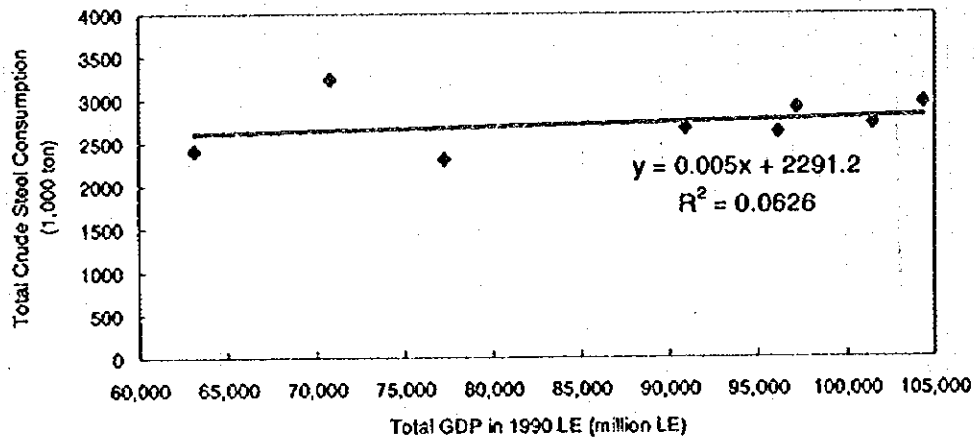


Figure 4-2-5
PROJECTED TOTAL STEEL AND FLAT STEEL CONSUMPTION IN EGYPT/CASE 2
(USING COORELATION BETWEEN TOTAL GDP AND TOTAL CRUDE STEEL CONSUMPTION)

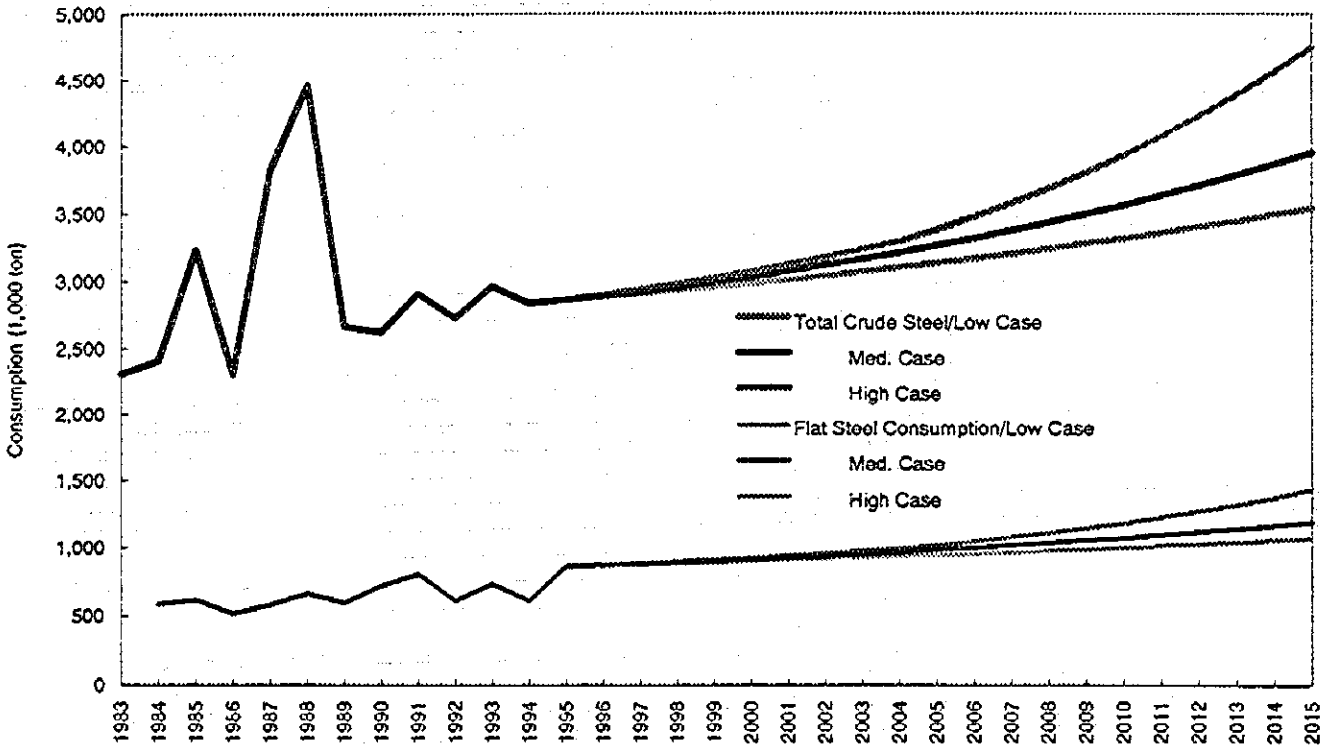


Table 4-2-6
PROJECTION OF FLAT STEEL CONSUMPTION IN EGYPT/CASE 3
(TIME SERIES ANALYSIS)

Regression Formula: Y = 30.8 x X + 620.6, r2 = 0.3918
Where, Y=Flat steel consumption (1,000 ton),
X="Number of Year" minus 1990 (i.e. 1998=8)
r2=Correlation coefficient

	Flat Steel Consumption (1,000 ton)
1991	722
1992	636
1993	652
1994	722
1995	834
1996	805
1997	836
1998	867
1999	898
2000	929
2001	959
2002	990
2003	1,021
2004	1,052
2005	1,083
2006	1,113
2007	1,144
2008	1,175
2009	1,206
2010	1,237
2011	1,267
2012	1,298
2013	1,329
2014	1,360
2015	1,391

Source: Consumption in 1991 through 1995: Refer to Table on Page 4-4

Figure 4-2-6
PROJECTED FLAT STEEL CONSUMPTION IN EGYPT/CASE 3
(USING TIME SERIES REGRESSION OF FLAT STEEL CONSUMPTION)

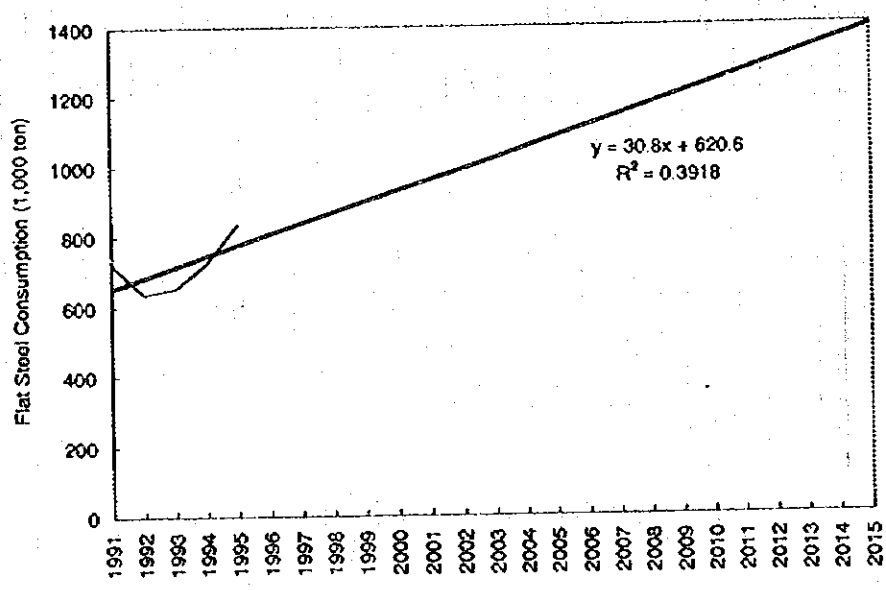


Table 4-2-7
PROJECTION OF FLAT STEEL CONSUMPTION IN EGYPT/CASE 4 (USING CORRELATION BETWEEN GDP AND CONSUMPTION)

Regression Formula: Y = 0.0081 x X - 130.87, r2 = 0.4446
Where, Y=Flat steel consumption (1,000 ton),
X=GDP in 1990 LE (million LE),
r2=Correlation coefficient

	GDP in 1990 pound (million)			Flat Steel Consumption (1,000 ton)		
1991		97,137			722	
1992		101,443			636	
1993		104,360			652	
1994		108,517			722	
1995		113,834			834	
	Low Case	Med. Case	High Case	Low Case	Med. Case	High Case
1996	118,387	120,095	121,233	824	838	847
1997	123,123	126,700	129,113	862	891	911
1998	128,048	133,669	137,506	902	948	979
1999	133,170	141,020	146,444	944	1,007	1,051
2000	138,496	148,776	155,962	987	1,070	1,128
2001	144,036	156,959	166,100	1,032	1,136	1,211
2002	149,798	165,592	176,897	1,078	1,206	1,298
2003	155,790	174,700	188,395	1,127	1,280	1,391
2004	162,021	184,308	200,640	1,178	1,358	1,490
2005	168,502	194,445	217,695	1,230	1,440	1,628
2006	175,242	205,139	236,199	1,285	1,527	1,778
2007	182,252	216,422	256,276	1,341	1,618	1,941
2008	189,542	228,325	278,059	1,400	1,715	2,117
2009	197,124	240,883	301,694	1,462	1,816	2,309
2010	205,009	254,132	327,338	1,526	1,924	2,517
2011	213,209	268,109	355,162	1,592	2,037	2,742
2012	221,737	282,855	385,351	1,661	2,156	2,986
2013	230,607	298,412	418,106	1,733	2,282	3,252
2014	239,831	314,825	453,645	1,808	2,415	3,540
2015	249,424	332,140	492,205	1,885	2,555	3,852

Souces: GDP in 1991 through 1994: Refer to Table 1-1-1
Consumption in 1991 through 1995: Same as Table 4-2-6

Figure 4-2-7
CORRELATION BETWEEN GDP AND FLAT STEEL CONSUMPTION (CASE 4)

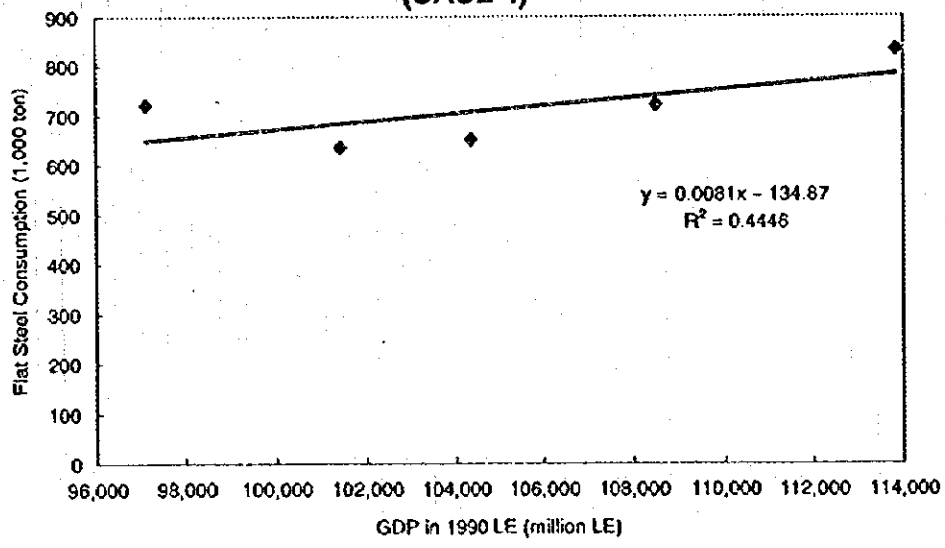
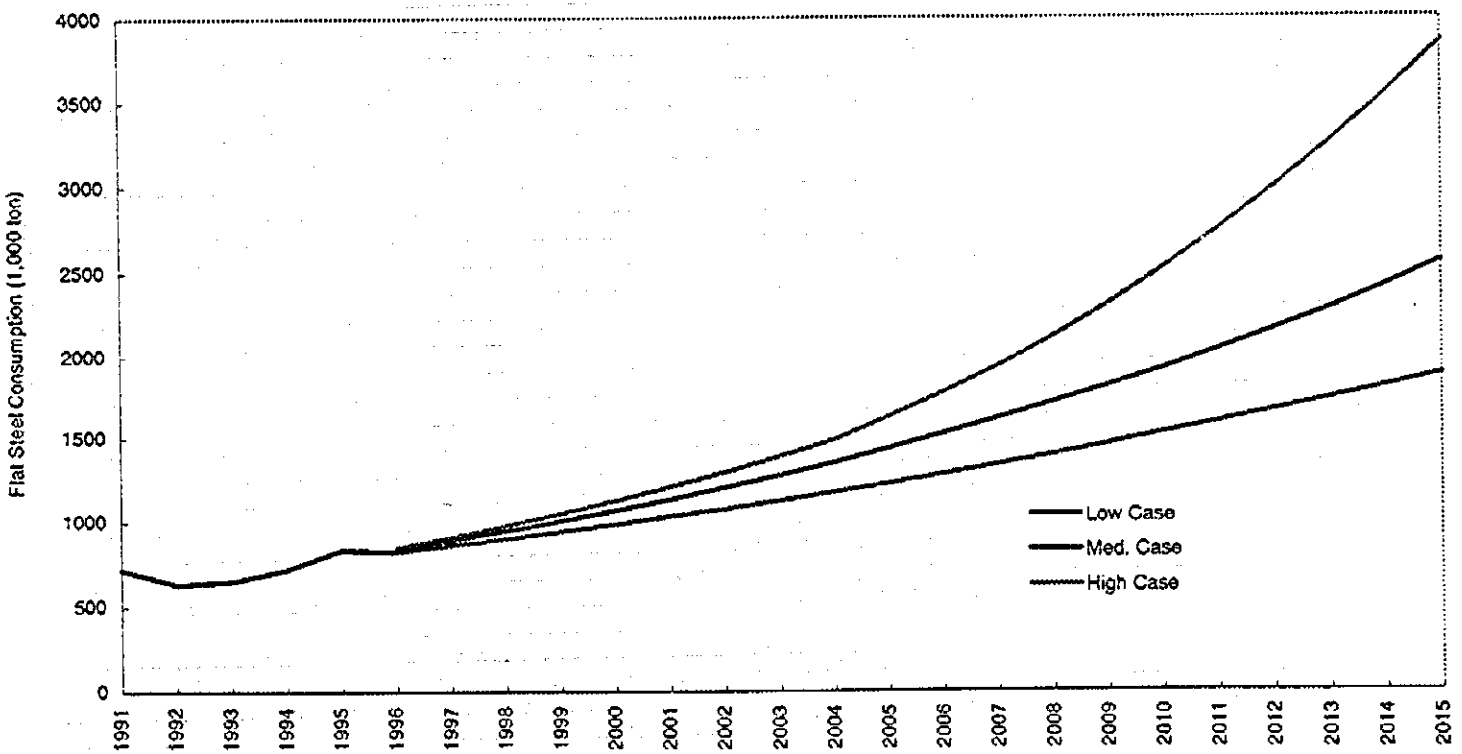


Figure 4-2-8
PROJECTED FLAT STEEL CONSUMPTION IN EGYPT/CASE 4
(USING CORRELATION BETWEEN GDP AND CONSUMPTION)



4-2-5. 各国の一人当たり GDP と鉄鋼消費量の相関による分析（Cross-section analysis）

表4-2-8をもとに行った世界の1人当たりGDPと鉄鋼消費量の相関分析結果をエジプトの全鉄鋼消費予測に使用した。

全鉄鋼消費量から鋼板の消費量を算定する場合は、全鉄鋼消費量に対する鋼板の消費比率を用いた。

通常GDPが上昇すると鋼板の比率は上昇するが、エジプトの場合現状の30%が変化しないものとした。理由は第3次開発計画の中で建設部門の目標GDP成長率が工業のものより高いことと、エジプト政府が広大で且つ現在有効に利用されていない地域の発展の為の大きな計画を有していることにある。

米国のドルに対してエジプトの為替レートは膨大な債務などのために1988年から引き下げられた。即ち、1988年以前の対米交換レートE£0.7は1991年にはE£3.33に下がった。この引き下げは実際の購買力の観点からは高すぎる。

このことは実際の購買力を基にした米国ドルで表示されるエジプトの一人当たりGDPは通常のものより高いことになる。従って通常の為替レートで計算した米国ドルをベースとした一人当たりGDPでは鉄鋼消費量はCross-section analysisのものより高くなる。

調査団はエジプトの一人当たりGDPを相関曲線に移動する場合（ケース6-1）と相関曲線をエジプトの消費まで動かした場合（ケース6-2）を計算した。

ケース6-1とケース6-2は一人当たり鉄鋼消費量が150kg以下の国々を対象としている。（表の枠の中の国）ケース5は世界の全部の国を入れた場合である。

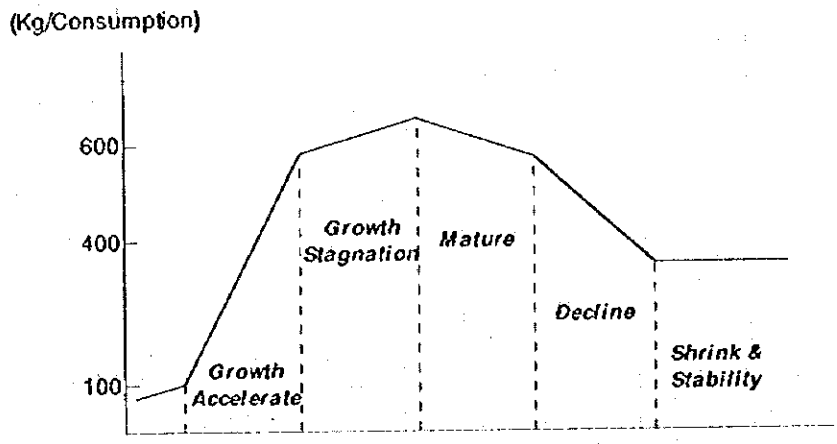
それぞれのケースの相関式と相関係数及び2005年の鋼板需要予測は下記の表の通りである。

(Unit: 1,000 ton)

		Lowest case	Medium case	Highest case
Case 5 (Table 4-2-9, Figure 4-2-11), r^2=0.5558	Total	3,914	4,247	4,433
Y=(-0.0000002×X^2 + 0.0186×X+77.957)-41	Flat	1,174	1,274	1,330
Case 6-1 (Table 4-2-10, Figure 4-2-13), r^2=0.5665	Total	4,205	4,676	5,085
Y=0.2482×X^0.7424	Flat	1,261	1,403	1,526
Case 6-2 (Table 4-2-11, Figure 4-2-14), r^2=0.5665	Total	4,036	4,597	4,899
Y=(0.2482×X^0.7424)+16	Flat	1,211	1,379	1,470

世界の過去の経験から言えば一人当たり全鋼材消費量が 100 kg を越すと下記の様に急速に増加する。

Figure 4-2-9 PER CAPITA CONSUMPTION AT THE DEVELOPMENT STAGE OF TOTAL STEEL



エジプトの場合は、2005 年頃が分岐点でそれ以後高い率で鋼材の消費が増加することが期待される。

これは GDP の最高の伸び率の需要予測に見合うと思われる。

Table 4-2-8
PER CAPITA GDP AND PER CAPITA CONSUMPTION OF CRUDE STEEL IN 1992

	Per Capita GDP in 1990 US$ (US$)	Per Capita Consumption of Crude Steel (kg)
Zaire	91	2
Tanzania	101	2
Bangladesh	233	3
Kenya	344	10
Nigeria	351	11
Pakistan	459	12
Albania	422	14
India	368	23
Indonesia	656	24
Colombia	1,276	28
Morocco	1,034	38
Iraq	4,143	41
Philippines	681	42
Egypt	816	49
Syria	2,257	51
Zimbabwe	575	54
Lebanon	1,588	67
Yugoslavia	2,652	67
Brazil	3,173	69
China	375	73
Algeria	422	88
Argentina	5,012	101
Bulgaria	2,074	103
Chile	2,606	104
Hungary	2,691	107
Tunisia	1,656	109
Jordan	939	112
Mexico	2,903	112
South Africa	2,566	114
Turkey	2,728	128
Iran	10,499	117
Ireland	13,566	125
Poland	1,523	150
Romania	1,263	151
Thailand	1,711	152
Venezuela	2,813	155
Iceland	22,515	168
Greece	6,646	178
New Zealand	12,770	182
Saudi Arabia	5,440	203
Israel	12,335	215
Libya	7,290	227
U.K.	16,441	232
Portugal	6,250	234
Malaysia	2,695	241
Kuwait	14,296	272
Spain	12,989	274
Finland	24,406	277
France	21,183	281
Australia	17,427	298
Czechoslovakia	2,441	298
Netherlands	19,337	303
Korea, North	865	315
Norway	25,810	324
Switzerland	32,823	325
Sweden	25,372	351
U.S.	21,828	379
Canada	19,822	389
Austria	20,875	437
Italy	19,712	455
Germany	21,498	477
Denmark	25,720	493
Russian Fed.	6,008	502
Korea, Rep. of	6,353	532
Ukraine	4,214	645
Japan	24,873	676

Note:
[ ] Used for the equation in Cases 6-1 and 6-2.

Sources:
Statistical Yearbook 1993 (UN)
"Tekkoh Tokei Yoran 1995 (in Japanese)" (The Japan Iron & Steel Federation)

Table 4-2-9
PROJECTION OF TOTAL CRUDE STEEL AND FLAT STEEL CONSUMPTION IN EGYPT/CASE 5

Regression Formula: Y = (-0.0000002 x X^2 + 0.0186 x X + 77.957) - 41, r2 = 0.5558

Where, Y=Per capita crude steel consumption (kg), X=Per capita GDP (US$), r2=Correlation coefficient

	Per Capita GDP in 1990 US$ (US$)			Per Capita Consumption of Total Crude Steel (kg)			Population (million)	Total Crude Steel Consumption (1,000 ton)			Flat Steel Consumption (1,000 ton)		
1991		832			54		53.92		2,907			722	
1992		808			49		55.74		2,722			636	
1993		817			52		56.49		2,962			652	
1994		823					58.33					722	
1995		850					59.23					834	
	Low Case	Med. Case	High Case	Low Case	Med. Case	High Case		Low Case	Med. Case	High Case	Ratio to Total Crude Steel Consumption: 0.3		
											Low Case	Med. Case	High Case
1996	858	879	887	94	94	94	60.41	3,188	3,211	3,220	956	963	966
1997	867	909	926	94	95	95	61.62	3,261	3,309	3,329	978	993	999
1998	875	940	967	94	95	96	62.86	3,336	3,411	3,442	1,001	1,023	1,033
1999	884	973	1,010	94	96	97	64.11	3,413	3,517	3,561	1,024	1,055	1,068
2000	892	1,006	1,055	94	96	97	65.39	3,492	3,627	3,685	1,048	1,088	1,105
2001	901	1,040	1,101	95	97	98	66.70	3,572	3,742	3,815	1,072	1,122	1,144
2002	910	1,076	1,150	95	98	99	68.04	3,655	3,861	3,951	1,096	1,158	1,185
2003	919	1,113	1,200	95	98	100	69.40	3,739	3,984	4,094	1,122	1,195	1,228
2004	928	1,151	1,253	95	99	101	70.79	3,825	4,113	4,244	1,148	1,234	1,273
2005	937	1,191	1,333	95	100	102	72.20	3,914	4,247	4,433	1,174	1,274	1,330
2006	946	1,232	1,418	95	101	104	73.65	4,004	4,386	4,635	1,201	1,316	1,390
2007	955	1,274	1,508	96	101	106	75.12	4,097	4,532	4,850	1,229	1,359	1,455
2008	965	1,318	1,605	96	102	107	76.62	4,192	4,683	5,079	1,258	1,405	1,524
2009	974	1,363	1,707	96	103	109	78.15	4,290	4,840	5,324	1,287	1,452	1,597
2010	984	1,410	1,816	96	104	111	79.72	4,389	5,004	5,586	1,317	1,501	1,676
2011	993	1,458	1,931	96	105	113	81.31	4,491	5,175	5,865	1,347	1,553	1,760
2012	1,003	1,508	2,054	96	106	115	82.94	4,596	5,354	6,164	1,379	1,606	1,849
2013	1,013	1,560	2,185	97	106	118	84.60	4,703	5,539	6,484	1,411	1,662	1,945
2014	1,023	1,613	2,325	97	107	120	86.29	4,812	5,733	6,827	1,444	1,720	2,048
2015	1,033	1,669	2,473	97	108	123	88.01	4,925	5,935	7,193	1,477	1,781	2,158

Sources: Per Capita GDP in 1991 and 1992: Calculated from UN Statistics
Per Capita GDP in 1993 through 1995: Estimated by the Study Team based on growth rate in Table 1-1-4
Population in 1991 through 1995: Monthly Bulletin of Statistics (U.N.)
Per Capita consumption and Total Crude Steel Consumption in 1991 through 1993: Refer to Table 4-2-3
Flat steel consumption in 1991 through 1995: Same as Table 4-2-6

Figure 4-2-10
CORRELATION BETWEEN PER CAPITA GDP AND PER CAPITA CONSUMPTION, 1992
(CASE 5)

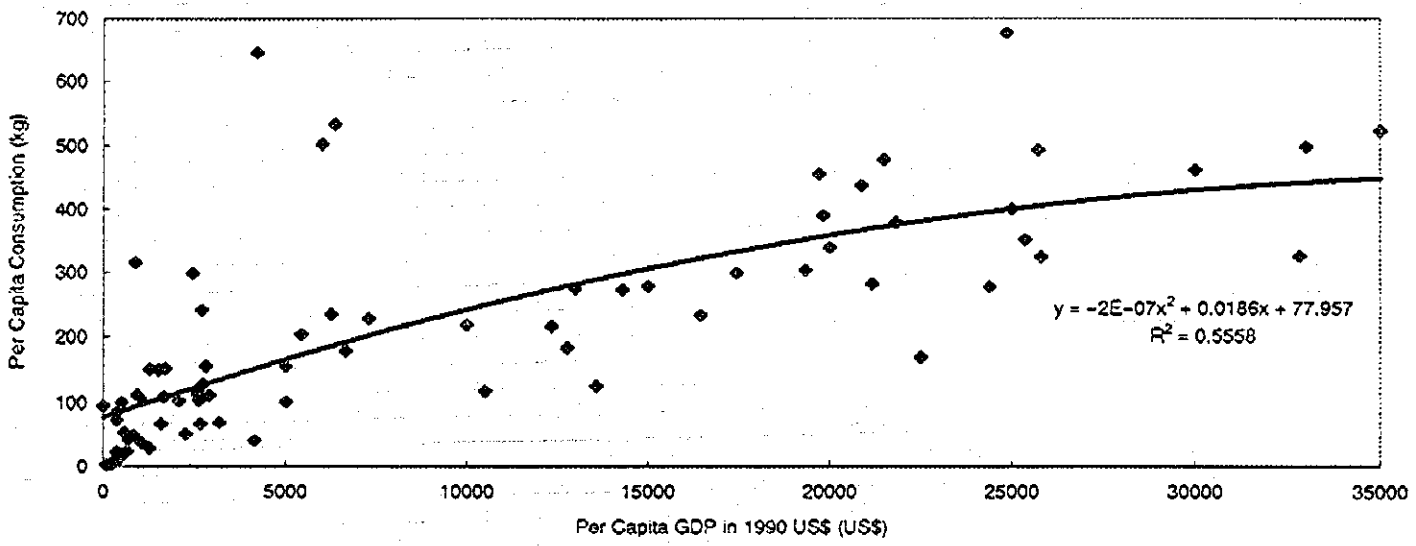


Figure 4-2-11
PROJECTED CONSUMPTION OF TOTAL CRUDE STEEL IN EGYPT/CASE 5

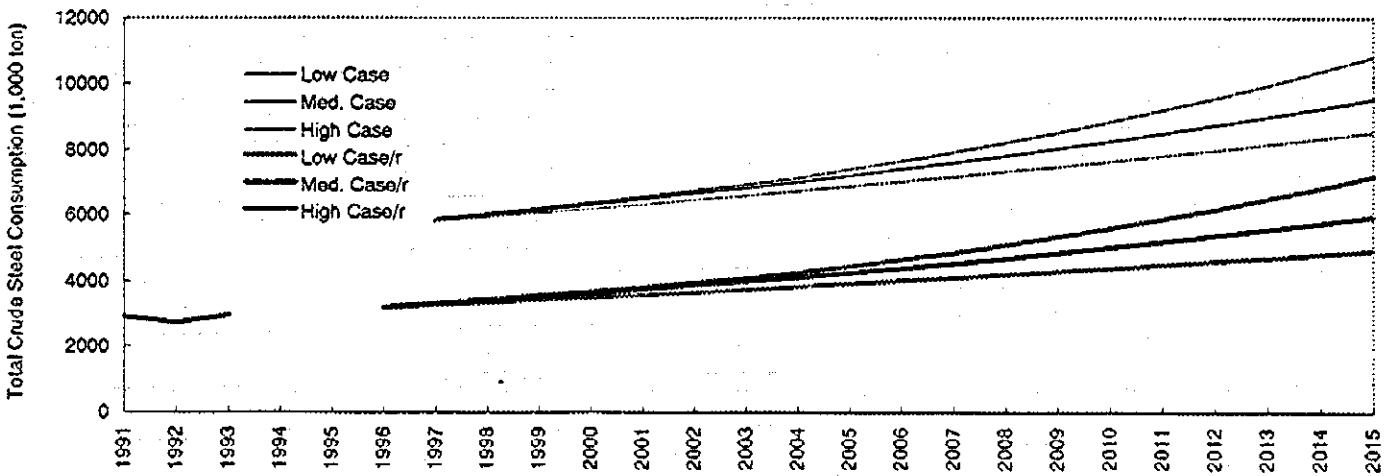


Table 4-2-10
PROJECTION OF TOTAL CRUDE STEEL AND FLAT STEEL CONSUMPTION IN EGYPT/CASE 6-1

Regression Formula: Y = 0.2482 x X^0.7424, r2 = 0.5665
Where, Y=Per capita crude steel consumption (kg), X=Per capita GDP in 1990 US$, Adjusted (US$), r2=Correlation coefficient

	Per Capita GDP in 1990 US$, Adjusted (US$)			Per Capita Consumption of Total Crude Steel (kg)			Population (million)	Total Crude Steel Consumption (1,000 ton)			Flat Steel Consumption (1,000 ton)		
1991					54		53.92		2,907			722	
1992		1,220			49		55.74		2,722			636	
1993		1,234			52		56.49		2,962			652	
1994		1,243					58.33					722	
1995		1,264					59.23					834	
	Low Case	Med. Case	High Case	Low Case	Med. Case	High Case		Low Case	Med. Case	High Case	Ratio to Total Crude Steel Consumption: 0.3		
											Low Case	Med. Case	High Case
1996	1,309	1,328	1,341	51	52	52	60.41	3,090	3,123	3,145	927	937	944
1997	1,335	1,373	1,400	52	53	54	61.62	3,198	3,266	3,312	959	980	994
1998	1,361	1,421	1,461	53	54	56	62.86	3,309	3,416	3,489	993	1,025	1,047
1999	1,388	1,469	1,526	53	56	57	64.11	3,424	3,573	3,674	1,027	1,072	1,102
2000	1,415	1,520	1,593	54	57	59	65.39	3,543	3,737	3,870	1,063	1,121	1,161
2001	1,443	1,572	1,663	55	59	61	66.70	3,667	3,908	4,076	1,100	1,172	1,223
2002	1,471	1,626	1,737	56	60	63	68.04	3,794	4,087	4,293	1,138	1,226	1,288
2003	1,500	1,682	1,813	57	62	65	69.40	3,926	4,275	4,521	1,178	1,282	1,356
2004	1,529	1,739	1,893	57	63	67	70.79	4,063	4,471	4,762	1,219	1,341	1,429
2005	1,559	1,799	2,014	58	65	70	72.20	4,205	4,676	5,085	1,261	1,403	1,526
2006	1,590	1,861	2,143	59	66	74	73.65	4,351	4,891	5,430	1,305	1,467	1,629
2007	1,621	1,925	2,279	60	68	77	75.12	4,502	5,115	5,799	1,351	1,534	1,740
2008	1,653	1,991	2,424	61	70	81	76.62	4,659	5,350	6,192	1,398	1,605	1,858
2009	1,685	2,059	2,579	62	72	85	78.15	4,821	5,595	6,613	1,446	1,678	1,984
2010	1,718	2,130	2,743	63	73	89	79.72	4,989	5,852	7,061	1,497	1,755	2,118
2011	1,752	2,203	2,918	63	75	93	81.31	5,163	6,120	7,541	1,549	1,836	2,262
2012	1,786	2,278	3,104	64	77	97	82.94	5,342	6,401	8,053	1,603	1,920	2,416
2013	1,821	2,356	3,302	65	79	102	84.60	5,528	6,694	8,599	1,659	2,008	2,580
2014	1,857	2,437	3,512	66	81	106	86.29	5,721	7,001	9,183	1,716	2,100	2,755
2015	1,893	2,521	3,736	67	83	111	88.01	5,920	7,323	9,806	1,776	2,197	2,942

Sources: Per Capita GDP in 1992 through 1995: Adjusted by the Study Team
Population in 1991 through 1995: Same as Table 4-2-9
Per Capita consumption and Total Crude Steel Consumption in 1991 through 1993: Refer to Table 4-2-3
Flat steel consumption: Same as Table 4-2-6

Figure 4-2-12
CORRELATION BETWEEN PER CAPITA GDP AND PER CAPITA CONSUMPTION, 1992
(CASES 6-1 AND 6-2)

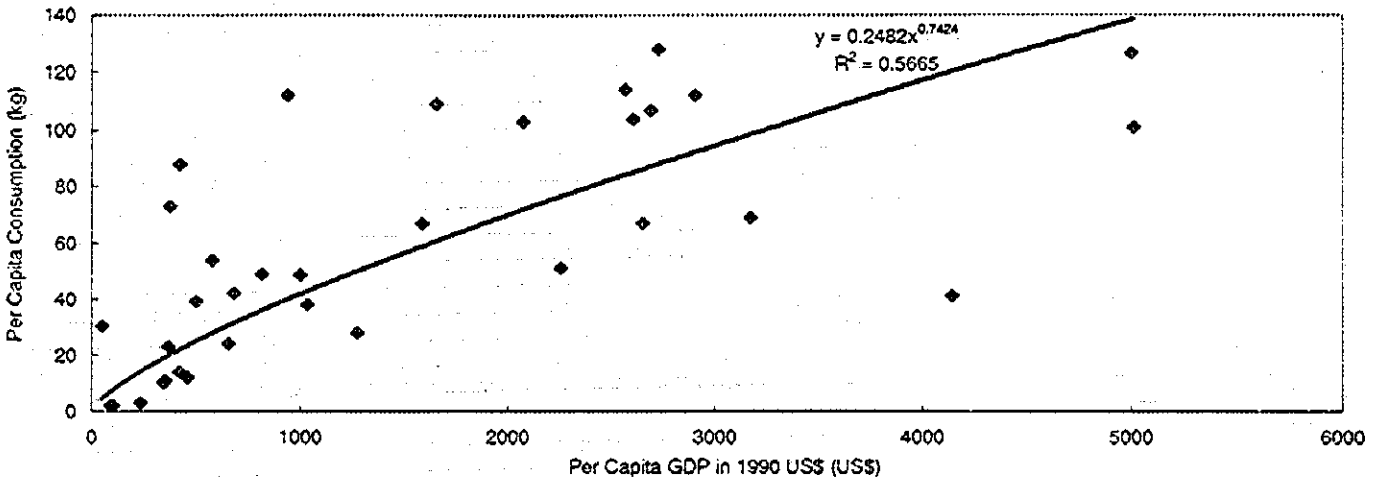


Figure 4-2-13
PROJECTED CONSUMPTION OF TOTAL CRUDE STEEL IN EGYPT/CASE 6-1

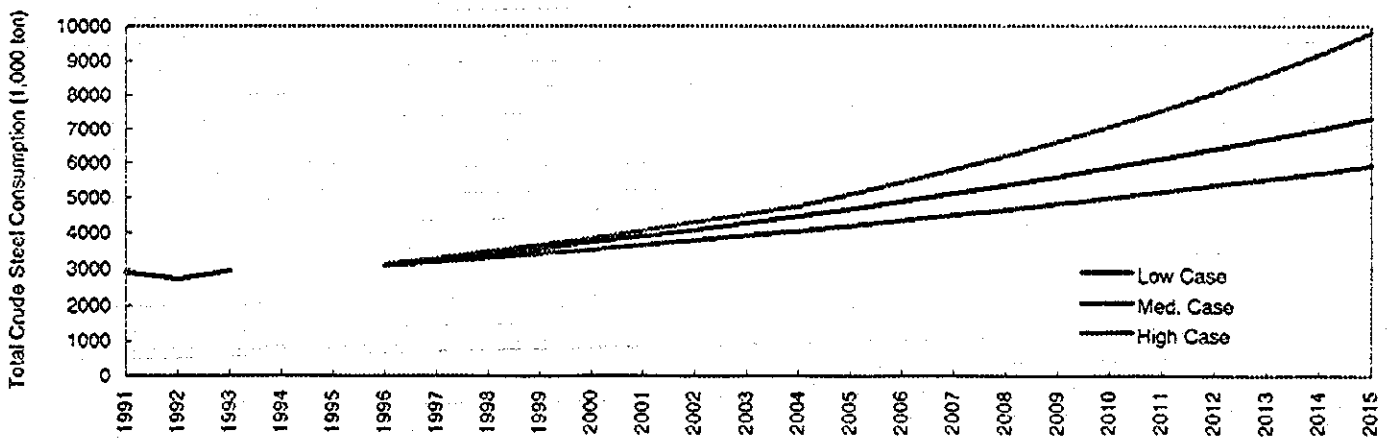


Table 4-2-11
PROJECTION OF TOTAL CRUDE STEEL AND FLAT STEEL CONSUMPTION IN EGYPT/CASE 6-2

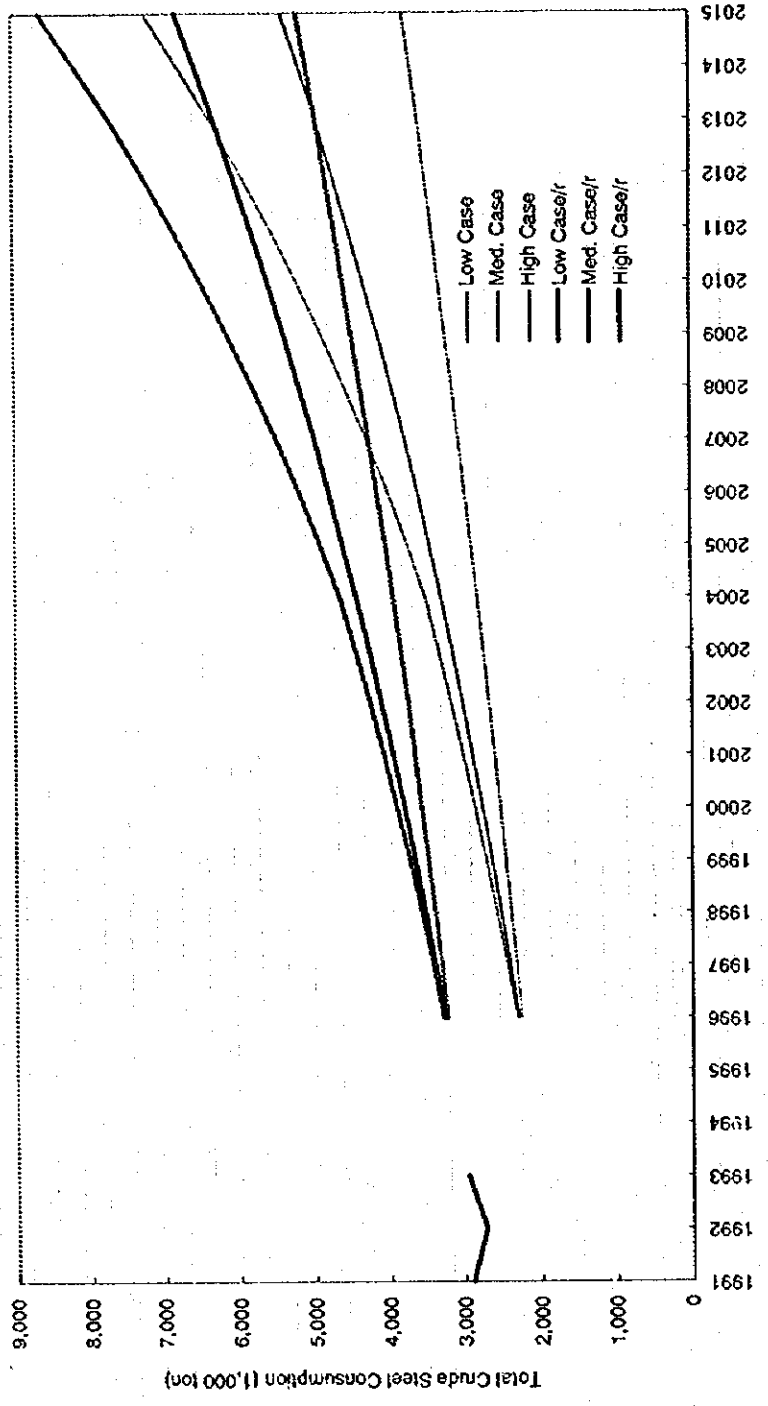
Regression Formula: (Y = 0.2482 x X^0.7424) + 16, r2 = 0.5665

Where, Y=Per capita crude steel consumption (kg), X=Per capita GDP (US$), r2=Correlation coefficient

	Per Capita GDP in 1990 US$ (US$)			Per Capita Consumption of Total Crude Steel (kg)			Population (million)	Total Crude Steel Consumption (1,000 ton)			Flat Steel Consumption (1,000 ton)		
1991	832			54			53.92	2,907			722		
1992	808			49			55.74	2,722			636		
1993	817			52			56.49	2,962			652		
1994	823						58.33				722		
1995	850						59.23				834		
	Low Case	Med. Case	High Case	Low Case	Med. Case	High Case		Low Case	Med. Case	High Case	Ratio to Total Crude Steel Consumption: 0.3		
											Low Case	Med. Case	High Case
1996	866	879	887	37	38	38	60.41	3,225	3,266	3,282	968	980	985
1997	883	909	926	38	39	40	61.62	3,306	3,390	3,424	992	1,017	1,027
1998	892	940	967	38	40	41	62.86	3,390	3,520	3,574	1,017	1,056	1,072
1999	901	973	1,010	38	41	42	64.11	3,475	3,656	3,731	1,043	1,097	1,119
2000	910	1,006	1,055	38	42	44	65.39	3,563	3,797	3,895	1,069	1,139	1,169
2001	919	1,040	1,101	39	43	45	66.70	3,653	3,944	4,068	1,096	1,183	1,220
2002	928	1,076	1,150	39	44	46	68.04	3,745	4,098	4,249	1,123	1,229	1,275
2003	937	1,113	1,200	39	45	48	69.40	3,840	4,257	4,439	1,152	1,277	1,332
2004	946	1,151	1,253	40	46	50	70.79	3,937	4,424	4,638	1,181	1,327	1,391
2005	955	1,191	1,333	40	48	52	72.20	4,036	4,597	4,899	1,211	1,379	1,470
2006	965	1,232	1,418	40	49	54	73.65	4,138	4,778	5,176	1,241	1,434	1,553
2007	974	1,274	1,508	40	50	57	75.12	4,243	4,967	5,471	1,273	1,490	1,641
2008	984	1,318	1,605	41	51	59	76.62	4,350	5,164	5,784	1,305	1,549	1,735
2009	993	1,363	1,707	41	53	62	78.15	4,460	5,369	6,118	1,338	1,611	1,835
2010	1,003	1,410	1,816	41	54	65	79.72	4,573	5,583	6,474	1,372	1,675	1,942
2011	1,013	1,458	1,931	42	55	68	81.31	4,689	5,806	6,852	1,407	1,742	2,056
2012	1,023	1,508	2,054	42	57	71	82.94	4,808	6,039	7,255	1,442	1,812	2,176
2013	1,033	1,560	2,185	42	58	75	84.60	4,930	6,281	7,684	1,479	1,884	2,305
2014	1,043	1,613	2,325	43	60	78	86.29	5,055	6,535	8,140	1,517	1,960	2,442
2015	1,053	1,669	2,473	43	61	82	88.01	5,184	6,799	8,627	1,555	2,040	2,588

Source: 1991 through 1995: Same as Table 4-2-9

Figure 4-2-14
PROJECTED CONSUMPTION OF TOTAL CRUDE STEEL IN EGYPT/CASE 6-2



4-2-6. 個別企業の生産増加計画

近い将来の生産計画を述べた企業は限られており、且つそれら企業の期待には大きな幅があったし、2005年の予測を述べた企業はなかった。

4-2-7. 2005年以降の鋼板需要予測の結論

調査団としては2005年の需要予測については個別の消費産業の需要予測を積算して予測したものを採用することにした。

それ以降の需要予測には表4-2-12及び図4-2-15に示したcross-section analysisのケース6-1を使用し作成した。

2010年及び2015年の最低・中間・最高の各ケースの鋼板需要量をまとめたものを下記に示す。

(Unit: 1,000 ton)

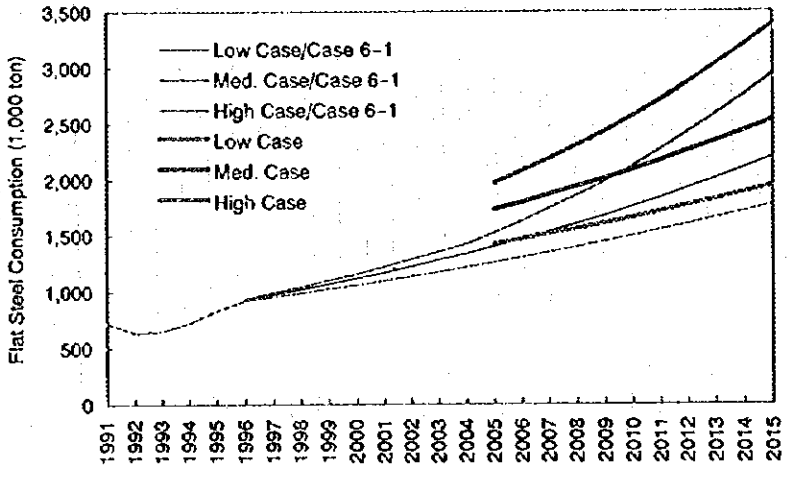
年度	最　低	中　間	最　高
2005	1,427	1,734	1,970
2010	1,663	2,086	2,562
2015	1,942	2,528	3,386

Source: Table 4-2-12

Table 4-2-12
LONG-TERM FORECAST OF FLAT STEEL CONSUMPTION IN EGYPT AFTER 2005

	Flat Steel Consumption (1,000 ton)					
1991	722					
1992	636					
1993	652					
1994	722					
1995	833					
	Case 6-1			Long-term Forecast after 2005		
	Low Case	Med. Case	High Case	Low Case	Med. Case	High Case
1996	927	937	944			
1997	959	980	994			
1998	993	1,025	1,047			
1999	1,027	1,072	1,102			
2000	1,063	1,121	1,161			
2001	1,100	1,172	1,223			
2002	1,138	1,226	1,288			
2003	1,178	1,282	1,356			
2004	1,219	1,341	1,429			
2005	1,261	1,403	1,526	1,427	1,734	1,970
2006	1,305	1,467	1,629	1,471	1,798	2,073
2007	1,351	1,534	1,740	1,517	1,865	2,184
2008	1,398	1,605	1,858	1,564	1,936	2,302
2009	1,446	1,678	1,984	1,612	2,009	2,428
2010	1,497	1,755	2,118	1,663	2,086	2,562
2011	1,549	1,836	2,262	1,715	2,167	2,706
2012	1,603	1,920	2,416	1,769	2,251	2,860
2013	1,659	2,008	2,580	1,825	2,339	3,024
2014	1,716	2,100	2,755	1,882	2,431	3,199
2015	1,776	2,197	2,942	1,942	2,528	3,386

Figure 4-2-15
LONG-TERM FORECAST OF FLAT STEEL CONSUMPTION IN EGYPT AFTER 2005



4-3. 生産（量と製品構成）の将来計画

4-3-1. 要約

各産業別中期需要予測から、新工場で生産される製品構成を検討する。この場合は鋼板の需要予測（2005年と2006年）をもとに、新工場では生産されないオーバーサイズの製品を除くこと、各生産段階での製品の歩留まりを考慮すること、及びEISCOの生産量を考慮する必要がある。

将来予測をするための条件、オーバーサイズの製品を除くこと、スラブ換算での生産量の計算及びEISCOの生産を考慮した新工場の生産量については4-3-2、4-3-3、4-3-4及び4-3-5にそれぞれ記述した。

結論として2005年及び2006年において、計画されるプラントの鋼板需要量は次のようになる。

EISCOが4-3-2に示した生産を2005年以降も継続する場合：

(Unit: ton)

	2005年		2006年	
	CR	HR	CR	HR
最低成長率の場合	181,894	821,493	205,187	898,509
中間成長率の場合	272,221	1,120,732	301,284	1,178,309
最高成長率の場合	341,280	1,351,319	392,702	1,524,358

EISCOのPlate millが止まる場合（冷間圧延と熱間圧延設備は動く）：

(Unit: ton)

	2005年		2006年	
	CR	HR	CR	HR
最低成長率の場合	181,894	902,493	205,187	979,509
中間成長率の場合	272,221	1,201,732	301,284	1,259,309
最高成長率の場合	341,280	1,432,319	392,702	1,605,358

EISCOが該当製品を生産しない場合：

(Unit: ton)

	2005年		2006年	
	CR	HR	CR	HR
最低成長率の場合	454,204	1,398,393	477,497	1,475,409
中間成長率の場合	544,531	1,697,632	573,594	1,755,209
最高成長率の場合	613,590	1,928,219	665,012	2,101,258

4-3-2. 新工場の生産の将来予測をするための条件

(1) 熱間圧延と冷間圧延のロール幅を 1,500mm とした。熱間圧延製品の厚みを 24mm 以下とした。

(2) 製品の各製造段階の歩留まりを 95%とする。

(3) 既存設備からの供給

ケース 1. 生産能力と 1994/95 年の稼働率をもとにした生産を 2005 年以降も連続する場合

	Capacity (ton/year)	Rate	Production (ton)
Plate mill	90,000	0.9	81,000
Hot mill	570,000	0.87	495,900
Cold mill	313,000	0.87	272,310

ケース 2. Plate mill が停止した場合
ケース 3. 全工場が停止した場合

4-3-3. オーバーサイズの鋼板を除いた国内需要量

1,500mm 以上の幅の鋼板の需要量は少ないので新工場での HR 及び CR のロール幅は 1,500mm とする。したがって 1,500mm 以上の幅の製品は除く。

24mm 以上の厚みのものは巻き取りが困難のため 24mm 以上の厚みの鋼板は除く。

DOMESTIC DEMAND EXCLUDING FLAT STEEL OF OVER SIZE
(width >1500mm, thickness >24mm)

(Unit: ton)

2005									
	Lowest			Medium			Highest		
	HR	CR	Total	HR	CR	Total	HR	CR	Total
≤3mm	279,926	307,579	587,505	342,548	369,034	711,582	391,026	416,042	807,068
>3mm	617,054	0	617,054	752,898		752,898	857,871		857,871
coated	0	97,223	97,223		116,285	116,285		130,837	130,837
Total	896,980	404,802	1,301,782	1,095,446	485,319	1,580,765	1,248,897	546,879	1,795,776

2006									
	Lowest			Medium			Highest		
	HR	CR	Total	HR	CR	Total	HR	CR	Total
≤3mm	296,025	323,425	619,450	369,637	395,263	764,900	427,571	451,061	878,632
>3mm	651,992	0	651,992	811,541		811,541	936,862		936,862
coated	0	102,140	102,140		124,403	124,403		141,657	141,657
Total	948,017	425,565	1,373,582	1,181,178	519,666	1,700,844	1,364,433	592,718	1,957,151

4-3-4. スラブ換算の生産量

各種生産工程（スラブからHR、HRからCR、CRから表面処理鋼板）での歩留まりを95%とする。

HRの生産の中にはCRの全需要量が加わる。CR全需要量の中には表面処理鋼板が含まれる。

PRODUCTION AMOUNT IN TERM OF SLAB
(yield of HR 0.95, of CR 0.95 x 0.95, of Coated 0.95 x 0.95 x 0.95)

(Unit ton)

2005									
	Lowest			Medium			Highest		
	HR	CR	Total	HR	CR	Total	HR	CR	Total
≤3mm	294,659	340,808	635,467	360,577	408,902	769,479	411,606	460,988	872,595
>3mm	649,531		649,531	792,524		792,524	903,022		903,022
coated		113,396	113,396		135,629	135,629		152,602	152,602
Total	1,398,393	454,204		1,697,632	544,531		1,928,219	613,590	

2006									
	Lowest			Medium			Highest		
	HR	CR	Total	HR	CR	Total	HR	CR	Total
≤3mm	311,605	358,366	669,971	389,092	437,965	827,056	450,075	499,791	949,865
>3mm	686,307		686,307	792,524		792,524	986,171		986,171
coated		119,131	119,131		135,629	135,629		165,222	165,222
Total	1,475,409	477,497		1,755,209	573,594		2,101,258	665,012	

Total CR = CR ≤ 3mm + coated　　Total HR = Total CR + HR ≤ 3mm + HR >3mm

4-3-5. 新工場での製品構成

2005年以降におけるEISCOの生産は新工場の必要生産量に影響する。

調査団は下記のケースについて検討した。

ケース1.　1994/95年の能力と稼働率で生産する。

ケース2.　Plate millのみ停止する。

ケース3.　全工場が停止する。

PRODUCTION MIX OF THE NEW PLANT
(In Consideration of EISCO's Production)

(Unit: ton)

2005						
	EISCO full operation (Case 1)		EISCO's Plate mill stop (Case 2)		EISCO's plant stop (Case 3)	
	HR	CR	HR	CR	HR	CR
Lowest	821,493	181,894	902,493	181,894	1,398,393	454,204
Medium	1,120,732	272,221	1,201,732	272,221	1,697,632	544,531
Highest	1,351,319	341,280	1,432,319	341,280	1,928,219	613,590

2006						
	EISCO full operation (Case 1)		EISCO's Plate mill stop (Case 2)		EISCO's plant stop (Case 3)	
	HR	CR	HR	CR	HR	CR
Lowest	898,509	205,187	979,509	205,187	1,475,409	477,497
Medium	1,178,309	301,284	1,259,309	301,284	1,755,209	573,594
Highest	1,524,358	392,702	1,605,358	392,702	2,101,258	665,012

5. 新鋼板製造プラント建設必要性の評価

5. 新鋼板製造プラント建設必要性の評価

5-1. 新鋼板製造プラント建設必要性の評価

新工場で生産される鋼板の 2005 年と 2006 年における国内需要量と、鋼板を製造する場合の各工程の最小規模から新鋼板製造プラントの建設の必要性を判断する。鋼板製造の各工程の経済的最小規模は下記の通りである。

なお新工場で生産される鋼板の一部（最大 20%）は輸出可能と判断される。ただこの場合は価格面では国内向けより低くなる可能性がある。

評価の前提条件

(1) 最小の年間経済規模は次のように考える。

直接還元製鉄	400,000t
電気炉	200,000t
連続鋳造	200,000t
熱間圧延	800,000t
冷間圧延	300,000t
連続焼鈍	360,000t

最も留意すべき生産は熱間圧延と冷間圧延である。

(2) 輸出は全生産量の 20%以下とする。

(3) 各ケース別の新プラントの製品需要は下記の通りである。

PRODUCTION MIX OF THE NEW PLANT
(In Consideration of EISCO's Production)

(Unit: ton)

2005						
	EISCO full operation (Case 1)		EISCO's Plate mill stop (Case 2)		EISCO's plant stop (Case 3)	
	HR	CR	HR	CR	HR	CR
Lowest	821,493	181,894	902,493	181,894	1,398,393	454,204
Medium	1,120,732	272,221	1,201,732	272,221	1,697,632	544,531
Highest	1,351,319	341,280	1,432,319	341,280	1,928,219	613,590

2006						
	EISCO full operation (Case 1)		EISCO's Plate mill stop (Case 2)		EISCO's plant stop (Case 3)	
	HR	CR	HR	CR	HR	CR
Lowest	898,509	205,187	979,509	205,187	1,475,409	477,497
Medium	1,178,309	301,284	1,259,309	301,284	1,755,209	573,594
Highest	1,524,358	392,702	1,605,358	392,702	2,101,258	665,012

成長率が最も高い場合は、HR 及び CR の 2005 年の需要は最小経済規模より大きい。

HR の需要は、最低の成長率で EISCO が 2005 年以降も操業を継続する場合でも、最小規模より大である。

従って HR ミルの建設は需要面からは妥当性が認められる。

一方、CR の 2005 年の国内需要量は中間の成長率の場合で EISCO が操業を継続する場合 27 万 2,221 トンで最小規模の 30 万トンより低いが、輸出（2005 年のみ）を考えれば妥当性が認められる。CR の国内需要は 2006 年には 30 万 1,284 トンになる。

勧告

2005 年の HR 及び CR の需要は経済規模に達する。

2005 年は経済性評価、政府承認、基礎設計、見積り、契約、基礎工事、機器据え付けと調整、スタートアップからフル稼働に至る期間を考えると目標年次として妥当である。

また、中間の成長率の 5.5%は、1983 年から 1994 年の間の成長率が 5.7%であったことから見ても妥当である。

2005 年以降は 1 人当たり鉄鋼消費が 100kg を超し、鉄鋼需要が急増することが考えられる。

これらのことから調査団としては需要面からは鋼板工場の建設は妥当と考える。

2005 年にフル稼働に入るためには新鋼板工場の投資前調査第 2 フェーズに入ることが望まれる。

ANNEXES

ANNEX 1-1 PRIVATE SECTOR DEVELOPMENT

(1) EGYPT: PRIVATE SECTOR INVESTMENT AS PERCENT OF GDP BY ECONOMIC ACTIVITY; 1982/83 - 1991/92

Sectors	Fiscal Year (%)									
	82/83	83/84	84/85	85/86	86/87	87/88	88/89	89/90	90/91	91/92
Agriculture & Irrigation	0.5	0.4	0.7	0.6	0.5	1.3	1.3	1.1	0.8	0.7
Industry & Mining	2.3	2.4	2.7	3.1	3.3	3.9	3.3	2.7	2.4	2.1
Petroleum & Its product	4.6	3.9	3.2	2.8	2.3	2.5	2.7	2.4	2.6	2.3
Electricity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Construction	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Commodity Sectors	7.7	7.0	6.7	6.6	6.3	8.0	7.5	6.4	6.0	5.2
Transportation & Communication	1.3	1.1	1.0	1.0	0.7	0.7	0.7	0.6	0.5	0.4
Suez Canal	-	-	-	-	-	-	-	-	-	-
Trade	0.9	0.5	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.3
Finance										
Insurance										
Tourism (Hotels & Restaurants)	0.7	1.1	0.8	0.8	1.1	1.0	0.9	0.8	0.7	0.6
Total Services Sectors	2.9	2.7	2.2	2.1	2.1	2.1	1.9	1.6	1.5	1.3
Housing (Real Estate)	3.0	2.9	2.9	3.0	2.9	2.7	3.4	2.5	2.3	2.3
Public Utilities	-	-	-	-	-	-	-	-	-	-
Education Services	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Health Services	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Other Services	0.0	0.1	0.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Total Social Services Sectors	3.1	3.2	3.2	3.7	3.1	2.9	3.6	2.6	2.4	2.4
Grand Total	13.7	12.8	12.1	12.4	11.6	12.9	13.0	10.6	9.9	8.9

Source: Calculated from Ministry of Planning figures

(2) EGYPT: PRIVATE SECTOR INVESTMENT AS SHARE OF TOTAL INVESTMENT BY ECONOMIC ACTIVITY; 1982/83 - 1991/92

Sectors	Fiscal Year (%)									
	82/83	83/84	84/85	85/86	86/87	87/88	88/89	89/90	90/91	91/92
Agriculture & Irrigation	1.5	1.3	2.1	1.9	1.6	3.8	4.6	4.2	3.4	3.6
Industry & Mining	6.7	7.6	8.9	9.5	11.3	11.2	11.6	10.8	10.3	10.8
Petroleum & Its product	13.6	12.4	10.4	8.5	7.8	7.2	9.5	9.5	11.3	11.9
Electricity	0.1	0.1	0.1	0.1	0.1	-	-	-	-	-
Construction	0.9	0.9	0.5	0.5	0.7	0.4	0.7	0.8	0.8	1.0
Total Commodity Sectors	22.8	22.4	22.0	20.4	21.5	22.7	26.4	25.2	25.8	27.2
Transportation & Communication	3.9	3.4	3.2	3.1	2.4	2.0	2.5	2.2	2.0	2.0
Suez Canal	-	-	-	-	-	-	-	-	-	-
Trade	2.6	1.6	1.2	0.9	1.1	1.1	1.2	1.2	1.3	1.5
Finance										
Insurance										
Tourism (Hotels & Restaurants)	2.1	3.4	2.6	2.5	3.6	2.8	3.0	3.0	2.9	3.2
Total Services Sectors	8.5	8.4	7.0	6.5	7.1	5.9	6.8	6.4	6.2	6.7
Housing (Real Estate)	8.9	9.4	9.5	9.2	9.9	7.7	12.2	9.8	10.1	11.8
Public Utilities	-	-	-	-	-	-	-	-	-	-
Education Services	0.1	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.3
Health Services	0.1	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2
Other Services	0.1	0.2	0.2	1.7	0.2	0.1	0.1	0.1	0.2	0.1
Total Social Services Sectors	9.2	10.1	10.4	11.3	10.5	8.1	12.6	10.2	10.6	12.4
Grand Total	40.5	40.8	39.5	38.1	39.1	36.7	45.9	41.9	42.5	46.4

Source: Calculated from Ministry of Planning figures

(3) EGYPT: PUBLIC & PRIVATE SECTOR GROSS VALUE ADDED AT FACTOR COST BY ECONOMIC ACTIVITY; 1982/83 - 1991/92

(Current LE,000,000)

Sectors	1982/1983			1983/1984			1984/1985			1985/1986			1986/1987		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	91/92
Agriculture & Irrigation	78	4,988	5,066	103	5,619	5,722	123	6,257	6,380	133	7,536	7,669	140	9,971	10,111
Industry & Mining	2,059	1,207	3,266	2,393	1,657	4,050	3,059	2,207	5,266	3,513	2,838	6,351	4,065	4,072	8,137
Petroleum & its product	2,193	639	2,832	2,531	698	3,229	2,814	767	3,581	2,506	678	3,184	1,356	517	1,873
Electricity	161	0	161	229	0	229	316	0	316	465	0	465	528	0	528
Construction	593	753	1,346	586	996	1,582	703	1,173	1,876	803	1,495	2,298	991	1,831	2,822
Total Commodity Sectors	5,084	7,587	12,671	5,842	8,970	14,812	7,015	10,404	17,419	7,420	12,547	19,967	7,080	16,391	23,471
Transportation & Communication	1,038	781	1,819	1,295	899	2,194	1,409	1,018	2,427	1,607	1,179	2,786	1,821	1,382	3,203
Suez Canal	682	0	682	687	0	687	652	0	652	746	0	746	840	0	840
Trade	1,009	2,373	3,382	1,233	3,085	4,318	1,394	4,128	5,522	1,438	5,635	7,073	1,551	7,288	8,839
Finance	762	269	1,031	930	332	1,262	1,134	322	1,456	1,370	408	1,778	1,671	501	2,172
Insurance	24	5	29	23	7	30	28	7	35	28	7	35	30	7	37
Tourism (Hotels & Restaurants)	57	225	282	64	261	325	74	302	376	66	267	333	91	368	459
Total Services Sectors	3,572	3,653	7,225	4,232	4,584	8,816	4,691	5,777	10,468	5,255	7,496	12,751	6,004	9,546	15,550
Housing (Real Estate)	62	350	412	65	403	468	72	450	522	79	504	583	100	1,425	1,525
Public Utilities	45	0	45	72	0	72	109	0	109	135	0	135	154	0	154
Education Services	34	0	34	37	0	37	45	0	45	51	0	51	39	0	39
Health Services	2,650	0	2,650	3,164	0	3,164	3,732	0	3,732	4,111	0	4,111	4,436	0	4,436
Other Services	0	1,453	1,453	0	1,888	1,888	0	2,459	2,459	0	3,205	3,205	0	4,160	4,160
Total Social Services Sectors	2,791	1,803	4,594	3,338	2,291	5,629	3,958	2,909	6,867	4,376	3,709	8,085	4,729	5,585	10,314
Grand Total	11,447	13,043	24,490	13,412	15,845	29,257	15,664	19,090	34,754	17,051	23,752	40,803	17,813	31,522	49,335

Source: Ministry of Planning

(4) EGYPT: PUBLIC & PRIVATE SECTOR GROSS VALUE ADDED AT FACTOR COST BY ECONOMIC ACTIVITY; 1982/83 - 1991/92

(Current LE,000,000)

Sectors	1987/1988			1988/1989			1989/1990			1990/1991			1991/1992		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	91/92
Agriculture & Irrigation	181	10,935	11,116	205	14,190	14,395	225	17,510	17,735	245	18,865	19,110	265	21,415	21,680
Industry & Mining	5,313	5,090	10,403	6,290	6,955	13,245	7,220	9,042	16,262	7,795	10,225	18,020	9,105	12,625	21,730
Petroleum & its product	1,990	599	2,589	1,834	549	2,383	3,090	816	3,906	8,988	2,011	10,999	10,759	2,249	13,008
Electricity	675	0	675	775	0	775	1,033	0	1,033	1,506	0	1,506	2,220	0	2,220
Construction	1,125	2,117	3,242	1,276	2,795	4,071	1,457	3,597	5,054	1,650	3,975	5,625	1,964	4,771	6,735
Total Commodity Sectors	9,284	18,741	28,025	10,380	24,489	34,869	13,025	30,965	43,990	20,184	35,076	55,260	24,313	41,060	65,373
Transportation & Communication	2,273	1,683	3,956	2,732	2,255	4,987	3,213	2,961	6,174	3,623	3,325	6,948	4,540	4,170	8,710
Suez Canal	948	0	948	971	0	971	1,610	0	1,610	4,371	0	4,371	6,125	0	6,125
Trade	1,702	8,570	10,272	1,933	11,509	13,442	2,225	14,483	16,708	2,520	15,421	17,941	2,230	19,500	21,730
Finance	1,957	615	2,572	2,103	800	2,903	2,432	946	3,378	2,635	1,080	3,715	3,215	1,330	4,545
Insurance	23	18	41	31	20	51	35	23	58	40	26	66	46	30	76
Tourism (Hotels & Restaurants)	163	697	860	199	1,040	1,239	265	1,685	1,950	145	776	921	370	2,050	2,420
Total Services Sectors	7,066	11,583	18,649	7,969	15,624	23,593	9,780	20,098	29,878	13,334	20,628	33,962	16,526	27,080	43,606
Housing (Real Estate)	105	1,554	1,659	111	1,706	1,817	119	1,851	1,970	124	2,017	2,141	127	2,223	2,350
Public Utilities	196	0	196	233	0	233	271	0	271	345	0	345	401	0	401
Education Services	50	0	50	60	0	60	68	0	68	77	0	77	87	0	87
Health Services	5,318	0	5,318	6,398	0	6,398	7,573	0	7,573	8,275	0	8,275	9,345	0	9,345
Other Services	0	4,733	4,733	0	6,200	6,200	0	7,825	7,825	0	8,680	8,680	0	9,895	9,895
Total Social Services Sectors	5,669	6,287	11,956	6,802	7,906	14,708	8,031	9,676	17,707	8,821	10,697	19,518	9,960	12,118	22,078
Grand Total	22,019	36,611	58,630	25,151	48,019	73,170	30,836	60,739	91,575	42,339	66,401	108,740	50,799	80,258	131,057

Source: Ministry of Planning

(5) EGYPT: PRIVATE SECTOR VALUE ADDED BY ECONOMIC ACTIVITY IN CONSTANT 92/83 PRICES AND ANNUAL REAL GROWTH RATES, 82/83 - 91/92

(In constant 82/83, LE.000,000)

Sectors	82/83	1983/1984		1984/1985		1985/1986		1986/1987	
		Value	% Growth	Value	% Growth	Value	% Growth	Value	% Growth
Agriculture & Irrigation	4,988	5,155	3.3	5,258	2.0	5,501	4.6	5,698	3.6
Industry & Mining	1,207	1,479	22.6	1,659	12.2	1,905	14.8	2,314	21.5
Petroleum & Its product	639	712	11.5	816	14.6	779	(4.5)	975	25.2
Electricity	-	-	-	-	-	-	-	-	-
Construction	753	874	16.0	909	4.1	990	8.9	1,046	5.7
Total Commodity Sectors	7,587	8,220	8.3	8,642	5.1	9,175	6.2	10,033	9.4
Transportation & Communication	781	817	4.6	885	8.3	959	8.3	1,063	10.9
Suez Canal	-	-	-	-	-	-	-	-	-
Trade	2,373	2,550	7.4	2,827	10.9	3,220	13.9	3,470	7.8
Finance	269	281	4.6	232	(17.7)	253	9.4	274	8.0
Insurance	5	7	40.0	6	(11.5)	7	6.6	6	(1.9)
Tourism (Hotels & Restaurants)	225	244	8.4	263	7.7	217	(17.3)	277	27.5
Total Services Sectors	3,653	3,899	6.7	4,213	8.1	4,656	10.5	5,090	9.3
Housing (Real Estate)	350	395	12.9	429	8.5	462	7.9	1,188	156.8
Public Utilities	-	-	-	-	-	-	-	-	-
Education Services	-	-	-	-	-	-	-	-	-
Health Services	-	-	-	-	-	-	-	-	-
Other Services	1,453	1,535	5.6	1,618	5.4	1,705	5.4	1,809	6.1
Total Social Services Sectors	1,803	1,930	7.0	2,047	6.0	2,167	5.9	2,997	38.3
Grand Total	13,043	14,050	7.7	14,902	6.1	15,998	7.4	18,120	13.3

Source: Constant figures from Ministry of Planning. Growth rates calculated.

(6) EGYPT: PRIVATE SECTOR VALUE ADDED BY ECONOMIC ACTIVITY IN CONSTANT 92/83 PRICES AND ANNUAL REAL GROWTH RATES, 82/83 - 91/92

(In constant 82/83, LE,000,000)

Sectors	1987/1988		1988/1989		1989/1999		1990/1991		1991/1992	
	Value	% Growth	Value	% Growth	Value	% Growth	Value	% Growth	Value	% Growth
Agriculture & Irrigation	5,911	3.7	6,090	3.0	6,276	3.1	6,417	2.2	6,549	2.1
Industry & Mining	2,435	5.3	2,793	14.7	3,151	12.8	3,408	8.2	3,536	3.8
Petroleum & its product	799	(18.1)	819	2.6	729	(11.1)	655	(10.1)	630	(3.8)
Electricity	-	-	-	-	-	-	-	-	-	-
Construction	1,108	5.9	1,237	11.6	1,347	8.9	1,405	4.3	1,420	1.1
Total Commodity Sectors	10,253	2.2	10,939	6.7	11,503	5.1	11,885	3.3	12,135	2.1
Transportation & Communication	1,100	3.5	1,232	12.0	1,390	12.8	1,368	(1.6)	1,395	1.9
Suez Canal	-	-	-	-	-	-	-	-	-	-
Trade	3,647	5.1	3,901	7.0	4,114	5.5	4,260	3.5	4,524	6.2
Finance	296	8.0	348	17.6	365	5.0	397	8.7	405	2.1
Insurance	11	69.3	11	1.2	11	(1.0)	11	2.7	12	3.3
Tourism (Hotels & Restaurants)	377	36.2	491	30.2	638	30.1	554	(13.2)	586	5.7
Total Services Sectors	5,431	6.7	5,983	10.2	6,518	9.0	6,590	1.1	6,922	5.0
Housing (Real Estate)	1,284	8.2	1,387	8.0	1,469	5.9	1,576	7.3	1,599	1.5
Public Utilities	-	-	-	-	-	-	-	-	-	-
Education Services	-	-	-	-	-	-	-	-	-	-
Health Services	-	-	-	-	-	-	-	-	-	-
Other Services	1,924	6.4	2,000	4.0	2,081	4.1	2,170	4.3	2,194	1.1
Total Social Services Sectors	3,208	7.1	3,387	5.6	3,550	4.8	3,746	5.5	3,793	1.3
Grand Total	18,892	4.3	20,310	7.5	21,572	6.2	22,221	3.0	22,850	2.8

Source: Constant figures from Ministry of Planning. Growth rates calculated.

(7) EGYPT: STRUCTURE OF PRIVATE SECTOR VALUE ADDED AT FACTOR COST BY ECONOMIC ACTIVITY; 1982/83 - 1991/92

Sectors	Fiscal Year (%)										
	81/82	82/83	83/84	84/85	85/86	86/87	87/88	88/89	89/90	90/91	91/92
Agriculture & Irrigation	37.7	38.2	35.5	32.8	31.7	31.6	29.9	29.3	28.8	28.4	26.7
Industry & Mining	8.7	9.3	10.5	11.6	11.9	12.9	13.9	14.5	14.9	15.4	15.7
Petroleum & Its product	6.1	4.9	4.4	4.0	2.9	1.6	1.6	1.1	1.3	3.0	2.8
Electricity	-	-	-	-	-	-	-	-	-	-	-
Construction	5.7	5.8	6.3	6.1	6.3	5.8	5.8	5.8	5.9	6.0	5.9
Total Commodity Sectors	58.2	58.2	56.6	54.5	52.8	52.0	51.2	51.0	51.0	52.8	51.1
Transportation & Communication	6.7	6.0	5.7	5.3	5.0	4.4	4.6	4.7	4.9	5.0	5.2
Suez Canal	-	-	-	-	-	-	-	-	-	-	-
Trade	17.7	18.2	19.5	21.6	23.7	23.1	23.4	24.0	23.8	23.2	24.3
Finance	2.1	2.1	2.1	1.7	1.7	1.6	1.7	1.7	1.6	1.6	1.7
Insurance	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tourism (Hotels & Restaurants)	1.7	1.7	1.6	1.6	1.1	1.2	1.9	2.2	2.8	1.2	2.6
Total Services Sectors	28.3	28.0	28.9	30.7	31.6	30.3	31.6	32.5	33.1	31.1	33.7
Housing (Real Estate)	3.0	2.7	2.5	2.4	2.1	4.5	4.2	3.6	3.0	3.0	2.8
Public Utilities	-	-	-	-	-	-	-	-	-	-	-
Education Services	-	-	-	-	-	-	-	-	-	-	-
Health Services	-	-	-	-	-	-	-	-	-	-	-
Other Services	10.7	11.1	11.9	12.9	13.5	13.2	12.9	12.9	12.9	13.1	12.3
Total Social Services Sectors	13.7	13.8	14.4	15.2	15.6	17.7	17.2	16.5	15.9	16.1	15.1
Grand Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Calculated from Ministry of Planning figures

MINISTRY OF INDUSTRY &
MINIRAL WEALTH
G.O.F.I

STRATEGY OF THE EGYPTIAN INDUSTRY

(TARGETS - AXES - POLICIES)

Target :

1 - To maximize the role of Industry in the growth of the Gross National product.

2 - To develop and upgrade the Egyptian Industry.

3 - To limit the influence of Unemployment.

July 1994

Strategy Axes:-

1 - Encouraging Investment in the Industrial Field.

2 - Suitable Distribution of the Industrial Activities ,among regions .

3 - Increasing the competitive and exportation capabilities of Industrial Products.

4 - Developing Human Resources .

5 - Improving the Production Efficiency and upgrading the quality levels of Industrial commodities .

6 - Maximum exploitation of production capacities of the existing factories

7 - Achieving technological advancement for the Industrial Sector .

8 - Rationalizing the use of energy in Industry .

9 - Adapting the capability to quick response to varying circumstances .

10- Comprehensive development of small and medium scale industries.

11 - Stressing upon the local manufacture of capital machinery & equipment.

12 - Concern towards the strategic Industries and diversing their products to lead other industries.

13 - Concern towards the exploitation mineral resources.

14 - Protection of the Environment from Industrial pollution .

15 - Protection of the Industrial Products consumer .

16 - Protection of the infant Industries and confronting dumping policies .

1 - First Axis :
Encouraging Investment in the Industrial Field:

Policies :

1/1 - Study of the laws legislations and measures which limit the efficiency of industrial investment in view of cancelling or adjusting them.

1/2 - Orienting industrialization towards real investment opportunities in the various industrial fields according to the financial and economic revenue in order to realise the best allocation of available resources .

1/3 - Encouraging the establishment of investment tools (such as investment funds , stock capital market ... etc.) to attract savings towards industrial investment .

1/4 - State concern over tarnishing and encouraging excelled human elements in view of building up a generation of entrepreneurs capable of making as industrial decision and implementing it.

1/5 - Offering a publicized system of investment incentives varying according to the different activities and sites and according to the regional industrial development targets.

2 - Second Axis :
Suitable Distribution of the Industrial Activities among regions

Policies :

2/1 - Preparing a plan clarifying the zones into which it is required to increase their industrial development growth and defining the priorities for industrial development of such

zones taking into consideration the comparative advantages of each zone.

2/2 - Laying the incentive bases for each zone and promotion thereof .

2/3 - Coordination and integration between the various agencies of the Ministry of Industry , local government and other governmental agencies .

3 - Third Axis :

Increasing the Competitve and Exportation capabilities of Industrial Products:

Policies :

3/1 - Concern towards the study of the foreign markets requirements for new commodities.

3/2 - Concern towards the linkage between the tasks undertaken by the commercial representation agencies and the Egyptian exporters as regards information obout exporting industrial commodities .

3/3 - Encouraging existing industries towards exporting through various incentives.

3/4 - Availing marketing , promotion and financing agencies to serve export activities.

3/5 - Attracting giant multinational firms towards direct investment in view of exportation .

3/6 - Benificiating of what avails to some Egyptian products of relative advantages towards inaugurating new markets for Egyptian industries .

3/7 - Concern over the various means of transportation for industrial products exported overseas in view of confirming the continuity of their availability in the markets.

3/8 - Concern over the packing and packaging operations for industrial products , taking into consideration the availability of the data and information in the form required by the importing country.

3/9 - Concern over the services attributed with shipping and unloading in avoidance to the export process constraints.

3/10- Assisting the industrial products exporters towards fast receival of the incentives due to them in both the tax drawback and direct drawback systems as well as other incentives .

4 - Fourth Axis :
Developing Human Resources

Policies :

4/1 - Developing the educational curricula and syllabuses for the universities and technical institutes .

4/2 - Developing and updating training programs in the industrial fields .

4/3 - Concentrating over training the overemployed labour in the industrial sector and transfering it to other industrial activities .

4/4 - Concern over the enhancement of training areas in the fields of pioneering thought through the development of personal aptitudes in the production units .

4/5 - Concern over the continual training of the medium and executive administration cadres in the industrial sector.

5 - Fifth Axis :

Improving the Production Efficiency and Upgrading the Quality Levels of Industrial Commodities :

Policies :

5/1 - Establishing the institutional and organizational framework to guarantee the continued productivity improvement and the broadening of its application scope such as establishing a High National council for production Development followed by sectoral centres and units within the factories .

5/2 - Use of actual productivity scales for production factors in making use of the incentives or trophies presented by the state .

5/3 - Concern towards the development and application of standard specifications over all industrial commodities .

6 - Sixth Axis :

Maximum Exploitation of Production of the Existing Factories :

Policies :

6/1 - Encouraging the trend towards exploiting idle production capacities in the industrial sector .

6/2 - Orienting industrialization towards non - traditional production fields , particularly in new industrial fields paralleling the global industrial advancement .

6/3 - Laying incentives for producers to allocate budgets for production research and development such as deducting same budget from the tax vessel .

6/4 - Laying incentives for factory owners to reinvest their activity profits in production extensions .

7 - Seventh Axis :
Achieving Technological Advancement for the Industrial sector :

Policies :

7/1 - Concern over the establishment and development of specialized research centres for the various industries and linking them with the scientific research agencies and research centres .

7/2 - Exchange of experiences in the field of technology research development and transfer in the industrial sector with international institutions and concentrating upon seeking assistance from expatriate Egyptian experiences.

7/3 - Establishment of guidance units for technology transfered to industrial activities.

7/4 - Pursuading the industrial concerns to benificiate from the interim period in the GATT agreement .

8 - Eighth Axis :
Rationalizing the Use of Energy in Industry :

Policies:

8/1 - Directing Industry towards the developmont of production technology systems in view of saving in the use of energy .

8/2 - Directing concern towards periodical maintenance of production units ,feeding networks and measurement and control devices in view of decreasing energy losses.

8/3 - Directing towards the customization of use of thermal insulation and closed thermal circuits.

8/4 - Use of new and renewable energies.

9 - Ninth Axis :

Adapting the Capability to quick Response to Varying circumstances:

Policies:

9/1 - Directing the executive administration in the industrial sector towards adapting those skills which enables it to use the quick changing administration to respond to economic, technological and administrative changes .

9/2 - Laying the flexible guidance plans for the private sector which enable the fast response to varying circumstances on the local and international levels.

9/3 - Concern over the communication means with international organizations and the more advanced countries to become acquainted with global changes.

9/4 - Establishing an agency for the forecast of global changes in the fields which influence industry.

10 - Tenth Axis

Comprehensive Development of small and Medium scale Industries :

Policies :

10/1 - Preparation of studies related to the guiding plans.

10/2 - Extension in the establishment of different kinds of integrated industrial Estates.

10/3 - Concern towards the interlinkage of small and mediums scale industries as well as linking them with major industries as feeding and complementary industries.

10/4 - Offering technical , administrative and marketing assistances to small and medium scale factories .

10/5 - Linking the assistances and incentives offered to small and medi um scale industries with the industrial devlopment targets.

10/6 - Linking the activities of research centres of the Universities , specialized institutes and national research centres with the problems confronting small and medium scale factories together with their follow -up.

11 - Eleventh Axis : Stressing Upon the Local Manufacture of capital Machinery and Equipment :

Policies :

11/1 - Developing and updating the information format which serves to deepen the local manufacture of capital machinery and equipment , particularly as to what concerns existing manufacturing capabilities and having them geographically distributed as well as the design capabilities and their feeding industries .

11/2 - Encouraging the manufacture of the main components of major industrial projects .

11/3 - Encouraging the establishment of firms which undertake the role of general contractor towards linking between local capabilities

and directing them towards deepening the local manufacture of capital machinery and equipment .

11/4 - Developing the concerns undertaking engineering design and linking them with the first sample of the manufacturing process , together with availing the finance necessary for this task from the research and development budgets.

11/5 - Registering and compiling successful cases for the local manufacture of capital machinery and equipment and publishing them in pamphlets which serve to direct requirements to local capabilities on the one part and building up the confidence in the ability of such available capabilities on the other part.

12 - Twelfth Axis :
Concern towards the strategic Industries and Diversing their Products to Lead other industries :

Policies :

12/1 - State concern towards the establishment of strategic industries .

12/2 - Offering private strategic projects distinguished incentives.

13 - Thirteenth Axis :
Concern towards the Exploitation of Mineral Resources :

Policies :

13/1 - Intensifying the prospecting processes for mineral wealths and conducting more analysis upon such resources as well as preparing an information format related to such processes.

13/2 - Assisting and encouraging the private sector to embark upon the field of prospecting and exploiting all mineral ores together with organizing such operations in what does not lead to the drainage of national wealths.

14 - Fourteenth Axis :
Protection of the Environment from Industrial Pollution :

Policies :

14/1 - Concern towards the use of clean technologies .

14/2 - Application of pollution prevention techniques in the existing and new factories .

14/3 - Encouraging the establishment of projects to process industrial wastes to produce other new commodities .

15 - Fifteenth Axis :
Protection of the Industrial Products Consumer :

Policies :

15/1 - Assistance in the establishment ,activation and encouragement of consumer protection associations .

15/2 - Binding the producers to place data , basic specifications and use instruction cards on the product .

15/3 - Application of legal penalties upon factories violating standard specifications .

16 - Sixteenth Axis :
Protection of the infant Industries and Confronting Dumping Policies :

Policies :

16/1 - Enhancing the efficacy of the concerns responsible for the control upon imported industrial products .

16/2 - Continued revision of the customs tariff for industrial products and raw materials.

16/3 - Protection of industrial activity from dumping operations on the basis of international trade agreements .

ANNEX 2 CONSUMPTION MIX OF EACH COMPANY/FACTORY

1. General Steel Structure

Table 1-1 Consumption mix of SteelCO
Table 1-2 Consumption mix of METALCO
Table 1-3 Consumption mix of FERROMETALCO
Table 1-4 Consumption mix of ERISCOM and other 3 companies (AOI, KAHA, PorSaidia)
Table 1-5 Consumption mix of Petrojet
Table 1-6 Consumption mix of Arab Contractors
Table 1-7 Consumption mix of Agiba
Table 1-8 Consumption mix of Port Said Engineering Company P.S.E.W. 10th Ramadon Works
Table 1-9 Consumption mix of HIMEC and other 5 factories

Consumption mix of Petrojet, Arab Contractors, Agib and other 5 factories of Table 1-11 are assumed based on the company's products and scales informed by the ◎ marked companies/factories noted in item 1-2).

Table 1-1 CONSUMPTION MIX OF STEELCO

ton/year

Width(mm) / Thick. mm)	w≦600	600<w ≦1000	1000<w ≦1220	1220<w ≦1500	1500<w ≦2000	2000<w ≦2500	2500<w ≦3150	3150<w ≦4000	4000<w	Total
3<t≦6		1,100		2,000						3,100
6<t≦8		700		500						1,200
8<t≦16				1,500						1,500
16<t≦24				6,000						6,000
24<t≦40				1,000						1,000
40<t≦63										
63<t≦100										
100<t≦160										
160<t										
Total		1,800		11,000						12,800

Table 1-2 CONSUMPTION MIX OF METALCO

ton/year

Width(mm) / Thick.(mm)	w≦600	600<w ≦1000	1000<w ≦1220	1220<w ≦1500	1500<w ≦2000	2000<w ≦2500	2500<w ≦3150	3150<w ≦4000	4000<w	Total
3<t≦6		500								500
6<t≦8		500								500
8<t≦16				1,500						1,500
16<t≦24				6,000						6,000
24<t≦40				1,000						1,000
40<t≦63				500						500
63<t≦100										
100<t≦160										
160<t										
Total		1,000		9,000						10,000

Table 1-3 CONSUMPTION MIX OF FERROMETALCO

ton/year

Width(mm) / Thick.(mm)	w≦600	600<w ≦1000	1000<w ≦1220	1220<w ≦1500	1500<w ≦2000	2000<w ≦2500	2500<w ≦3150	3150<w ≦4000	4000<w	Total
3<t≦6										
6<t≦8		1,500								1,500
8<t≦16				1,500						1,500
16<t≦24				6,000	6,000					12,000
24<t≦40					5,000					5,000
40<t≦63					4,000					4,000
63<t≦100										
100<t≦160										
160<t										
Total		1,500		7,500	15,000					24,000

Table 1-4 CONSUMPTION MIX OF ERISCOM AND OTHER 3 COMPANIES (AOI, KAHA, PORSAIDIA)

The consumption figures are based on the information from ERICSON.

ton/year

Width(mm) / Thick.(mm)	w≦600	600<w ≦1000	1000<w ≦1220	1220<w ≦1500	1500<w ≦2000	2000<w ≦2500	2500<w ≦3150	3150<w ≦4000	4000<w	Total
3<t≦6		500								500
6<t≦8		500								500
8<t≦16		3,000								3,000
16<t≦24										
24<t≦40										
40<t≦63										
63<t≦100										
100<t≦160										
160<t										
Total		4,000								4,000

Table 1-5 CONSUMPTION MIX OF PETROJET (Assume) 20,000ton/year

ton/year

Width(mm) / Thick.(mm)	w≦600	600<w ≦1000	1000<w ≦1220	1220<w ≦1500	1500<w ≦2000	2000<w ≦2500	2500<w ≦3150	3150<w ≦4000	4000<w	Total
3<t≦6										
6<t≦8		1,000								1,000
8<t≦16		1,000		2,000	4,000					7,000
16<t≦24						10,000				10,000
24<t≦40						2,000				2,000
40<t≦63										
63<t≦100										
100<t≦160										
160<t										
Total		2,000		2,000	4,000	12,000				20,000

Table 1-6 CONSUMPTION MIX OF ARAB CONTRACTORS (Assume)
20,000ton/year

ton/year

Width(mm) / Thick.(mm)	w≦600	600<w ≦1000	1000<w ≦1220	1220<w ≦1500	1500<w ≦2000	2000<w ≦2500	2500<w ≦3150	3150<w ≦4000	4000<w	Total
3<t≦6										
6<t≦8		2,000								2,000
8<t≦16		2,000								2,000
16<t≦24		10,000		4,000						14,000
24<t≦40				2,000						2,000
40<t≦63										
63<t≦100										
100<t≦160										
160<t										
Total		14,000		6,000						20,000

Table 1-7 CONSUMPTION MIX OF AGIBA (Assume)
10,000ton/year

ton/year

Width(mm) / Thick.(mm)	w≦600	600<w ≦1000	1000<w ≦1220	1220<w ≦1500	1500<w ≦2000	2000<w ≦2500	2500<w ≦3150	3150<w ≦4000	4000<w	Total
3<t≦6		1,000								1,000
6<t≦8		1,000								1,000
8<t≦16		1,000		1,000						2,000
16<t≦24				6,000						6,000
24<t≦40										
40<t≦63										
63<t≦100										
100<t≦160										
160<t										
Total		3,000		7,000						10,000

Table 1-8 CONSUMPTION MIX OF PORT SAID ENGINEERING COMPANY P.S.E.W 10TH OF RAMADAN WORKS

ton/year

Width(mm) / Thick.(mm)	w≤600	600<w ≤1000	1000<w ≤1220	1220<w ≤1500	1500<w ≤2000	2000<w ≤2500	2500<w ≤3150	3150<w ≤4000	4000<w	Total
3<t≤6		100								100
6<t≤8		300								300
8<t≤16		600		600	900					2,100
16<t≤24		700			2,100					2,800
24<t≤40				700						700
40<t≤63										
63<t≤100										
100<t≤160										
160<t										
Total		1,700		1,300	3,000					6,000

Table 1-9 CONSUMPTION MIX OF HIMEC AND OTHER 5 FACTORIES

ton/year

Width(mm) / Thick.(mm)	w≤600	600<w ≤1000	1000<w ≤1220	1220<w ≤1500	1500<w ≤2000	2000<w ≤2500	2500<w ≤3150	3150<w ≤4000	4000<w	Total
3<t≤6		600								600
6<t≤8		1,800								1,800
8<t≤16		3,600		9,000						12,600
16<t≤24		4,200		12,600						16,800
24<t≤40				4,200						4,200
40<t≤63										
63<t≤100										
100<t≤160										
160<t										
Total		10,200		25,800						36,000

2. Boiler, Pressure Vessels and Heat Exchanger

1) Consumption figures are based on the information from Babcock $ Wilcox Egypt S.A.E.

The company's products, consumption of flat rolled sheet/plate and it's share of each products in Egypt are shown on Table 2-1.

Table 2-1 CONSUMPTION AND SHARE IN EGYPT OF FLAT ROLLED SHEET OF BABCOCK & WILCOX EGYPT

	Consumption of flat rolled sheet	share (%)	Assumed consumption of flat rolled sheet in Egypt
a) Pressure parts for utility boilers	-(only tubes)	100	
b) Industrial water tube boilers	550ton/year	80	690ton/year
c) Pressure vessels	200ton/year	30	660ton/year
d) Heat exchanger			
		Total	1,350ton/year

2) Consumption mix is shown on Table 2-2.

3) Import of flat rolled sheet/plates

Flat sheets/plates which are more than 1.5m wide and high grade steel for boilers and pressure vessels are imported.

Babcock $ Wilcox Egypt S.A.E. imported 500 ton/year last year.

4) Production plan in future

The company is considering the production increase of 15 %/year.

Table 2-2 CONSUMPTION MIX OF BOILER, PRESSURE VESSELS, HEAT EXCHANGER SECTOR

ton/year

Width(mm) / Thick.(mm)	w≦600	600<w ≦1000	1000<w ≦1220	1220<w ≦1500	1500<w ≦2000	2000<w ≦2500	2500<w ≦3150	3150<w ≦4000	4000<w	Total
3<t≦6							175			175
6<t≦8										
8<t≦16					500		30			530
16<t≦24					330					330
24<t≦40						150	135	30		315
40<t≦63										
63<t≦100										
100<t≦160										
160<t										
Total					830	150	340	30		1,350

3. Railway Vehicle

1) SEMAF (The General Egyptian Company For Railway Wagon & Coaches) is sole manufacturer of wagons, coaches and underground trains in Egypt.

2) Consumption mix is shown on Table 3-1.

3) Import of flat rolled sheets/plates

Atmospheric corrosion resisting rolled steel sheets/plates of 959ton are imported for underground trains.

The details are shown on Table 3-2.

Table 3-1 CONSUMPTION MIX OF RAILWAY VEHICLE SECTOR

By Dimension (1) ton/year

Width(mm) / Thick.(mm)	w≦600	600<w ≦1000	1000<w ≦1220	1220<w ≦1500	1500<w ≦2000	2000<w ≦2500	2500<w ≦3150	3150<w ≦4000	4000<w	Total
3<t≦6		1,008								1,008
6<t≦8		1,290		475						1,765
8<t≦16		1,568		324						1,892
16<t≦24				1,159						1,159
24<t≦40				191						191
40<t≦63		10		278						288
63<t≦100		10		16						26
100<t≦160				9						9
160<t										
Total		3,886		2,452						6,338

Table 3-2

By Dimension (2) ton/year

width (mm) / thickness (mm)	1,000	1,250	1,500
1.5	20		
2.5	191		
3		439	
4.5		35	1
6			81
9			174
16			18

4. Public Welfare (Gas Cylinder)

1) Fabricator list
   (1) Union-Co. For Gas Bottles Manufacturing & Metal Processing.
   (2) Government 99

2) Consumption figures are based on the information from Union-Co. For Gas Bottles Manufacturing & Metal Processing.

The company's products, consumption of flat rolled sheet and it's share of each products in Egypt are shown on Table 4-1.

Table 4-1 CONSUMPTION OF FLAT ROLLED SHEET AND SHARE IN EGYPT OF UNION-CO.

	Production/month	Weight/ unit	Total net consumption	Yield	Consumption of sheet	Share	Total in Egypt
a) 30 l bottles	30,000units	18.5kg	555(ton/month)	0.75	740ton/month	1/3	2,220ton/month
b) 60 l bottles	15,000units	31 kg	465(ton/month)	0.75	620ton/month	1/3	1,860ton/month
						total	4,080ton/month
							= 48,960ton/year

3) Consumption mix is shown on Table 4-2.

The consumption figures are based on the information from Union-Co.For Gas Bottles Manufacturing & Metal Processing.

Table 4-2 CONSUMPTION MIX OF PUBLIC WELFARE (GAS BOTTLES)

ton/year

Width(mm) / Thick.(mm)	w≦600	600<w ≦1000	1000<w ≦1220	1220<w ≦1500	1500<w ≦2000	2000<w ≦2500	2500<w ≦3150	3150<w ≦4000	4000<w	Total
3<t≦6			48,960							48,960
6<t≦8										
8<t≦16										
16<t≦24										
24<t≦40										
40<t≦63										
63<t≦100										
100<t≦160										
160<t										
Total			48,960							48,960

4) Import of flat rolled sheets/plates

All sheets are imported because of high grade steel.

5) Production plan in future

The company is now expanding the factory, after 1 years total production will reach to 2,000,000 units/year.

ANNEX 3 SHIPBUILDING

1. Memo of Visits to Shipyards

1) Alexandria Shipyard (A.S.)

- Date : June 10 (Mon), 1996 at 10:00 - 12:00
- Interviewed : Eng.Ibrahim Mohamed Awad, Technical Director
- Information obtained :

(1) Ships built: As shown in Table 1

(2) Facilities :

Berths :	180 m x 28 m x 2
	cranes 30 t x 3, 90 t x 3
Mechanical slipways :	60 m x 12 m x 4 (1,500DWT)
Graving docks :	158.5 m x 18.9 m x 1 (10,000DWT)
	267.0 m x 39.6 m x 1 (85,000DWT)
Quays :	1,200 m with 40 t x 3 & 25 t x 1 cranes

(3) Max.building capacity : 52,000 DWT/year

(4) Fabrication capacity of steel : 2,000 tons/month

(5) Actual steel fabrication for newbuilding :
500 tons/month (6,000 tons/year) because of not sufficient order

(6) Actual steel fabrication for shiprepairing :
6 tons/day (2,000 tons/year)

(7) Max. steel plate size to be handled :
12 m long x 3 m wide x 40 mm thick

(8) No. of employees :

Full productive (direct)	2,000
Semi-productive and service (indirect)	3,000

(9) Divided into 3 parts ; Newbuilding, repairing & small boats
Share of newbuilding in A.S. : about 75%

(10) Steel materials :
Imported. Supplied by foreign country suppliers together with machinery/equipment and software (designs) even zinc anodes obtainable in Egypt. Max. size of plate of Egyptian steel (6 m x 1.5 m x 12 mm) is too small to use. Shipowners require to use steel of the 1st class European standard.

(11) Max.steel consumption in whole Egyptian shipyards :
Max. 8,000 tons/month, half in this shipyard.

(12) No future outlook because of privatization which might be done in half an year.

Table 1 SHIPS BUILT BY ALEXANDRIA SHIPYARD AFTER 1981

Ship's names	Kinds	GT/DWT	Built in	Loa/Lbp x B x D/d
Ikhnato	General	5,751/ 8,230	5/1981	129.93/120.94x17.80x 9.80/7.83
Thutmose	do.	5,741/ 8,230	6/1981	129.93/120.94x17.80x 9.80/7.83
15 May	do.	5,741/ 8,230	5/1982	129.93/120.94x17.80x 9.80/7.83
Abu Redees	RO-RO	9,329/12,750	3/1983	132.87/122.30x20.50x12.20/9.42
Abu Zenima	do.	9,329/12,750	7/1983	132.87/122.30x20.50x12.20/9.42
Abu Agila	do.	9,329/12,600	5/1984	132.90/122.31x20.50x12.20/9.42
Tanker No.10	Tanker	207/300	1984	
Nisr 5	Barge	471/600	1985	
Nisr 6	do.	471/600	1985	
Domiat	Bulk C.	24,105/38,391	10/1985	200.10/190.00x26.50x15.20/11.38
Qena	Bulk C.	24,105/38,391	6/1986	200.10/190.00x26.50x15.20/11.38
Ebn Elwaleed	RO-RO	9,329/12,750	1/1988	132.87/122.30x20.50x12.20/ 9.42
Al Qusayr	RO-RO	2,040/ 3,000	5/1989	117.20/101.10x17.50x12.00/ 5.22
Nuwayba	RO-RO	2,040/ 3,000	8/1989	117.20/101.10x17.50x12.00/ 5.22
Sloman Challenger	Container	4,000/ 5,900	3/1995	100.7 / 94.73x17.80x 8.20/ 6.65
Sloman Commander	Container	4,000/ 5,900	4/1996	100.7 / 94.73x17.80x 8.20/ 6.65
Alexandria	Bulk C.	4,200/ 6,500	5/1994	107.95/103.00x18.20x 8.00/ 5.50
Arabia	Bulk C.	4,200/ 6,500	6/1995	107.95/103.00x18.20x 8.00/ 5.50
Aida	Bulk C.	4,200/ 6,500	3/1997	107.95/103.00x18.20x 8.00/ 5.50

GT/DWT : Gross Registered Tonnage/ Deadweight Tons
Loa/Lbp : Length overall/ Length between perpendiculars
B : Breadth
D/d : Depth/ Draft

2) The Egyptian Shipbuilding & Shiprepairing Co.

- Date : June 10 (Mon), 1996 at 12:30 - 14:30
- Interviewed : Eng. Ally El Deen Abou Samra, Chairman
- Information obtained :

(1) Ships built : Only small boats

(2) Facilities :

Floating dock : Lifting capacity 6,000 t x 1
152 m x 23 m

Mechanical slipway : Lifting capacity 600 t x 1

Building & repair spaces on land : 8

(3) Steel consumption :

Newbuilding	:	500 tons/year
Shiprepairing	:	1,000 tons/year (50 vessels/year)
Steel structure	:	1,000 tons/year

(4) Steel plate size usually used :

6 m long x 2 m wide x 4-10 mm thick

(5) Steel material imported : 50 %

(6) No. of employees : 1,500

(7) No future outlook because of privatization which might be done in a few years.

3) The General Egyptian Workshops Co.

- Date : June 11 (Tue), 1996 at 12:00 - 14:00
- Interviewed : Eng.M.Afifi Khalifa, General Production Manager
- Information obtained :

(1) Ships built : Small ships like river cruises, tugs, etc.

(2) Facilities :

Slipway	:	Capacity 500 t x 1
Building berths	:	75 m x 3, 50 m x 3
Outfitting quay	:	170 m x 1
Floating dock	:	Lifting capacity 400 t x 1

(3) Steel consumption :

Newbuilding	:	3,000 tons/year (3 - 5 ships/year)
Max.size of ship	:	70 m long x 12 m wide
Shiprepairing	:	-
Steel structure	:	3,000 tons/year

(4) Steel plate size usually used :

6 - 12 m long x 1.5 m wide x 0.8 - 16 mm thick

(5) Steel material imported : 10 %

(90 % imported from Romania, Russia, etc.)

(6) No. of employees : 1,300 (60 % direct workers)

(7) No future outlook because of privatization to be done in a few years

4) Port Said Shipyard (Directly belonged to Suez Canal Authority)

- Date : June 15 (Sat), 1996 at 9:00 - 12:00
- Interviewed : Eng. Ahmed Deghidy, President
  Eng. El-Sayed Z.Elsaaty, Deputy Director
- Information obtained :

(1) Ships built : As shown in Table 2

17 ships of 3,200 - 6,500 DWT cargo boats for Egyptian Navigation Co. Only 2 ferry boats will be built this year.

(2) Facilities :

Building berth	:	150 m x 43 m x 1 12,000DWT x 2 or 20,000DWT x 1 at the same time 60 t x 2, 40 t x 2 cranes
Floating docks	:	L.C. 25,000 t (210 m x 35 m) x 1, L.C. 10,000 t (170 m x 28 m) x 1, L.C. 5,000 t (106 m x 21.8 m) x 1
Slipways	:	1,000 t x 2
Floating cranes	:	500 t, 200 t, 100 t & 40 t each 1

(3) Steel consumption :

Newbuilding	:	3,000 tons/year
Max.size of ship	:	18,000 DWT ship
Shiprepairing	:	3,000 tons/year
Steel structure	:	3,000 tons/year

(4) Steel plate size usually used :

9 m long x 2.5 m wide x 8 - 10 mm thick

(5) Steel material imported : 100 %

(6) No. of employees : 3,200

(7) Port Said Shipyard is under the Shipyard Division of Suez Canal Authority.

(8) Future development :

CNC machines, yard crane increase, deep quay and new work shops.

Table 2 SHIPS AND FLOATING UNITS BUILT BY PORT SAID SHIPYARD (SCA)

Ship's names	Kinds	GT/DWT	Built in	Loa/Lbp x B x D/d
Suez Canal	General	1,983/ 3,251	1961	78.64/ 72.73x12.70x 8.41/6.55
Assuit	General	2,047/ 3,251	1962	78.64/ 72.73x12.70x 8.41/6.55
El Giza	General	2,047/ 3,251	1963	78.64/ 72.73x12.70x 8.41/6.55
El Arish	General	2,047/ 3,251	1963	78.64/ 72.73x12.70x 8.41/6.55
Zagazig	General	2,034/ 3,251	1964	78.64/ 72.73x12.70x 8.41/6.55
Al Fayoom	General	3,254/ 4,239	1967	100.30/ 92.00x14.60x 8.54/6.10
Al Mainia	General	3,254/ 4,239	1970	100.30/ 92.00x14.60x 8.54/6.10
Salah El Din	General	3,254/ 4,267	1972	100.30/ 92.00x14.60x 8.54/6.10
Al Mansoura	General	3,254/ 4,267	1972	100.30/ 92.00x14.60x 8.54/6.10
Al Ameiria	General	3,254/ 4,267	1973	100.30/ 92.00x14.60x 8.54/6.10
Al Sharkia	General	3,254/ 4,267	1973	100.30/ 92.00x14.60x 8.54/6.10
Mina 1	Dredger		1973	1,200HP
Mina 2	Dredger		1976	1,200HP
Rafah	General	4,860/ 6,772	1977	118.00/108.62x16.00x 9.50/7.55
Side Beashr	General	4,860/ 6,665	1978	118.00/108.62x16.00x 9.50/7.55
Mahmoud Younes	Dredger		1978	9,600HP
Al Kantara	General	4,860/ 6,665	1981	118.00/108.62x16.00x 9.50/7.55
Side Kir	General	4,548/ 6,772	1982	118.00/108.62x16.00x 9.50/7.55
Nagda 1	Barge	2,042/ 3,220	1982	87.56/ 83.00x15.50x 5.31/4.15
Nagda 2	Barge	2,042/ 3,220	1984	87.56/ 83.00x15.50x 5.31/4.15
Ras Mohamed	RO/RO	2,039/ 3,133	1984	122.71/102.12x17.51x12.02/5.22
Sharm El Shikh	RO/RO	2,039/ 3,133	1985	122.71/102.12x17.51x12.02/5.22
Kassem Soultan	Pontoon	3,300	1990	
Barka 1	Tug		1992	16,000HP
Ezzat Adel	Tug		1994	16,000HP
El Sheikh Zayed	Tug		1995	3,200HP
Al Marfaa	Tug		1995	3,600HP
	Ferry		1978-1996	25 ferry boats
	Service		1960-1996	100 boats

5) Port Tawfik Shipyard (Directly belonged to Suez Canal Authority)

Not visited. This yard is a small size yard.
One fifth production volume of Suez Shipyard.

(1) Ships built : Small floting units

(2) Facilities :

Slipway	:	L.C. 2,000 t (70 m x 20 m)
Floating crane	:	L.C. 500 t x 1

(3) No. of employees : 510

6) Suez Shipyard (Subsidiary of Suez Canal Authority)

- Date : June 14 (Fri), 1996 at 10:00 - 12:00
- Interviewed : Eng.Wael S.Kaddour, Chairman
- Information obtained :

(1) Ships built : Small boats only, mainly shiprepairing

(2) Facilities :

Floating/trimming dock	:	L.C. 17,000 t x 1 171 m x 78/62.3 m dry docking up to 30,000DWT trimming docking up to 300,000DWT
Graving dock	:	144 m x 22 m x 1 (G/T 8,000 t)
Synchrolift (Mechanical lift)	:	L.C. 900 t x 1
Building berths	:	56 m x 16 m x 5
Floating workshop	:	1

(3) Steel consumption :

Newbuilding	:	1,100 tons/year
Shiprepairing	:	2,000 tons/year
Steel structure	:	300 tons/year

(4) Steel plate size usually used :
6 m long x 2 m wide x 8 - 20 mm thick

(5) Steel material imported : 40 % (From Romania and Poland)

(6) No. of employees : 800

7) Timsah Shipbuilding Co.(Subsidiary of Suez Canal Authority)

- Date : June 13 (Thu), 1996 at 11:00 - 13:00
- Interviewed : Eng.El-Sayed Ashour
  Engineering & Sales General Manager
- Information obtained :

(1) Ships built : Small boats only
  No. of ships built : 61 tug boats (1962 - 1994)
  12 patrol boats (1981 - 1987)
  19 launches (1966 - 1993)
  13 floating cranes (1977 - 1980)
  12 dredgers (1967 - 1991)
  66 barges (1963 - 1988)

(2) Facilities :
  Mechanical ship lift : L.C. 1,500 t x 1 (75 m x 20 m)
  Building berths (parking ways) : 100 m x 4, 60 m x 2

(3) Steel consumption :
  Newbuilding : 2,000 tons/year
  Shiprepairing : 1,000 tons/year
  Steel structure : 1,000 tons/year

(4) Steel plate size usually used :
  6 m long x 2 m wide x 8 - 20 mm thick

(5) Steel material imported : 100 %

(6) No. of employees : 2,500

8) Port Said Engineering Works S.A.E.(Subsidiary of Suez Canal Authority)

- Date : June 15 (Sat), 1996 at 12:00 - 13:30
- Interviewed : Eng.El-Sayed Abrahim, General Manager
- Information obtained :

(1) Ships built : Small boats only

(2) Facilities :
  Slipway : L.C. 1,500 t

(3) Steel consumption :
  Newbuilding : 3,000 tons/year
  Shiprepairing : 1,000 tons/year
  Steel structure : 1,000 tons/year

(4) Steel plate size usually used :
6 - 9 m long x 1 - 2.5 m wide x 6 - 20 mm thick

(5) Steel material imported : 100 %

(6) No. of employees : 1,000

(7) Branch offices & workshops in 10th of Ramadan, Aswan, Suez, Alexandria and Port Said

9) Canal Naval Constructions Co.(Subsidiary of Suez Canal Authority)

- Date : June 15 (Sat), 1996 at 13:30 - 15:00
- Interviewed : Eng.M.Khallaf, Chief of Production Sector
  Eng.Mohamed El-Mahdi, Project General Manager
- Information obtained :

(1) Ships built : Small boats only

Newbuilding	6 vessels/year
Repairing	15 vessels/year
Others	3 - 5 building/year

(2) Facilities :
Mechanical slipway : L.C. 750 tons

(3) Steel consumption :

Newbuilding	:	2,000 tons/year
Shiprepairing	:	500 tons/year
Steel structure	:	1,000 tons/year

(4) Steel plate size usually used :
6 & 9 m long x 1.5 & 2 m wide x 5 - 12 mm thick

(5) Steel material used :

National plates	1,500 tons
Up to 1 m wide for	7 mm thick
Up to 1.5 m wide for	8 mm thick & over

Production is limited and does not cover all quantities needed.

Imported plates	1,000 tons
Sections	500 tons

(6) No. of employees : 750

(7) Future development plan : Repair area 200 x 50 m instead of 120 x 50 m

10) Suez Canal Authority (SCA)

- Date : June 13 (Thu), 1996 at 09:00 - 10:30
- Interviewed : Eng.Mohamed A.Negm
  Director of Shipyard Department
  Dr.Eng.Isis Abdelhalim Kamel
  Director of Engineering Department
  Member of Board of Directors

Eng.Nabir Ahmed Mohamed Elsaghir of GOFI accompanied a JICA member and confirmed the above memo.

Eng.Nabir Ahmed Mohamed Elsaghir

2. Brochures of Shipyards

Table 3 shows the brochures received from visited shipyards.

Table 3 LIST OF BROCHURES

1. Alexandria Shipyard

① ALEXANDRIA SHIPYARD FACILITIES & ACTIVITIES
② WE ARE NOT ONLY SHIP BUILDERS & SHIP REPAIRERS WHY!? & HOW!?
③ MAIN CHARACTERISTICS OF SHIPS BUILT BY ALEXANDRIA SHIPYARD

2. Egyptian Shipbuilding & Shiprepairing Co.

④, ⑤, ⑥, & ⑦ - 4 brochures
- Introduction, Shipbuilding, Shiprepairing & Steel Structure

3. The General Egyptian Workshops Co.

⑧ TERSANA SHIPYARD
⑨ The General Egyptian Workshops Co. "TERSANA" Main Activities

4. Timsah Shipbuilding Co.

⑩ CAPABILITIES AND PREQUALICATIONS

5. Suez Shipyard

⑪, ⑫ & ⑬- 3 brochures

6. Port Said Shipyard

⑭ SUEZ CANAL SHIPYARDS IF YOUR WAY FROM WEAT TO EAST HEMISPHERE
⑮ SUEZ CANAL AUTHORITY PORT SAID SHIPYARD FACILITIES & TARIFF

7. The Port Said Engineering Works S.A.E.

⑯ The Port Said Engineering Works S.A.E.
Affiliated to Suez Canal Authoruty Egypt

8. The Canal Naval Constructions Co.

⑰ 1 brochure
⑱ Reply to the questionnaire by fax

June 12, 1996

EL NASR STEEL PIPES & FITTINGS

Foundation: 1962

Tel: (02)5553689/5553681

Fax: (02)5553683/3915229

Interviwee: Dr. Eng. AHMED ABDEL RAHIM ALI

Products: Welded Steel Pipes

For General Uses:		Longitudinal Weld	.....~50%
ISO R65	Medium Series	Nominal Dia	6.0~150mm ϕ
ISO R65	Light Series 11		6.0~100mm ϕ
DIN 2439	Issue 6.55		
DIN 2440	Issue 10.34		
DIN 2440	Issue 5.61		
ISO R65	Heavy Series		6.0~150mm ϕ
For Petrolcum Use		Nominal Dia	2"~8" ϕ
Spiral Welding Process		Nominal Dia	6 5/8"~48" ϕ .....~50%
Steel Grade API 5Ls standard			
	Grade A and B	Commercial Grade	
	x42, x46, x52		
	x56, x60, x65	High Grade	

Production Capacity 100,000 tons/y (Domestic Production Share ~80%)

Material Hot Rolled Coils 2.5~12.7mm thick x ~1.5m width x max 10t/coil

Tonnage consumed: 115,000 ton/y

Local	63,524 t/y	
Import	34,037 t/y	As of June '95 ~ May '96

Product Export Ratio ~15% Unchanged since 5 years ago

Production Capacity 100,000 tons/y on One (1) Shift operation

Size Mix, Main Customers and Steel Grade will be informed on 16th June (Sunday)

S. Yasunage/JICA Study Team

THE STEEL USED IN THE PRODUCTION THROUGH 1994/1995

1. Import Steel:

Width in mm → / Thick in mm ↓	W ≦ 1,020	1,020 < W ≦ 1,250	W > 1,250
	Tons	Tons	Tons
2.5 ≦ t < 3.75	3,952	1,161	397
3.75 ≦ t < 6.5	8,440	3,338	-
6.5 ≦ t < 12.7	13,295	420	38

Total = 31,041 Tons

2. Local Steel:

Width in mm → / Thick in mm ↓	W ≦ 500	500 < W ≦ 1,250	
	Tons	Tons	Tons
2.5 ≦ t < 3.75	22,666	5,665	
3.75 ≦ t < 6.5	11,832	21,354	
6.5 ≦ t < 12.7	65	366	

Total = 61,948 Tons

3. Total = 92,989 Tons

Starting from July 1 '94 to June 30 '95

Actual Production:

ITEM	Quantity in tons
- Longitudinally Welded Steel Pipes (From 1/2" to 4")	35,799
- Spiral Welded Steel Pipes (From 6" to 48")	23,908
- Longitudinally Welded Steel Pipes (From 2" to 8")	26,882
Total	86,589

	Quantity in tons	Price in L.E
Imported Steel Coils	34,037	45,446,151
Local Steel Coils	63,594	69,471,975
USES's		
Imported Steel Coils	31,041	
Local Steel Coils	61,948	

- The main Customers for Pipes
  - Petroleum Sectors
  - Housing Sectors
  - Electricity Sectors for Liting Poles
  - For Conveying Water and Gases and Petroleum

June 19, 1996

INCO STEEL (The International Co. for Steel S.A.E.)

Interviewee: Dr. Eng. HELMY ISMAIL Chairman

Products: Welded Steel Pipes

ERW process 1/2" ϕ ~4" ϕ Steel Pipes

Cold Forming and Submerged Arc Welding process

5" ϕ ~12" ϕ Steel Pipes

Grade: DIN 17100 St 37-2 or the equivalent.

Production Capacity 95,000 t/y 12 hrs/shift x 2 shifts/day
or 8 hrs/shift x 3 shifts/day

Potential Capacity 150,000 t/y

Hot Rolled Coil Consumption 100,000 t/y

Width / Thick mm	1,000mm	1,250mm	1,500mm	Total	
2.0mm	10%	10%		20%	Supplier
2.5	20	15	5%	40%	Local (Helwan)
3.0	10	7	3	20%	50%
3.5	3	1	1	5%	Import 50%
4.0	6	3	1	10%	Ukraine
6.0	1	3	1	5%	Romania, Garmany

Equipment Details

ERW: 2 lines

Cold Forming & Submerged Arc Welding Process: 6 lines

Slitter Line: 2 lines

Remarks

① Cold Forming Line for producing angle and channel from flat rolled product are considered in future.

② Number of employee: ~1,200,
Work shop is very active.

ANNEX 5 UNIT CONSUMPTION OF FLAT STEEL FOR AUTOMOBILE AND ELECTRIC HOUSEHOLD APPLIANCES

UNIT CONSUMPTION REVISED (1/8)

No.	Item	Available capacity for one shift/year in units (1)	Expected demand year 2000 in units (2)	Average weight/ unit ton steel sheet (3) (Revised)	Required Materials (Steel Sheets in Ton)	
					(1 X 3)	(2 X 3)
1	**Automotive Industry:**					
	- Passenger cars (46%)	84,000	68,750	0.39	28,980	23,718.75
	- Jeep cars (40%)	11,500	3,000	0.715	6,325	1,650
	- Micro bus/vans (70%)	17,600	5,000	1.1	18,568	5,275
	- Buses/mini bus (75-80%, 30%)	16,275	6,115	2.175	34,665.75	13,024.95
	- Light trucks (63%)	11,500	32,345	0.895	9,775	27,493.25
	- Medium & heavy trucks (40-65%)	8,500	12,255	1.18	9,647.5	13,915.1
	- Trailers (10-25 ton) (75%)	1,344	4,035	1.3	1,686.72	5,063.925
	Total	-	-	-	108,129.97	90,140.975
	- Household appliance				114,600.00	161,225.000
	- Metal furniture				2,420	4,000
	Total				225,149.97	291,365.975

UNIT CONSUMPTION REVISED (2/8)

No.	Item	Available capacity for one shift/year in units (1)	Expected demand year 2000 in units (2)	Average weight/ unit ton steel sheet (3) (Revised)	Required Materials (Steel Sheets in Ton)	
					(1 X 3)	(2 X 3)
	Automotive Industry:					
	1 - Passenger cars:	84,000	68,750	-	-	-
	- Body (imported)			0.3	25,200	20,625
	- Fuel tank (local)			0.025	2,100	1,718.75
	- Exhaust system (local)			0.015	1,260	1,031.25
	- Others (local)			0.05	420	343.75
	Total	84,000	68,750	0.39	28,980	23,718.75
	2 - Jeep:	11,500	3,000	-	-	-
	- Body (imported)			0.5	5,750	1,500
	- Exhaust system (local)			0.02	172.5	45
	- Others (local)			0.2	57.5	15
	Total	11,500	3,000	0.715	5,980	1,560
	3 - Micro bus:	17,600	5,000	-	-	-
	- Body (local) 10 factories			1	17,600	5,000
	- Fuel tank (local)			0.03	528	150
	- Exhaust system (local)			0.02	352	100
	- Others (local)			0.05	88	25
	Total	17,600	5,000	1.1	18,568	5,275

UNIT CONSUMPTION REVISED (3/8)

No.	Item	Available capacity for one shift/year in units (1)	Expected demand year 2000 in units (2)	Average weight/ unit ton steel sheet (3) (Revised)	Required Materials (Steel Sheets in Ton)	
					(1 X 3)	(2 X 3)
	Automotive Industry:					
	4 - Buses/Mini bus:	16,275	6,115	-	-	
	- Body (local)			2	32,550	12,230
	- Fuel tank (local)			0.1	1,627.5	611.5
	- Exhaust system (local)			0.025	406.875	152.875
	- Others (local)			0.050	81.375	30.575
	Total	16,275	6,115	2.175	34,665.75	13,024.95
	5 - Light truck:	11,500	32,345	-	-	-
	- Body (local)			0.8	9,200	25,875
	- Fuel tank (local)			0.02	230	646.9
	- Exhaust system (local)			0.025	287.5	808.625
	- Others (local)			0.050	57.5	161.725
	Total	11,500	32,345	0.895	9,775	27,493.25
	6 - Medium/heavy trucks:	8,500	12,260	-	-	-
	- Body (local)			1	8,500	12,260
	- Fuel tank (local)			0.1	850	1,226
	- Exhaust system (local)			0.03	255	367.8
	- Others (local)			0.050	42.5	61.3
	Total	8,500	12,260	1.18	9,647.5	13,915.1

UNIT CONSUMPTION REVISED (4/8)

No.	Item	Available capacity for one shift/year in units (1)	Expected demand year 2000 in units (2)	Average weight/ unit ton steel sheet (3) (Revised)	Required Materials (Steel Sheets in Ton)	
					(1 X 3)	(2 X 3)
	Automotive Industry:					
	7 - Trailer (10 - 25 tons):	1,344	4,035	-	-	-
	- Body (local)			1.25	1,680	5,043.75
	- Others (local)			0.050	6.72	20.175
	Total	1,344	4,035	1.3	1,686.72	5,063.925
	Total steel sheets required in ton	-	-	-	108,129	90,140

UNIT CONSUMPTION REVISED (5/8)

No.	Item	Available capacity for one shift/year in units (1)	Expected demand year 2000 in units (2)	Average weight/ unit ton steel sheet (3) (Revised)	Required Materials (Steel Sheets in Ton)	
					(1 X 3)	(2 X 3)
2	**Household appliances:**					
	- Refrigerators	1,110,000	1,775,000	0.030	33,300	53,250
	- Deep freezers	157,000	150,000	0.025	3,925	3,750
	- Gas ovens (cooker)	1,075,000	1,070,000	0.042	37,625	37,450
	- Washing m/cs. (clothing & dishes)	1,500,000	2,500,000	0.025	37,500	62,500
	- Gas heater	150,000	285,000	0.0099	2,250	4,275
	Total weight	-	-	-	114,600	161,225

UNIT CONSUMPTION REVISED (6/8)

No.	Item	Available capacity for one shift/year in units (1)	Expected demand year 2000 in units (2)	Average weight/ unit ton steel sheet (3) (Revises)	Required Materials (Steel Sheets in Ton)	
					(1 X 3)	(2 X 3)
	Household appliace:					
	1 - Refrigerators:	1,110,000	1,775,000			
	- Cabinet (body)			0.019	21,090	33,725
	- Doors			0.01	11,100	17,750
	- Compressor portable section			0.001	1,110	1,775
	Total	1,110,000	1,775,000	0.030	33,300	53,250
	2 - Deep freezers:	157,000	150,000			
	- Cabinet (body)			0.019	2,983	2,850
	- Doors			0.005	785	750
	- Compressor portable section			0.001	157	150
	Total	157,000	150,000	0.025	3,925	3,750

UNIT CONSUMPTION REVISED (7/8)

No.	Item	Available capacity for one shift/year in units (1)	Expected demand year 2000 in units (2)	Average weight/ unit ton steel sheet (3) (Revised)	Required Materials (Steel Sheets in Ton)	
					(1 X 3)	(2 X 3)
	Household appliace:					
	3 - Gas ovens (cooker):	1,075,000	1,070,000			
	- Gas oven side			0.004	12,093.75	12,037.5
	- Burners portable tray			0.003	1,075	1,070
	- Gas oven Top tray			0.003	2,150	2,140
	- Gas oven back				2,150	2,140
	- Oven door frame			0.0045	2,687.5	2,675
	- Oven lower door			0.003	2,150	2,140
	- Oven frame			0.017	12,900	12,840
	- Oven face for knobs			0.0008	268.75	267.5
	- Oven tray			0.008	2,150	2,140
	Total	1,075,000	1,070,000	0.042	37,625	37,450

UNIT CONSUMPTION REVISED (8/8)

No.	Item	Available capacity for one shift/year in units (1)	Expected demand year 2000 in units (2)	Average weight/ unit ton steel sheet (3) (Revised)	Required Materials (Steel Sheets in Ton)	
					(1 X 3)	(2 X 3)
	Household appliace:					
	4 - Washing machines:	1,500,000	2,500,000			
	- Body			0.017	25,500	42,500
	- Back			0.005	7,500	12,500
	- Cover			0.001	1,500	2,500
	- Motor portable section			0.002	3,000	5,000
	Total	1,500,000	2,500,000	0.025	37,500	62,500
	5 - Gas heaters:	150,000	285,000			
	- Body			0.01	1,500	2,850
	- Cover & bottom			0.005	750	1,425
	Total	150,000	285,000	0.015	2,250	4,275

ANNEX 6 IMPORT/EXPORT STATISTICS

IMPORT AND EXPORT STATISTICS

ITEMS \ YEAR	1991	1992	1993	1994	1995
FLAT ROLLED PRODUCTS					
($x10^3$ tons)					
IMPORT	217	177	180	182	311
TIN PLATE (imported turned out lately)	46	47	57	-	-
TOTAL ①	263	224	237	182	311
EXPORT ②	29	72	51	24	38
NET IMPORT [① – ②]	234	152	186	158	273
CLASSIFICATION INTO STEEL TYPE					
PLATE	61	33	42	55	88
w ≦ 1,500 mm					
w > 1,500 mm					
HOT ROLLED	42	24	29	34	62
w < 600					
600 ≦ w < 1,000					
1,000 ≦ w < 1,250					
1,250 ≦ w < 1,500					
w > 1,500					
COLD ROLLED	28	16	20	22	41
w < 600					
600 ≦ w < 1,000					
1,000 ≦ w < 1,250					
1,250 ≦ w < 1,500					
w > 1,500					
COATED	103	79	95	47	82
w < 600					
600 ≦ w < 1,000					
1,000 ≦ w < 1,250					
w > 1,250					
WELDED PIPES					
IMPORT ①	63	40	32	35	44
EXPORT ②	25	15	9	2	3
NET IMPORT [① – ②]	38	25	23	33	41

Source: CAPMAS

ITEMS \ YEAR	1991	1992	1993	1994	1995
SHEET & PLATES	ton	ton	ton		
Corrugate	115,625	95,140	75,087	For details refer to the attached sheets 4/10 - 6/10	For details refer to the attached sheets 1/10 - 3/10
Suite	11,710	10,749	4,334		
Painted	26,963	26,399	58,225		
in Special Cutiors	16,550	15,878	3,666		
Painted *1	45,745	46,913	56,915		
Polished	12,385	17,201	14,815		
Raw Iron	16,051	1,205	22,429		
Crook Steel	186	970	31		
Subtotal (CODE No. 007313)	245,215	214,455	235,502		
HOOP & STRIP (007312)	7,003	7,600	1,567		
TUBES & PIPES (007318) *2	62,705	39,745	31,770		
FOR RE-COILING (007308)	9,650	1,476	N.A. } α		
WIDE SHEETS (007309)	983	364	N.A. }		
TOTAL	325,556	263,640	268,840 + α		
Σ (*1 + *2)	108,450	86,658	88,685		
TOTAL - Σ (*1 + *2)	217,106 =217x10^{3}ton	176,982 =177x10^{3}ton	180,155 =180x10^{3}ton	181,546 =182x10^{3}ton	310,403 =311x10^{3}ton
IISI DATA (Data 12) Δ1	x 10^{3}ton	x 10^{3}ton	x 10^{3}ton		
Total Steel Products	506	600	564	N.A.	N.A.
Σ (Ingots, Long & Pipe)	291	405	377		
Total - Σ (Ingots, Long & Pipe)	215	195	187		
IISI	others	others	others		
[Total Flat Products]	[192 + 23]	[182 + 13]	[167 + 20]		

Δ1 Refer to the last page

CODE 7208 Flat Rolled Product of iron or non-alloy steel

Hot Rolled Coils	w ≧ 600 mm		w < 600 mm		
t > 10.0 mm		722 tons			
4.75 t ≦ 10.0 mm		5,336			
3.0 t ≦ 4.75		3,069			
t ≦ 3.0		1,254			
4.75 t ≦ 10.0 mm		2,144			
t ~ 3.75	Yp < 375	8,003			
t < 3.0		3,023			
Prods					
w < 1,250	Yp ≧ 355	229		Yp≧ 355 w > 150	9 tons
t > 10.0	Yp ≧ 355	436	t > 4.75	Yp ≧ 355	105
					365
4.75 t ≦ 10.0	Yp ≧ 355	6,631		Yp ~ 275	10,405
3.0 t ≦ 4.75	Yp ≧ 355	3,406		[C] Yp ~ 275	541
t ≦ 3.0	Yp ≧ 375 w = 600	257	t > 4.0	w > 150	57
Other Prods			Others		1,487
t > 4.0	w < 1,250	401			
t > 10.0		1,345			
4.75 < t ≦ 10.0		2,096			
3.0 < t ≦ 4.75		5,046			
t ≦ 3.0		53			
[C] > 0.6%		2,889			
Others		10,048			
Total		56,388 tons			12,969 tons
Cold Rolled Coils & Sheet		21,788	Cold Rolled Coils & Sheet		1,277
+) Coated Coils & Sheets		75,729	+) Coated Coils & Sheets		13,396
		153,905 ....①			27,642 .....②

① + ② = 181,546 ≒ 182 x 10^3 tons

CODE 7209 Flat Rolled Product of iron or non-alloy steel

Cold Rolled Coil	w ≧ 600 mm	
	Yp ≧ 355 MPa	173 tons
1.0 < t ≦ 3.0	Yp ≧ 275	1,318
0.5 < t ≦ 1.0	Yp ≧ 275	1,363
t > 3.0		219
1.0 < t ≦ 3.0		1,033
0.5 < t ≦ 1.0		1,862
Prods		
t > 3.0		899
1.0 < t ≦ 3.0	Yp ≧ 275	1,959
0.5 < t ≦ 1.0	Yp = 275	3,376
t ~ 3.0	Yp < 355	1,247
1.0 < t ≦ 3.0		2,004
0.5 < t ≦ 1.0		1,295
	[Cr] > 0.5% w < 825	217
	[Cr] > 0.6%	1,078
Others		3,744
Total		21,787 tons

	w < 600 mm	
t ≧ 3.0	Yp ≧ 355 MPa	42 tons
t < 3.0	Yp ≧ 275	
	[C] < %	108
	[C] > %	144
	[Cr]	68
		915
Others		
Total		1,277 tons

CODE 7210

Plated or Coated with Tin			w > 600 mm		w < 600 mm
E	t ≧ 0.5 mm		14,119 ton	E	6,761 tons
O	t ≧ 0.5 mm	w = 600	1,461		4,430
E	t < 0.5 mm		16,960		
O	t < 0.5 mm		6,268		
Prod.					
		Lead	57		
		Lead & tin	373		
	t < 0.3	E zinc	175		25
		E zinc	4,558		382
		Non E zinc corr.	1		1,146
		Non E zinc	22,182		
		Al. plated	463	Polished or oxid	177
		Plastic coated	3,128		223
		Iron punched or drilled	404		
		Shapes	486		
		Coated or oxid	1,003		
		Other plated or Oxid	4,091		250
Total			75,729 tons		13,394 tons

CODE 7208 Flat Rolled Product of iron or non-alloy steel

Hot Rolled Coils	w ≧ 600 mm		w < 600 mm		
t > 10.0 mm		▲12,225 tons			
4.75 < t ≦ 10.0 mm	Yp ≧ 355 MPa	9,302			
3.0 < t ≦ 4.75 mm	Yp ≧ 355 MPa	17,083			
t ≦ 3.0 mm	Yp ≧ 275 MPa	8,209			
t > 10.0 mm		▲10,211 tons			
4.75 < t ≦ 10.0 mm		7,774			
t ~ 3.75	Yp < 375 MPa	11,831			
t ≦ 3.0		38,695			
Prods					
w < 1,250	Yp ≧ 355	286		Yp≧ 355 w > 150	5,145 tons
t > 10.0	Yp ≧ 355	▲6,220	t > 4.75	Yp ≧ 355	636
4.75 < t ≦ 10.0	Yp ≧ 355	1,099			2,241
3.0 < t ≦ 4.75	Yp ≧ 355	6,475		Yp ~ 275	4,019
t ≦ 3.0	Yp ≧ 375 w = 600	304		[C] Yp ~ 275	337
			t > 4.0	w > 150	13
Other Prods			Others		118
t > 4.0	w < 1,250	797			
t > 10.0		▲7,923			
4.75 < t ≦ 10.0		3,969			
3.0 < t ≦ 4.75		7,092			
t ≦ 3.0		86			
Hot Rolled Sheets					
w < 825	0.5%[c] L < 1,800	1,248			
Others		▲50,209			
	Σ ▲=	86,788	(To be deleted as the base of domestic increase is not clear enough)		
Total		201,038 tons			12,509 tons
		-) 86,788			
		114,250			
Cold Rolled Coils & Sheet		119,737	Cold Rolled Coils & Sheet		5,292
+) Coated Coils & Sheets		48,458	+) Coated Coils & Sheets		10,157
		282,445 ....①			27,958 ....②

① + ② = 310,403 ≒ 311 x 10^3 tons

CODE 7209 Flat Rolled Product of iron or non-alloy steel

Cold Rolled Coil	w ≧ 600 mm	
	Yp ≧ 355 MPa	5,997 tons
1.0 < t ≦ 3.0	Yp ≧ 275	15,968
0.5 < t ≦ 1.0	Yp ≧ 275	1,593
t ~ 0.5	Yp ≧ 275	130
t > 3.0		487
1.0 < t ≦ 3.0		10,747
0.5 < t ≦ 1.0		9,761
t ≦ 0.5		4,784
Prods		
t > 3.0		2,067
1.0 < t ≦ 3.0	Yp ≧ 275	7,846
0.5 < t ≦ 1.0	Yp = 275	3,848
t ≦ 0.5	Yp ≧ 275	386
t ~ 3.0	Yp < 355	5,661
1.0 < t ≦ 3.0		1,855
0.5 < t ≦ 1.0		11,530
t ≦ 0.5		1,121
Others		35,957
Total		119,738 tons

	w < 600 mm	
t ≧ 3.0	Yp ≧ 355 MPa	190 tons
t < 3.0	Yp ≧ 275	
	[C] < %	695
	[C] > %	371
	[Cr]	1,680
Others		2,356
		5,292 tons

CODE 7210 Flat Rolled Products of Iron or Non-alloy Steel, Clad, Plated or Coated

Plated or Coated with Tin			w ≧ 600 mm		w < 600 mm
E	t ≧ 0.5 mm		6,495 ton	E	1,976 tons
O	t ≧ 0.5 mm	w = 600	990		8,181
E	t < 0.5 mm		33,379		
O	t < 0.5 mm		7,594		
		Sub total	48,458	Sub total	10,157
Prod.					
		Lead	10		
		Lead & tin	238		
	t < 0.3	E zinc	26		768
		E zinc	4,685		
		Non E zinc corr.	307		5,617
		Non E zinc	41,014		
		Chrome oxid olated	18	* Polished or oxid	160 *
		Al. plated	214		
		Plastic coated	12,345		236
		Iron punched or drilled	13		20
		Shapes	5		
		Coated or oxid	802		67
		Other plated or Oxid	735		158

* To be deleted (The definition of "Prod" is not clear enough)

Total	108,870 tons	17,183 tons
	↓	↓
	48,458	10,157

EXPORT

ITEMS \ YEAR	1991	1992	1993	1994	1995
SHEET & PLATES	ton	ton	ton		
Raw iron	21,098	13,218			
Corrugate	5,396	47,138	38,865		
Painted	214	882			
in Special Cutiors	70	105	504		
of rerolling	1,705	9,940	11,491		
Wide sheets	237				
Hoop & strip	238	589			
Sub total	28,958≒29	71,872≒72	5,086≒51		
Welded tubes & pipes	25,493	14,833	8,935		
High pressure pipes	463	121	26		
Zinc plates, sheets & strips	18				
TOTAL	54,932	86,826	59,821		

EXPORT

ITEMS \ YEAR	1991	1992	1993	1994	1995
Hot rolled coils or sheets					
t > 10.0mm, W≧600,7208				1,089	
4.75 < t < 10.0				268	271
< t < 3.0				600	
Hot rolled prods					
W < 1,250				2,965	
Others W≧600				16,167	43
Line pipe				2,192	2,780
Cold rolled coils or sheets					
W≧600				69	
Others 0.5 < t < 10.0				115	
Cold rolled prod					
W≧600				62	
W≧4.75				1,514	
Others				300	
Others				228	
Electric plates coated, prods					
with Tin W < 600				53	
Plated or coat				29	
Clad W < 600				172	
Hot rolled coils					
4.75 < t≦10.0					
3.0 < t≦4.75					10
Hot rolled prod					
Others W≧600					36,454
Cold rolled prod					
W≧600					930
Total				25,823	40,488
				+) 2,780	+) 2,192
				37,708≒38	23,631≒24

ANNEX 7 ANNUAL CONSUMPTION VOLUME OF FLAT STEEL BY THICKNESS AND WIDTH

(Unit: mm, tons)

Automobiles

1. NASCO

(1) Hot rolled Sheets

	w<1000	1000<w<1250	1250<w<1500	Total
t<1	10	2	0	12
1≤t≤2.75	0	300	0	300
t>2.75	0	2155	895	3050
Total	10	2457	895	3362

(2) Cold Rolled Sheets

	w<1000	1000<w<1250	1250<w<1500	Total
t<1	0	305	400	705
1≤t≤2.75	90	2218	300	2608
t>2.75	0	40	0	40
Total	90	2563	700	3353

2. GM

(1) Cold Rolled Sheets

	w=1250	Total
t=1	900	900
t=1.25	480	480
Total	1380	1380

3. Engineering Co. for Exhaust Systems

(1) Hot Rolled Sheets

	w≦1250	Total
t≦3.0	200	200
3.0<t≦4.75	150	150
4.75<t≦10	100	100
t>10	0	0
Total	450	450

(2) Cold Rolled Sheets

	w≦1250	Total
t≦0.5	0	0
0.5<t≦1.0	100	100
1.0<t≦3.0	275	275
t>3.0	0	0
Total	375	375

(3) Galvanized Steel

	w≦1250	Total
t≦3.2	90	90
t>3.2	0	0
Total	90	90

(4) Ni-Zn Cold Rolled Steel

	w≦1250	Total
t≦3.2	90	90
t>3.2	0	0
Total	90	90

(5) Aluminized Cold Rolled Sheets

	w≦1250	Total
t≦3.2	410	410
t>3.2	0	0
Total	410	410

4. A.A.V.

(1) Cold rolled Sheets & Galvanized Sheets

	w<1000	1000<w<1200	w>1200	Total
t<3.0	350	0	20	370
3.0<t<6.0	0	40	0	40
Total	350	40	20	410

5. Abu Yousif Helwan Factory

(1) Hot Rolled Sheets

	w≦1250	Total
t<3.0	0	0
3.0<t≦4.75	1150	1150
4.75<t≦ 10.0	100	100
t>10.0	100	100
Total	1350	1350

(2) Cold Rolled Sheets

	w<1250	Total
t≦0.5	0	0
0.5<t≦1.0	250	250
1.0<t≦3.0	800	800
t>3.0	0	0
Total	1050	1050

6. Helwan Transport Preparations

(1) Hot Rolled Sheets

	w<1250	1250<w<1550	Total
t≦3.0	1500	0	1500
3.0<t≦4.75	3000	0	3000
4.75<t≦10.0	0	1000	1000
t>10.0	0	0	0
Total	4500	1000	5500

(2) Cold Rolled Sheets

	w<1250	Total
t<0.5	0	0
0.5<t≦1.0	1000	1000
1.0<t≦3.0	3000	3000
t>3.0	0	0
Total	4000	4000

7. Etihadia

(1) Hot Rolled Sheets

	w≦1250	Total
t≦3.0	0	0
3.0<t≦4.75	0	0
4.75<t<10.0	0	0
t≧10.0	100	100
Total	100	100

(2) Cold Rolled Sheets

	w<1250	Total
t≦0.5	0	0
0.5<t≦1.0	0	0
1.0<t≦3.0	200	200
Total	200	200

(3) Aluiminum-coated Sheets

	w<1250	Total
0.5<t<1.5	260	260
Total	260	260

8. Industrial Control

(1) Hot Rolled Sheets

	w<1250	Total
3.0<t<9.0	800	800
Total	800	800

(2) Cold roled Sheets

	w<1250	Total
1.0<t<3.0	1200	1200
Total	1200	1200

Canned Foods

1 Edfina

(1) Tinplate

	w<1250	Total
t<0.5	2090	2090
t>0.5	0	0
Total	2090	2090

(2)TFS

	w<1250	Total
t=0.19	600	600
t=0.21	735	735
Total	1335	1335

2. Alex. Oil & Soap

(1) Tinplate

	w<1250	Total
t<0.5	3000	3000
t>0.5	0	0
Total	3000	3000

3. Kaha

(1) Tinplates

	w≦600	600<w<800	w>800	Total
t=0.18	0	0	325	325
t=0.19	242	0	0	242
t=0.20	0	745	0	745
t=0.21	75	130	0	205
t=0.26	0	150	0	150
t=0.28	0	110	0	110
Total	317	1135	325	1777

(2) TFS

	w=800	Total
t=0.25	75	75
Total	75	75

Home Appliances

1. Universal

(1) Cold Rolled Sheets

	w<1250	Total
t≦0.5	263	263
0.5<t≦1.0	4129	4129
Total	4392	4392

(2) Galvanized Sheets

	w<1250	Total
t≦3.2	310	310
t>3.2	0	0
Total	310	310

2. SILITAL

(1) Cold Rolled Sheets

	w≦1250	Total
t<0.5	0	0
0.5<t<1.0	1000	1000
Total	1000	1000

(2) Galvanized Sheets

	w<1250	Total
t<3.2	150	150
t>3.2	0	0
Total	150	150

3. AMPCO

(1) Cold Rolled Sheets

	w=1000	Total
0.3<t<0.5	500	500
0.5<t<0.8	500	500
0.8<t<1.0	500	500
t>3.0	100	100
Total	1600	1600

(2) Galvanized sheets

	w=1000	Total
t=0.5	100	100
t=0.8	100	100
Total	200	200

4. KIRIAZI

(1) Cold Rolled Sheets

	w<1250	Total
t=0.5	3200	3200
Total	3200	3200

(2) Galvanized Sheets

	w<1250	Total
0.3<t<0.5	400	400
Total	400	400

5. IDEAL

(1) Cold Rolled Sheets

	w<1250	Total
t>0.3	0	0
1.0<t<3.0	115	115
0.5<t<1.0	3163	3163
t=0.5	655	655
Total	3933	3933

(2) Galvanized Sheets

	w<1250	Total
t>3.2	0	0
t<3.2	157	157
Total	157	157

6. Philips(El Nasr Electric & Electronic Apparatus S.A.E)

(1) Cold Rolled Sheets

	w=1000	Total
t=0.6	900	900
Total	900	900

7. Cairo Light Industries Co.

(1) Cold Rolled Sheets

	w≦1250	Total
0.6<t<2.0	8000	8000
Total	8000	8000

Metallic Furniture

1. MOHM

(1) Colled Rolled Sheets

	w<1250	Total
t=0.3	1248	1248
1.0≦t<3.0	4356	4356
0.5<t<1.0	1968	1968
t=0.5	1320	1320
Total	8892	8892

(2) Galvanized Sheet

	w<1250	Total
t>3.2	0	0
t<3.2	1080	1080
Total	1080	1080