3.1.1.4 Fisheries

(1) General

Marine fisheries in Argentina began to grow in the mid-1960s, and the landings more or less steadily increased throughout the 1970s, showing a dramatic rise to 550,000 tons in 1979. The production declined somewhat during the 1980s, but recovered to the 1979 level in 1990. Along with the successful implementation of the macro-economic and sectoral reform policies, marine fisheries have been showing another dramatic surge since the beginning of the 1990s, despite the generally depressed international market conditions.

In addition to those macro-economic policy measures involving the elimination of export taxes and various other impositions and regulations which caused the high costs of production and commercialization, the following measures have been contributing to the recent upsurge of Argentina's marine fishing efforts.

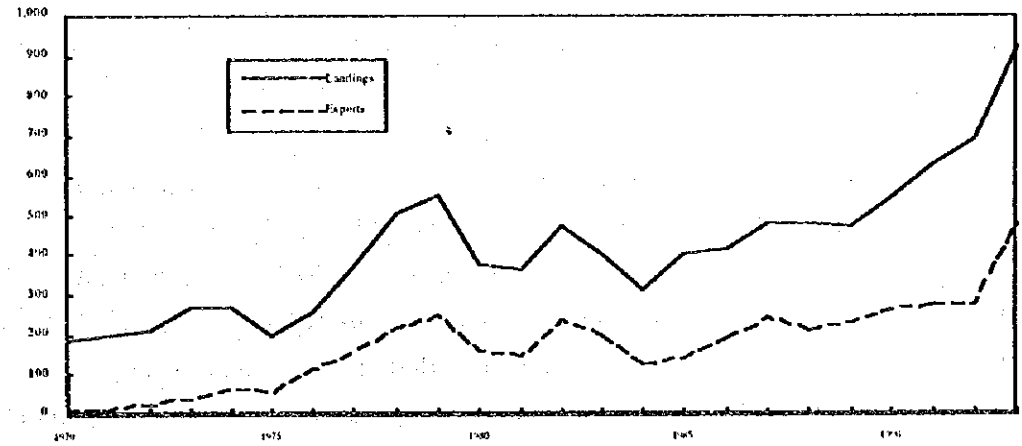
- Improved transparency of fishery administration, which are ensured by Decrees 2236/91 and 1493/92 and their resolutions, especially concerning the granting of fishing permits/licenses, resource management, and the evaluation and approval of new exploitation projects.
- Deregulation of maritime port operations by Decree 817/92, which served substantially to reduce the costs of loading and unloading, pilotage and transshipment operations and so forth at fishing ports, and thereby to improve the competitiveness of exports.
- Elimination of import tariffs on fishing boats of more than 35m in length, which, coupled with the improved availability of foreign exchange, encouraged the investment in fishing boats and gear.
- Temporary chartering arrangements of foreign flag vessels stipulated by Decree 1493, which increased the fishing efforts in the southern waters of Argentina's exclusive economic zone.
- Varying rates of reimbursements given for exports from Patagonian ports, in addition to the regular export reimbursements, which encouraged the increased fishing efforts in southern waters.
- Successful conclusion of international agreements guaranteeing increased exports, among which the recent agreement with EC is combined with committed foreign direct investments and financial assistance during the stipulated period of the agreement.

(2) Production

As shown in Figure 3.1.2, the estimated landings of marine fisheries show a long-term growth trend, albeit with substantial fluctuations caused by the vicissitudes of international markets and periodical destabilizations of the domestic economy. The growth over the last two decades have been closely connected with that of the fishery production in the Patagonian waters.

The fishing efforts in the Patagonian waters began in the latter half of the 1970s, contributing to the sharp surge of production in 1978 and 1979. In the early 1980s, the landings from these waters were seriously affected by the exclusion of Argentine fishing boats from the rich fishing grounds around the Malvinas Islands because of the war, but none the less the landings from the Patagonian waters in the country's exclusive economic zone was on the increase in the mid-1980s, accounting for 35% of the national total. The trend has continued through the early 1990s, and the landings from the Patagonian waters rose to around 60% in 1993.

Figure 3.1.2 Landings and Exports of Marine Fisheries (1,000 tons)



From its beginning, the Argentine fishing industry grew with a strong export orientation. The domestic consumption was estimated at about 110,000-120,000 tons in the mid 1980s. The study conducted in September 1993 reportedly estimates the annual consumption of 75,000 tons of fresh fish and 18,000 tons of crustaceans and mollusks for five major cities (the metropolitan Buenos Aires, Rosario, Cordoba, Tucuman and Mendoza), indicating that the level of consumption has remained more or less stable through the early 1990s.

The sharp increase of the landings over the period from 1990 to 1993 was dominated by southern blue whiting, squid, and, though to a much reduced scale,

Patagonian whip hake in addition to common hake (Table 3.1.16). Southern blue whiting and Patagonian whip hake were little exploited in mid-1980s, but their production began to pick up in the early 1990s by the introduction of surimi-processing boats. The sharply increased landings of squid was largely due to the chartering of foreign boats permitted since 1992. Some 60 jigging boats of mainly Asian countries are currently chartered by the Argentine fishing companies to catch squid in the southern waters of the Argentina's exclusive economic zone.

Table 3.1.16 Annual Catches of Selected Species

(Unit: tons)

Species	1990	1991	1992	1993
Common Hake	341,042	409,252	368,998	422,195
Patagonian Whiphake	3,840	5,290	7,747	39,373
Southern Blue Whiting	32,836	44,143	85,549	109,829
Flounder/Sole	8,965	9,738	8,591	9,557
Anchovy	13,099	20,615	19,289	19,149
Other species	101,345	83,595	98,327	105,374
Subtotal fish	501,127	572,632	588,501	705,477
Squid	27,603	46,313	77,468	193,690
Other species	4,369	2,404	1,165	1,899
Subtotal Moluscs	31,972	48,717	78,633	195,589
Prawn	9,852	8,218	24,397	17,645
Other species	492	469	580	792
Subtotal Crustaceans	10,344	8,687	24,977	18,438
Unidentified	1,497	35	-	-
Total	544,941	630,072	692,110	919,503

Source: Direccion Nacional de Pesca, Secretaria de Agricultura, Ganaderia Pesca.

The increased importance of the Patagonian waters is partly reflected in the changed composition of the Argentine fishing fleet (Table 3.1.17). In 1985, the refrigerator and processing boats accounted for a little over 20% of the total landings, but with a remarkable increase of refrigerator boats from 28 to 218, they account for 58% in 1993. Some 40 refrigerator boats are equipped with jiggers for squid fishing. Furthermore, six of the eleven processing boats now produce surimi, which began to be exported in sizable quantity since 1992.

Table 3.1.17 Composition of Fishing Fleet

Types of Boats		1985	1994
Deep-sea		188	347
	Conventional	143	121
	Refregerator	28	215
	Processing	17	11
Coastal		327	431
	Coastal	-	153
	Rada or Ria	-	278
Total		515	778

Source: For 1994, Direccion Nacional de Pesca. 1985 figures are taken from the Study on Economic Development of the Argentine Republic, Vol. I, Chapter II Agriculture, 1987.

(3) Export

The export growth of fishery products during the early 1990s as compared with the mid-1980s were chiefly made up, in terms of volume, by frozen products, especially of fish fillets and squid, while other types of products have been generally decreasing except for fishmeal (Table 3.1.18). In terms of value, the importance of frozen products have remained unchanged, accounting for 95% in mid-1980s and 96% in the early 1990s of the total exports.

Table 3.1.18 Export Volume of Fishery Products

(Unit: tons)

Products	80-82 Av.	83-85 Av.	1990	1991	1992	1993	91-93 Av.
Frozen	160,537	147,130	235,624	261,326	261,331	457,566	326,741
Whole	*	*	*	*	10,922	20,200	10,374
H&G	95,155	69,727	78,589	83,067	64,221	81,145	76,144
Common hake			49,277	56,653	45,414	58,222	53,430
Others			29,312	26,414	18,807	22,923	22,715
Fillets	45,033	39,461	112,174	103,933	83,500	115,601	101,011
Common hake			91,368	89,098	70,028	98,145	85,757
Others			20,806	14,835	13,472	17,456	15,254
Squid	15,418	18,866	17,384	33,599	56,515	183,102	91,072
Whole	n.a.	n.a.	n.a.	n.a.	49,799	140,125	63,308
Others	n.a.	n.a.	n.a.	n.a.	6,716	42,977	16,564
Prawn	2,455	17,360	8,767	8,202	23,164	22,035	17,800
Surimi	n.a.	n.a.	n.a.	n.a.	16,071	27,160	14,410
Others	2,476	1,715	18,710	32,525	6,938	8,323	15,929
Refregerated	19,665	9,839	11,886	10,502	4,231	4,699	6,477
Air cargo	1,724	1,556	2,634	1,564	2,041	1,755	1,787
Directly landed	12,319	2,643	1,854	2,235	78	426	913
Other	5,623	5,640	7,398	6,703	2,112	2,518	3,778
Others	5,599	5,637	7,572	2,629	8,424	15,549	8,867
Salted/Dried/Smoked	3,090	3,428	7,122	1,889	3,708	8,842	4,813
Canned/Bottled	413	420	450	34	351	362	249
Seaweed	701	502	0	176	74	23	91
Fishmeal	1,391	1,221	0	530	4,291	6,247	3,689
Others	4	67				75	25
	180,224	159,124	255,081	274,457	273,986	477,814	342,086

* Included in H&G.

Source: Direccion Nacional de Pesca, Secretaria de Agricultura, Ganaderia y Pesca. 1980-82 and 1983-85 figures are taken from the Study on Economic Development of the Argentine Republic, Vol. I, Chapter II Agriculture, 1987.

The years from 1991 to 1993 were not an easy period for Argentina's fishing industry despite its record growth. Externally, the international prices for common hake fillets, the mainstay of Argentine fishery exports, dropped by 15% chiefly because of the economic recession in the EC, the major market for the Argentine fishery products. The substantial currency devaluation in Spain and Italy, the two major importers from Argentina, served to narrow the country's market prospects in addition.

Internally, the economic reforms and the various adjustment measures which accompanied their implementation put to serious test the operation and management capability of every company in the fishery subsector. Especially hard hit were the companies in Mar del Plata, the center of coastal and conventional (called fresquera) deep-sea fisheries. For example, it is reported that the fleet of deep-sea fishing boats operating from the port of Mar del Plata has been nearly halved since 1991 because of bankruptcy. A number of processing factories on the shore, including four large-scale plants, were also shut down, although Mar del Plata remains the center of export-oriented processing (mainly filleting), with its 44 processing plants out of the national total of 75 plants which regularly export to EC countries.

What has been notable in recent years is the emerging importance of Asian markets other than Japan, although their imports have been mainly limited to squid through charter arrangements. Five major importers from Argentina during 1983-85 were Spain, the U.S.A., Italy, Japan, and Brazil. During 1991-93, three newly industrializing countries of Asia were included among the ten large importers, following the traditionally important importers of Europe, America and Asia (Table 3.1.19).

Table 3.1.19 Major Export Destinations of Fishery Products

Countries		83-85 Av.	1990	1991	1992	1993	91-93 Av.
Spain	Quantity(ton)	21,133	46,628	57,483	57,057	66,909	60,483
	Value(US$1,000)	29,130	73,253	101,074	158,989	138,558	99,182
Japan	Quantity(ton)	17,575	19,257	28,497	32,390	112,872	57,920
	Value(US$1,000)	21,132	24,004	53,866	69,451	154,928	92,748
Italy	Quantity(ton)	16,513	28,181	32,002	27,420	25,185	28,202
	Value(US$1,000)	21,825	45,807	53,612	66,328	43,961	54,634
U.S.A.	Quantity(ton)	17,690	27,800	19,642	18,323	29,139	22,368
	Value(US$1,000)	27,388	44,234	34,446	38,019	55,922	42,796
Holand	Quantity(ton)		5,892	12,228	13,803	25,038	12,947
	Value(US$1,000)		7,535	18,227	25,779	34,497	26,168
Germany	Quantity(ton)		12,764	19,064	14,534	17,930	17,176
	Value(US$1,000)		16,820	31,437	19,119	22,124	24,227
South Korea	Quantity(ton)		1,713	8,167	43,785	45,231	29,672
	Value(US$1,000)		920	5,129	28,316	31,199	21,548
Brazil	Quantity(ton)	7,505	46,958	31,355	13,729	34,913	26,666
	Value(US$1,000)	4,414	45,769	33,959	17,267	42,634	19,967
Taiwan	Quantity(ton)		1,515	854	630	38,717	13,400
	Value(US$1,000)		774	389	308	30,376	10,228
Honkong	Quantity(ton)		n.a.	5,398	4,295	16,802	8,832
	Value(US$1,000)		n.a.	5,371	7,498	14,348	9,072

Source: Direccion Nacional de Pesca, Secretaria de Agricultura, Ganaderia y Pesca.
1983-85 figures are taken from the Study on Economic Development of the Argentine Republic, Vol. I, Chapter II Agriculture, 1987.

(4) Resource management and potentials

Compared with the situation in mid-1980s, the exploitation of fishery resources, especially of demersal species, has increased substantially in the country's exclusive economic zone, with notable examples of southern blue whiting and Patagonian whip hake in the southern waters. It is now generally accepted that deep-sea demersal species of known commercial value, including most productive common hake, as well as coastal fishery resources are now being exploited close to their respective maximum sustainable yields. Indeed, resource management is the only area where the government has been strengthening its regulatory functions rather than deregulation.

The National Directorate of Fisheries and INIDEP are currently implementing the fishery research project, as a component of PROMSA, which aims to strengthen resource survey activities for evaluating maximum sustainable yields of major commercial species. In addition, the Directorate/INIDEP plans to intensify the patrolling and monitoring of fishing activities in the exclusive economic zone, to test and disseminate methods of selective fishing for principal resources, and to strengthen the fishery-related information services. The future growth therefore will be generated with emphasis on the resource sustainability.

Judging from the landings in 1993 relative to the maximum permissible catches announced for 1994, the exploitation of pelagic species (e.g., anchovy and mackerels) and migratory species (e.g., tuna and bonito) apparently have not changed much since mid-1980s, or have been far from dynamic in contrast to demersal species. Generally low prices and the highly competitive international markets for pelagic species and their processed products (e.g., fishmeal, oil and canned products), and the paucity of resource evaluation for migratory species were cited as the major factors for their under-utilization in the 1980s. Considering the rapidly changing perspective of the domestic economy in general and the fishery administration in particular, it might be necessary to study the stocks of these species and reevaluate the prospects of their utilization.

Given the increasing need of managed fisheries, potentials for future growth principally rest with the product development from available catches, including higher value-added products like frozen breaded or prefried fillets and nuggets, or surimi-based products. For example, investments in modifications and expansions of the facilities have begun in Mar del Plata along this line. The prospects of such product development are dependent on the accurate understanding of demand characteristics and preferences in targetted markets as well as sanitary and quality standards. In this sense, joint ventures

or closer business arrangements with the users (e.g., food processers and large retailers) might be effective.

The Argentine government has been active in forging international accords to improve the export prospects and encourage investments, both domestic and foreign, in the country's fishery subsector, as evidenced by the recent agreement with EC and the on-going negotiations for MERCOSUR. These government instrumentation efforts will serve to reorient the growth outlook of the fishery subsector.

3.1.2 Issues

3.1.2.1 General

The conclusion of the Uruguay Round and the launching of WTO, on the one hand, and the regional integration efforts of MERCOSUR and others in Americas, on the other, are obviously most important external factors which will influence the growth prospects of Argentina's agricultural sector. The emergence of international commodity trades unencumbered by blatant protections, subsidies and other barriers probably will not be smooth, but the prospects for Argentina's traditional export commodities will gradually improve in the coming years through deliberations ensured by the frameworks of such global and regional organizations. The more important issue is in whether Argentina's agricultural sector is adequately prepared or equipped to take advantage of opportunities to be unfolded by new trade regimes in various parts of the world and to grow into a major competitive supplier of traditional and non-traditional products.

A number of Argentina's traditional and non-traditional agricultural and agroindustrial products have been already analyzed extensively regarding their competitiveness by the two studies[20] completed in Argentina during 1993. Partly drawing from the assessments and recommendations elaborated by these studies, the Study Team suggest a number of issues to be addressed to in order to facilitate the expansion of exports, especially to East Asian markets. The selected subsectors are those in which Argentina have achieved sizable export performances but have not yet managed to establish its due presence in East Asian markets, and are in this sense chiefly traditional.

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[20] Secretaria de Programacion Economica, Secretaria de Agricultura, Ganaderia y Pesca and IICA, Estudio de Competitividad Agropecuaria y Agroindustrial, vols., October 1993.
Campbell, Guillermo Jorge (Principal Consultant), et al, Diagnostico de Competitividad Agropecuraia y Agroindustrial a Nivel de Mercosur, Programa de apoyo tecnico para la implementacion de MERCOSUR, BID ATN/SF-4130-RE, Informe Final, November 1993.

3.1.2.2 Cereal and oilseed subsector

1) Diffusion of improved farming technologies: This chiefly involves the identification and introduction of varieties favored in targeted markets in East Asia, and the development and diffusion of farming methods to improve the productivity and profitability of farming operations. Especially important will be the increased application of fertilizers and plant protection materials, which, however, need to be tempered by appropriate consideration of soil conservation. This involves the participation of INTA and private technical support organizations. The promising crops will be maize, soybean and wheat.

2) Further reduction of commercialization costs: Domestic commercialization costs for grains have significantly decreased by the deregulation and privatization efforts. However, many people interviewed claim that the commercialization costs are still high by the international standard and thus adversely affect the international competitiveness of Argentine grain exports. Since this is a critical issue since the previous study, it would be desirable to analyze it in detail with a view to presenting measures necessary for a further reduction in commercialization costs.

3) The improvement of infrastructure for production and commercialization: It is important to develop transportation systems, storage and processing facilities, public utility, and communications for increasing efficiency and reducing costs in the subsector, though the lack of investment in infrastructure is a common problem across industries in Argentina. Some of these facilities can be improved by the private sector but most of them require various forms of government support including planning and investment.

4) The improvement of quarantine and quality controls: Credible product quality standards and strict adherence to sanitary standards acceptable to export markets are vital for export expansion. A weak quarantine and quality control system is still one of the technical constraints for exporting various agricultural products to Asian markets, most of which employ strict quarantine rules. It is thus important to strengthen the activities of IASCAV and other related agencies for agricultural export expansion.

5) The development of an information system and marketing networks: SAGyP and related organizations have been making a remarkable progress in their information gathering and publication activities in recent years. The subsector needs a better market information system which systematically targets East Asian markets. Institutional support for establishing enduring marketing networks and nurturing stable ties with

prospective buyers in East Asia is indispensable in order to increase grain exports (See, for example, 4.9.2 for support by Australian Wheat Board in Thailand).

6) Expansion of prefinancing facilities: In view of the competition expected in the international trade of grains, increased access to prefinancing facilities will be important to add an edge to Argentine products in growing East Asian markets.

3.1.2.3 Livestock subsector

The Study Team has concluded that beef has high export potential for East Asian markets, taking account of Argentina's beef production capacity and international recognition for the product quality, as well as the high income growth of East Asian countries and their changing consumer preference. The recent change in the U.S. policy for importing beef from the FMD circuit, i.e., the adoption of regionalization and the "minimum-risk" concept, has also brought about a bright outlook for Argentine beef exports to FMD free countries in Asia. Although the government has been vigorously implementing various programs for that purpose, the Study Team considers that the following areas need to be further worked on for the expansion of Argentine beef exports to Asian markets.

1) The improvement of production technology both in the cattle sector and in the meat processing sector through strengthening research and development institutions (e.g., INTA), technical and financial assistance, better market information, etc.: Increases in productivity, product varieties and quality are indispensable in enhancing the international competitiveness of Argentine products, particularly in East Asian markets, where fierce competition among beef exporting countries (e.g., the U.S.A, Canada, and Australia) takes place.

2) More effective control of FMD and other animal diseases: The existence of animal diseases has been a serious obstacle for the expansion of meat exports, as well as for the sector's overall development because of the losses in production and the higher costs for veterinary inputs. Control measures currently undertaken must be intensified for the eradication of FMD and other diseases in order to bring Argentine beef into East Asian markets, where many countries maintain import restrictions on meat from the FMD circuit.

3) Higher sanitary and quality standards in processing for the domestic market: The presence of the "illegal circuit," i.e., slaughtering and processing without official inspection, for products sold in domestic markets reduces the reliability of Argentina's

whole sanitary control system and thus seriously damages the prospects for its meat exports. The government programs for improving hygienic conditions must be further strengthened.

4) The improvement of infrastructure for production and commercialization: It is important to develop transportation systems, storage and processing facilities, public utility, and communications for increasing efficiency and reducing costs in the subsector, though the lack of investment in infrastructure is a common problem across industries in Argentina. Some of these facilities can be improved by the private sector but most of them require various forms of government support including planning and investment.

5) The development of international marketing networks for export promotion: The subsector needs a better market information system for increasing its marketing capacity in East Asia. Some export promotion missions have been sent to potential markets of East Asia but a more permanent form of institutional support is necessary for establishing marketing networks therein.

3.1.2.4 Fishery subsector

Global marine fisheries grew rapidly in the decades after the Second World War through increased mechanization of fishing fleets, but slowing down during the 1970s and the 1980s mainly due to the oil crises. The growth resumed toward the late 1980s mainly because of the increased catches of low-value species such as whiting, Alaska pollack and hake, but virtually stalled in the beginning of the 1990s. The current situation of global marine fisheries is characterized, after 18 years from the international establishment of exclusive economic zones, by overcapacity, overfishing and depletion of several valuable species (especially in the northern waters), all of which indicating the declining profitability of the existing fleets.

Judging from the information available on the recent development, the fishery subsector in Argentina is now facing an important turning point for rethinking growth, sustainability and profitability in the long-term perspective and for rebuilding the fishing industry on the framework of managed fisheries.

1) Further strengthening of resource survey capability: Important steps are being taken by SAGyP and INIDEP to improve resource survey capability. Further strengthening of the capability will be essential to provide more accurate bases for effective resource management and also to ensure the sustainability of marine fisheries including the exploitation of underutilized resources.

2) Development of an effective system of resource management: A number of well-known management techniques, such as regulated licensing of boats, restrictions on fishing times and fishing gear, are employed by many countries, but effective resource management is an issue far easier said than done, as amply evidenced in the experiences of developed countries. Strict surveillance and stiff penalties are important ingredients but often insufficient. The question is how to persuade all fishing establishments that fisheries must be managed. This policy issue need be examined also in relation to the question of overcapacity and implications of the existing export incentives and other promotional measures.

3) Development of higher value-added products: Potentials of future growth exist in the product development from available fish species, including presently underutilized or discarded species. There are opportunities of product development for export, as successfully exemplified in surimi in recent years. The important point is to direct the product development from the view points of prospective importing markets concerning their sanitary and quality standards, methods of processing and preparations, presentation and taste preferences and so on. Market and merchandising information will be crucial in accessing East Asian markets which have different characteristics from European markets. In this regard, it is advisable to examine the possibilities of joint ventures or business arrangements with food industries or large-scale retail establishments in East Asia.

3.2 Mining and Energy

3.2.1 The Present Situation

3.2.1.1 Mining

The Argentine mining industry consists of three major production groups; application rocks, non-metallic minerals and metallic minerals. The value of sector's production in 1993 amounted to US$495 million in total and it represented less than 0.3% of the country's GDP. Application rocks contributed 66% of the sector's production value, followed by non-metallic minerals (25%) and metallic minerals (9%). 980 mines are operating in the country and 20,250 workers in total are employed in these mining projects. The majority of the operating mines are small- and medium-sized at this moment.

The production of application rocks such as sand for construction, limestone, boulder, granite blocks, etc. increased to meet the domestic demand for housing and road construction. In contrast, metallic minerals continued to suffer a decrease of production, due to a stop of iron-bearing mines and minor production of concentrates from polymetallic mines.

The exports of the mining sector are US$70 million which represents only 0.46% of Argentina's total exports. On the other hand, the imports of minerals and derivatives amounted to US$856 million, or 4.6% of total imports. The value of the sector's imports is actually two times of the production value and the export-import ratio is 1:10.

The lack of investment in exploration work caused the poor development of mining activities in the past, but the political, institutional, and economic stability has created a favorable climate for investment in general and in particular for preinvestment in mining. The new legal and institutional framework for attracting capital to the sector has been established.

a. Mining investment law

- Tax stability for 30 years
- Deduction of 100% on income tax for the cost of investment in prospection, exploration, and a special study,
- Special regime for amortizing investment in infrastructure and machinery and equipment
- Asset tax exemption
- Import duties exemption on capital goods and inputs

- Provincial royalties not exceed 3% of the mine-head value of the mineral extracted

b. Mining reorganization law

- Preparation of geological maps
- Creation of special customs zone for mining

c. Federal mining agreement

- Coordination between national and provincial policies

d. New structure and function of Mining Secretariat

- National Directorate of Mining: Promotion of investment and development of mining activities
- National Directorate of Geological Services: Producing basic geological information
- National Institute of Mining Technology (INTEMIN): Technology assistance
- National Institute of Seismic Prevention: Applied investigation and technology assistance
- Regional Institute of Underground Water: Technology assistance

e. Advisory organizations

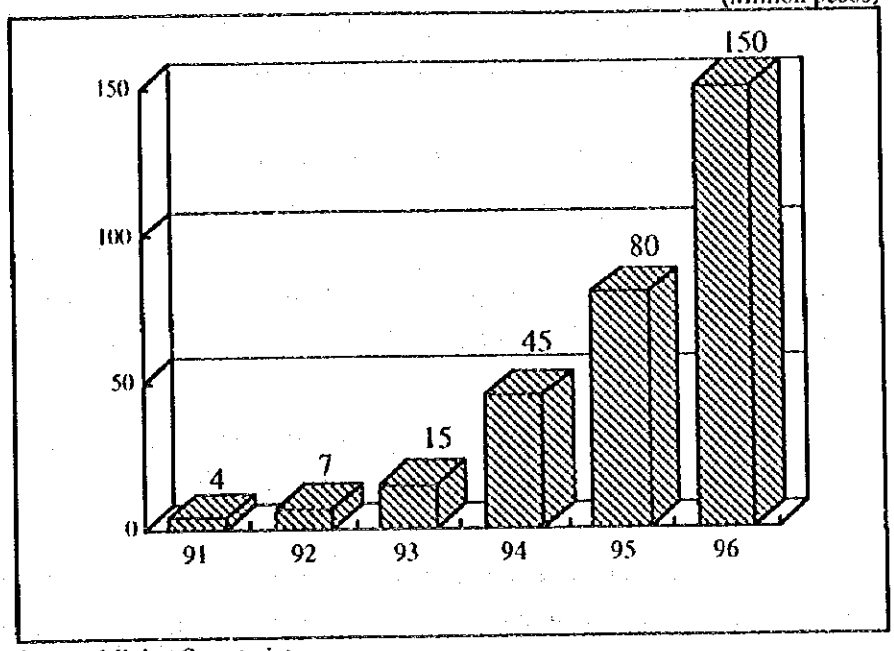
- Advisory Council of Mining Employers
- Federal Council of Mining
- Commission of Geological Map

As a result of these changes, 98 foreign companies came in the country to engage in mining activities and 58 companies among them are actually proceeding exploration or other studies on their specific projects. Most of these projects are related to the development of copper or gold mines. Other 55 foreign companies are interested in this country, seeking an opportunity of investment in mining projects.

Investment for prospection and exploration projects is increasing year by year as shown in Figure 3.2.1 and at the same time, investment for exploitation and mineral processing projects is also expected to increase significantly in the coming years (Figure.3.2.2).

Figure 3.2.1 Preinvestment in Prospection-Exploration

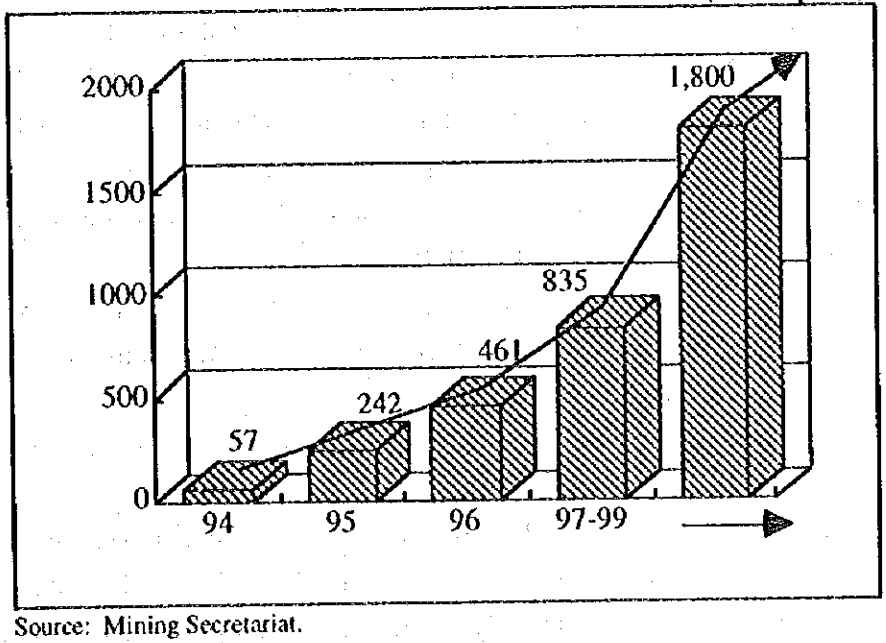
(Million pesos)



Source: Mining Secretariat.

Figure 3.2.2 Investment in Development Project

(Million pesos)



Source: Mining Secretariat.

The major projects under feasibility study or detailed exploration stage are as follows:

- Bajo de la Alumbrera, copper and gold in Catamarca Province
- Nevados del Famatina, copper, molybdenum and gold in La Rioja Province
- Cerro Vanguardia, gold and silver in Santa Cruz Province

- Potasio Rio Colorado, potassium in Mendoza Province
- Salar del Hombre Muerto, lithium in Catamarca and Salta Provinces
- El Pachon, copper and molybdenum in San Juan Province

Some measures for assisting small- and medium-sized companies were adopted by the government.

1) Creation of a division of mining project analysis in Banco de la Nacion Argentina for financial assistance to small mining companies
2) Reorganization of INTEMIN for technical assistance
3) Planning of mining accesses to develop road networks in remote areas for access by small- and medium-sized producer to mining potential districts

For the purpose of strengthening and broadening the geological database and technology, the Argentine government has made international cooperation agreements with some foreign countries and international organizations as follows.

1) Spain: Technical cooperation for the National Program of Geological Map of the Argentine Republic by Geomining Technology Institute of Spain (ITGE).
2) Australia: Technical cooperation for the Strategic Geoscientific Study on the Sierras Pampeanas by Australian Geological Survey Organization (AGSO).
3) Chile: Scientific and Technological cooperation in the Earth Science for joint geological and volcanic studies in frontier zones by National Service of Geology and Mining of Chile (SERNAGEOMIN).
4) Japan: Technical cooperation for exploration and evaluation of potential mining districts in the Northwest region by Japan International Cooperation Agency and Metal Mining Agency of Japan (JICA-MMAJ).
5) Germany: Two experts from Federal Institute of Geoscience of Germany have been requested.
6) Interamerican Development Bank: Partial financing for Multinational Mining Geology Project of horizontal technical cooperation between Geological Services of Argentina, Chile, Peru and Bolivia. Geological Survey of Canada is joining as a consultant. Joint work for basic geological studies in frontier regions of common interest will be carried out.
7) United Nations Development Program: A project for evaluation of the volcanic risk in Argentina. A pilot project is carried out in Mendoza Province (Peteroa Volcano).
8) Brazil, the U.S.A., and United Kingdom: Technical cooperation agreements with Geological Surveys of those countries are under preparation.

3.2.1.2 Energy

The energy sector of Argentina has been greatly transformed by the laws of State Reform and Economic Emergency. The deregulation of the sectors of petroleum, gas, coal, electric power was carried out through the issuance of specific laws which established frameworks for free competition, enabling the incorporation of private investment into the respective activities.

The functions and new organizational structure of the Energy Secretariat were approved by the decree and the state is responsible for:

1) Establish the sector policy.
2) Watch whether the private sector's activities meet the interest of community from technical, economic, and environmental viewpoints.
3) Give information on demand and supply in the short, medium and long terms.
4) Decide rules for the sector's activities and clarify its execution and interpretation.

(1) Petroleum

Prior to the deregulation, hydrocarbons production was almost monopolized by the state petroleum company, YPF S.E. and only a limited number of private companies operated in the section of refining and marketing under strict regulations on the oil price and quantity. But the government proceeded a full scale transformation of YPF S.E. into an open-capital corporation, YPF S.A.

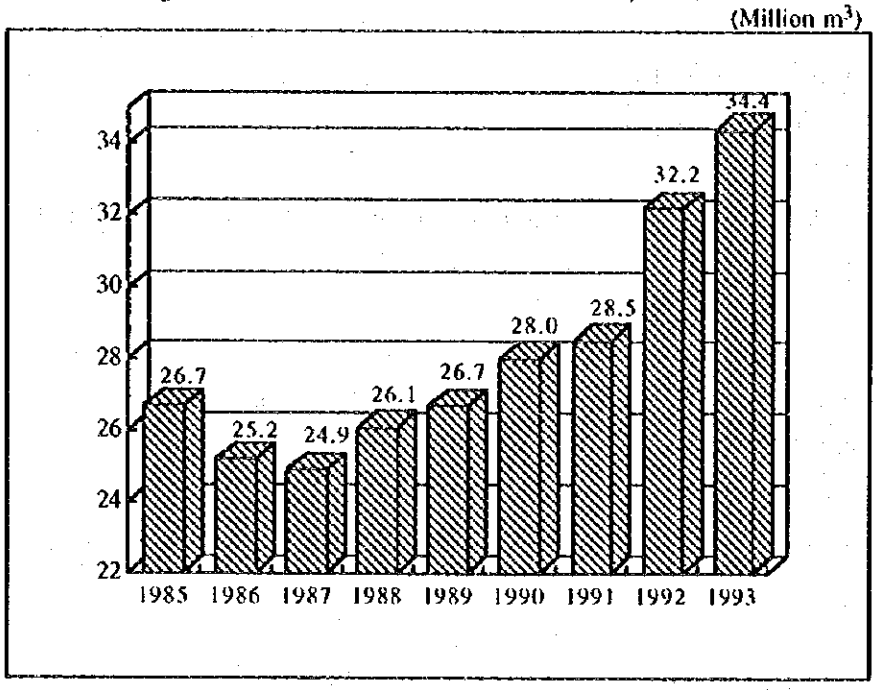
The law and so-called decrees of deregulation established a new role of the state in the economy after deregulation and demonopolization of the markets of hydrocarbon and derivatives. The decrees of deregulation eliminated restrictions on the import and export of crude oil and liberalized the domestic hydrocarbon industry including the prices of petroleum and derivatives. It also eliminated restrictions on the construction of new facilities of oil refining and marketing.

Actions that have been carried out include:

1) Concession for exploration, development, and exploitation of marginal fields
2) Association of YPF S.A. with private companies interested in exploitation in central areas
3) Restructuring of existing exploitation and risk contracts into exploitation concession and exploration contracts

4) Transfer of exploitation areas to the provinces
5) "Argentine Exploration Plan" to encourage the discovery of reserves and their sale on the market

Figure 3.2.3 Production of Crude Oil, 1985-1993



Source: Energy Secretariat.

The production of crude oil from 1985 to 1993 is shown in Fig.3.2.3, which is self-explanatory of the impact of demonopolization on production. Proved reserves in 1993 was 352,441,000 m^3. Forecast investment in petroleum from 1993 to 1997 amounts to US$7,723 million in total which includes US$5,806 million for exploration and exploitation.

(2) Gas

The same concepts as mentioned in the sector of petroleum are applicable to the transport and distribution of natural gas, and thus the restructuring of the state gas company, Gas del Estado, was proceeded through the formation of 10 business units, with a transportation system divided into two and a distribution system divided into eight. Law and decrees created the basis of a regulatory framework for operation of the transporters and distributors. At the same time, National Regulatory Agency for Gas (ENARGAS) was set up as the specific regulatory organization of the sector.

The main roles of ENARGAS is as follows.

1) Provide adequate protection for customer rights.
2) Encourage competition in the market of natural gas.
3) Encourage improved operation, reliability, impartiality, open access, fair and generalized usage of installations and services for transportation and distribution of natural gas.
4) Regulate activities related to the transportation and distribution of natural gas, ensuring reasonable and equitable tariffs.
5) Encourage the rational and efficient use of natural gas.
6) Prevent uncompetitive, monopolistic or discriminatory behavior by producers and users.

Production of natural gas in 1993 was 26,668 million m^3 and proved reserves in the same year recorded 516,662 million m^3.

(3) Electric power

The transformation of electricity sector was proceeded through inflows of private capital investment and the approval of free competition. The basic concepts of transformation are as follows.

1) The role of the state is to decide policies and regulations without participating in corporation activities.
2) The horizontal separation of activities into production, transportation and distribution.
3) Creation of the wholesale electricity market and its management company (CAMMESA).
4) Creation of a regulatory agency of electricity (ENRE).
5) Redefinition of the function of the Electric Energy Subsecretariat.
6) Redefinition of the National Fund of Electric Energy, aiming at the development of electric works in interior regions and the control of tariffs for end-users.
7) Transformation of the state companies, SEGBA, AGUA y ENERGIA, and HIDRONOR into multiple business units for their privatization.

The companies transformed to the private sector during 1992-1994 are listed in Table 3.2.1. ENRE and CAMMESA are performing their important tasks in the transformed electricity sector. The installed capacity of electric power generation of the country is shown in Table 3.2.2.

Table 3.2.1 Companies Transformed to Private Sector

Generation:	GENERAL PUERTO S.A.	1009 MW
	GENERAL COSTANERA S.A.	1260 MW
	GENERAL PEDRO DE MENDOZA S.A.	94 MW
	GENERAL DOCK SUD S.A.	210 MW
	GENERAL TERMICA ALTO VALLE S.A.	94 MW
	GENERAL TERMICA GUEMES S.A.	245 MW
	GENERAL TERMICA SORRENTO S.A.	226 MW
	GENERAL TERMICA SAN NICOLAS S.A.	650 MW
	GENERALES TERMICAS DEL NOROESTE S.A.	296 MW
	GENERALES TERMICAS DEL NORESTE S.A.	248 MW
	GENERALES TERMICAS PATAGONICAS S.A.	258 MW
	GENERALES TERMICAS DEL LITORAL S.A.	94 MW
	GENERALES TERMICAS MENDOZA S.A.	422 MW
	HIDROELECTRICA ALICURA S.A.	1000 MW
	HIDROELECTRICA PIEDRA DEL AGUILA S.A.	1400 MW
	HIDROELECTRICA CERROS COLORADOS S.A.	450 MW
	HIDROELECTRICA CHOCON S.A.	1320 MW
	HIDROELECTRICA DIAMANTE S.A.	388 MW
	HIDROELECTRICA AMEGHINO S.A.	47 MW
	HIDROELECTRICA NIHUILES S.A.	259 MW
Transportation:	TRANSENER S.A.	7100 km
	TRANSNOA S.A.	2718 km
	TRANSNEA S.A.	876 km
	TRANSPA S.A.	1833 km
	TRANSCOMAHUE	829 km
	DISTROCUYO S.A.	1380 km
Distribution:	EDENOR S.A.	
	EDESUR S.A.	
	EDELAP S.A.	

Source: Energy Secretariat.

Table 3.2.2 Installed Nominal Capacity (MW) by Jurisdiction

(as of Sept. 1994)

Jurisdiction	Steam Turbin	Combined Cycle	Gas Turbin	Diesel	Hydro	Nuclear	Total
CAPITAL FEDERAL	2302		61				2363
GRAN BS. AIRES			338				338
BUENOS AIRES	1586		210	100		370	2266
CATAMARCA			8	8	2		18
CORDOBA	249		345	21	927	648	2190
CORRIENTES			120	52	78		249
CHACO	45		93	25			163
CHUBUT			270	26	496		792
ENTRE RIOS	22		15	23	945		1005
FORMOSA			23	34			57
JUJUY			68	6	7		81
LA PAMPA			17	11	10		38
LA RIOJA			32	39			71
MENDOSA	245	90	87	5	693		1120
MISIONES		71	74	41	121		307
NEUQUEN	30		577	10	3821		4438
RIO NEGRO			59	39	20		118
SALTA	245		35	24	116		421
SAN JUAN			31	10	89		130
SAN LUIS				8	4		12
SANTA CRUZ			85	44			129
SANTA FE	266		44	84			394
SGO. DEL ESTERO			48	25	17		90
T. DEL FUEGO			39	13			52
TUCUMAN	80		40	4	50		174
TOTAL	5070	160	2730	662	7397	1018	17037

Source: Energy Secretariat.

3.2.2 Issues

More than 90% of the sector's production value depends on application rocks and non-metallic minerals. Certain kinds of products may be exportable to neighboring countries but its value seems to be rather small. It is not so important to increase the variety of mineral products. For the purpose of export expansion, it is necessary to increase exportable items in the Argentine mining industry.

Approximately one hundred foreign companies are working in the country for future investment. Most of these companies aim to develop large-scaled metallic mineral deposits with a big amount of investment. As a result of their activities, the production of exportable commodities can be expected before the end of this century. The continued presence of foreign mining companies is essential for the growth of the mining sector.

The preparedness of basic geological information is an important factor of decision making by foreign companies to select the target country for exploration and development projects. The government has been taking several measures in this field, and the efforts have to be continued by the own investigation or in collaboration with international organizations through technical cooperation arrangements.

To develop human resources in skilled labor for future mine development on a large scale, it is also an important task to assist and promote the training of the personnel of small- and medium-sized mining companies.

A program of mining access is established for assisting the private sector, especially small- and medium-sized companies, in their access from the existing principal road networks to a potential mining district. This plan should be carried out in mineral-rich regions and be continued to cover many remote areas for future development.

Foreign companies from Canada, the U.S.A., Australia, Chile, South Africa and Germany are known as actual or expected investors in Argentine mining. But no company from East Asian countries is included. East Asian countries are considered as a main purchaser or importer of future mine products of the country. It will be necessary to invite some interested companies from East Asian countries for participating in the development of mines, not only as a purchaser but also as an investor.

The proved reserves of petroleum are limited and newly explored additional reserves seem to be less than the country's annual production. The modest production and consumption of crude oil for electrical energy generation are desirable from the

viewpoints of resource conservation and environmental protection. On the other hand, proved reserves of natural gas are greater and its possible reserves are expected to be much more than petroleum. The use of the abundant natural gas could be considered in place of consuming the limited reserves of crude oil. A natural gas pipeline project is in the stage of feasibility study. The East Asian market, in addition to the Chilean market, will be included in the study for natural gas exports. It is reported that another plan of a gas pipeline to connect Argentina and Brazil has been examined. It seems to be quite reasonable and necessary to expand natural gas exports to MERCOSUR countries.

3.3 The Manufacturing Sector -- Reduce Costs of Non-Imported Inputs --

3.3.1 The Present Situation

3.3.1.1 Profile of the manufacturing sector

(1) Production

a. GDP

During the period from 1986 to 1993, the GDP of the manufacturing sector (industrial GDP) grew at 2.0% per annum. The share of the sector to the whole economy fell from 27.4% in 1986 to 26.1% in 1989. After recovering to 27.4% in 1991, it fell again to 26.4% in 1993.

Table 3.3.1 presents a comparison between the growth of total GDP and that of the manufacturing sector. Industrial GDP contributed only 22.5% to the increment of total GDP for the last 7 years and it was one of the main causes of the recession in 1988 and 1989.

Table 3.3.1 Relation Between Increase of Total and Industrial GDP

(1986 thousand pesos, %)

	Increment of total GDP (A)	Increment of manufacturing sector GDP (B)	(B/A*100)
1986/87	257.4	48.1	18.9
1987/88	-192.5	-135.6	70.4
1988/89	-624.8	-188.9	30.3
1989/90	5.8	50.3	867.2
1990/91	839.5	299.3	35.7
1991/92	888.7	206.2	23.2
1992/93	673.3	135.8	20.2
1986/93	1847.8	415.2	22.5

Source: Based on INDEC data.

While the industrial structure has changed slightly as a whole, the textile/leather industry, the fourth largest manufacturing industry in Argentina, had reduced its share from 3.4% in 1986 to 3.0% in 1993 and the food industry, the third largest industry, followed it from 6.3% to 6.1% for the same period (Table 3.3.2). Machinery, the second largest industry in Argentina, attained a remarkable increase in the share among others from 1990 to 1993. In contrast, basic industries such as chemical, textile/leather, and food industry reduced their shares significantly.

Table 3.3.2 GDP Share by Manufacturing Subsector

(%, percent point)

	Share of total GDP			Variation of Share		
	1986	1990	1993	1986/90	1990/93	1986/93
Total	**27.42**	**26.63**	**26.40**	**-0.79**	**-0.23**	**-1.02**
Food industry	6.3	6.5	6.1	1.17	-0.37	-0.19
Textile, Leather	3.4	3.4	3.0	-0.02	-0.45	-0.47
Wood products	0.7	0.5	0.6	-0.12	0.09	-0.04
Paper, Printing	1.4	1.3	1.5	-0.08	0.15	0.07
Chemical industry	6.7	7.3	6.6	0.60	-0.73	-0.13
Nonmetal mineral	1.2	1.0	1.3	-0.24	0.32	0.08
Metal industry	1.0	1.2	1.0	0.16	-0.13	0.03
Machinery	6.4	5.1	6.3	-1.26	1.14	-0.12
Others	0.2	0.2	0.2	-0.01	0.00	-0.01

Source: Secretaria de Industria.

b. IIP

The index of industrial production (IIP) surveyed by INDEC shows that the automotive industry plays a significant role in the manufacturing sector. IIP, which was indicated as 100 in 1986, decreased to 81.7 in 1990, recording the lowest for the period. Industrial production recovered rapidly to 92.1 in 1991, surpassed the levels of 1986 in 1992, and rose to record 113.7 in 1994 (the figures for 1994 were obtained by the simple calculation of the multiplier based on the value of index from January to May).

On the other hand, IIP without the automotive industry presents a different evolution. Although Argentine manufacturing industries, other than the automotive industry, recovered their production from the bottom in the recession, they could not surpass remarkably the level of the mid-1980s. IIP without the automotive industry remained between 101 and 102 until 1993. For December 1993, IIPs of selective industries were 147.3 for machinery, 124.3 for chemicals, 114.9 for cement, 101.4 for metals, 100.8 for food/beverage/tobacco, 85.5 for paper/printing, and 83.0 for textiles.

Based on another IIP (1984=100) of the first quarter of 1994 (figures in parentheses are IIP in 1993) surveyed by the FIEL, 18 subsectors can be classified into the following 4 groups by the criteria of growth rates and growth patterns.

A) High-growth industries whose IIPs exceeded 150
- Automotive: 207.6 (194.7)
- Basic metal: 165.3 (116.3)
- Beverage: 161.2 (118.6)

B) Growth industries whose IIPs surpassed average (124 in 1994) but less than 150
- Plastic: 146.5 (117.7)
- Tire: 140.1 (116.5)
- Chemical: 143.5 (110.4)
- Food: 133.5 (109.6)
- Fuel: 128.1 (104.9)
- Metal products: 125.3 (114.0)

C) Matured industries whose IIPs surpassed 100 but less than 124

Aluminum	122.3	(125.7)
Tobacco:	122.0	(98.8)
Machinery:	115.0	(113.1)
Cement:	113.1	(108.1)
Agrochemicals:	108.0	(130.7)
D) Industries in declining tendencies		
Paper:	98.1	(102.1)
Petrochemical:	97.3	(97.9)
Textile:	91.7	(96.9)
Tractor:	35.6	(28.5)

Table 3.3.3 IIP With and Without Automotive Industry

Year	Total	Without automotive	Gap	Year	Total	Without automotive	Gap
1986	100.0	100.0	0.0	1991	92.1	91.7	0.4
1987	101.4	100.9	0.5	1992	106.0	101.2	4.7
1988	96.7	96.5	0.2	1993	110.6	102.0	8.5
1989	85.6	82.7	2.9	1994	113.7	101.2	12.5
1990	81.7	80.3	1.4	(J-M)			

Source: Secretaria de Industria.

c. Capacity utilization

The capacity utilization of the manufacturing industry, which had varied from 74% to 61% in 1980s, attained the historical record of 75% in the first quarter of 1994. Currently, five industries such as automobile, tobacco, leather, household appliances, and basic metals have little substantial room to increase their physical production because they exceed 90% in their capacity utilization (Table 3.3.4). Other industries with high levels of capacity utilization may have the same sort of problem.

Table 3.3.4 Capacity Utilization by Industry , the First Quarter of 1994

(%)

Automotive	97	Electronics	79
Tobacco	96	Plastic	79
Leather	95	Printing/publishing	74
Household appliance	92	Food	73
Basic metal	91	Metal products	73
Petrochemical	86	Beverage	72
Wood products	85	Pharmaceutical	70
Rubber	84	Chemical	66
Glass	84	Cement	60
Paper	82	Machinery	59
Textile	81	Tractor	58
Electric machine	81	Aluminum	45
Footwear	80	Automobile parts	34

Source: FIEL.

(2) Investment

Table 3.3.5 presents the evolution of the sector's investment indicator in imported capital goods. Capital investment of the manufacturing sector was stagnant in the latter half of the 1980s, but it grew remarkably since 1991. The average annual

import value for 4 years from 1990 to 1993 is calculated as US$932.4 million. This is 2.2 times as large as the average recorded in 1986-1989. Capital investment was made not only for enlarging production capacity but also for improving their production systems for cost reduction. However, capital investment is not yet at a sufficient level. While many factors can be cited for this situation, the relatively high financial cost seems to be one of the most important factors.

Table 3.3.5 Capital Good Imports by the Manufacturing Sector

	Annual Imports			Accumulated Imports	
	US$ million	%		US$ million	%
1986	289.4	-3.31		289.4	5.37
1987	508.4	75.68	Av.1.00	797.8	14.79
1988	493.5	-2.92		1,291.3	23.94
1989	371.9	-24.65		1,663.1	30.83
1990	305.3	-17.90	0.74	1,968.4	36.50
1991	642.0	110.29	1.54	2,610.4	48.41
1992	1,230.1	91.60	2.95	3,840.6	71.22
1993	1,552.1	26.73	3.73	5,392.7	100.00

Source: Economic Report 1993.

(3) Employment

Table 3.3.6 was elaborated based on INDEC's data of the number of employees in the manufacturing sector presented in *the National Economic Census of 1984* and changes reflected in the monthly employment surveys also prepared by INDEC. The table shows that the number of employees in the sector decreased by 22.1% in the last eight years.

Table 3.3.6 Estimation of Personnel Employed in the Manufacturing

(Persons)

	1984	1990	1991	1992	1992-1984
Food/beverage/tobacco	360,630	289,275	286,952	290,088	-70,542
Textile/leather/footwear	211,368	159,816	148,512	141,708	-69,660
Wood prod./furniture	79,118	57,451	57,710	60,418	-18,700
Paper/printing	74,449	66,175	63,225	66,462	-7,987
Chemical/petrol/rubber	146,836	121,088	119,045	119,323	-27,513
Ceramics/glass/others	86,558	95,899	90,993	94,190	7,632
Steel/non-ferrous metals	50,334	45,033	40,305	31,857	-18,477
Metal prod./machine/transport equip.	362,439	242,033	253,957	264,347	-98,093
Other industries	10,073	8,080	7,886	8,630	-1,443
Total	138,805	1,084,851	1,068,586	1,077,023	-304,782

Source: Estimated from INDEC data.

Principal factors for this decrease are: 1) restructuring and reorganization in several sectors; and 2) the reduction that took place in small- and medium-sized enterprises due to severe competition. This situation will continue until sectoral reorganization reaches a certain level.

Table 3.3.7 Evolution of the Employment in the Manufacturing Sector, 1984-1992

	Number of employees (persons)	Rate of decrease (%)	Share (%)		
			1984 (%)	1992 (%)	1992/1984
food/beverage/tobacco	-70,524	-20%	26.1%	26.9%	0.8%
textile/leather/footwear	-69,660	-33%	15.3%	13.2%	-2.1%
wood prod./furniture	-18,700	-24%	5.7%	5.6%	-0.1%
paper/printing	-7,987	-11%	5.4%	6.2%	0.8%
chemical/petrol/rubber	-27,513	-19%	10.6%	11.1%	0.5%
ceramics/glass/others	7,632	9%	6.3%	8.7%	2.5%
steel/non-ferrous metals	-18,477	-37%	3.6%	3.0%	-0.7%
metal prod./machine/ transport equip.	-98,093	-27%	26.2%	24.5%	-1.7%
other industries	-1,443	-14$	0.7%	0.8%	0.1%
Total	-304,782	-22%	100.0%	100.0%	

Source: Estimated from INDEC data.

Table 3.3.7 shows changes in the composition of industrial employment between 1984 and 1992. It is indicated that the shares of industrial employment of industries such as steel and non-ferrous metals, textiles, leather and footwear; and metal products, machinery, and transport equipment experienced higher levels of reduction than the average. In contrast, there was a 9% increase in employment in ceramics, glass, and non-metallic minerals.

Even though the food, beverages, and tobacco industry experienced a 20% reduction in employment, its share in total industrial employment increased by 0.8%. Positive changes have been observed in industries such as printing, publishing and paper manufacturing, chemicals, petroleum and its by-products, and rubber and plastics.

Total industrial employment increased in 1992 over the previous year. Some increase was seen in several industries. Although this performance is encouraging, it cannot be said that it constitutes a definite trend given the successive changes experienced by the sector during the restructuring process.

(4) External trade

a. Export of the manufacturing sector

In Argentina, manufacturing products are classified into agricultural manufactures (MOAs) and industrial manufactures (MOIs). These two groups are quite different in their characteristics. MOAs are the product of agro-related industries, or processed raw materials previously exported as primary goods. MOIs are the products of manufacturing industries developed through import substitution of industrial goods in a wide range of use from consumer goods to capital goods.

1) Exports of agricultural manufactures

MOA exports occupy the first place since 1986, displacing primary goods. Product categories of MOA exports that recorded more than US$100 million in 1993 were by-products food industries, edible oils and fats, meat, furs and leather, processed fish and shellfish, processed vegetables and legumes. Other categories such as dairy products, dried or frozen fruits, tea, milled products, sugar and confectionery, beverages and vinegar, and processed wool also showed in a substantial amount of exports.

Table 3.3.8 presents the evolution of MOA export values since 1986. In 1988, total exports of MOAs increased by 37.1% compared to 1987 due to the growth in the exports of by-products of food industries and edible oil. Though MOA exports expanded remarkably again in 1990 due to the increased exports in edible oil, meat, and furs and leather, the growth rate was lower than in 1988.

Policy measures affected the export significantly. An export promotion program enacted in 1987 brought about some astonishing results in the following year, and deregulation and institutional improvement generated a remarkable increase again in 1990.

There has been noticeable diversification in the export of MOA exports. Processed fish and vegetables increased their share in total MOA exports from 2.8% in 1986 to 8.9% in 1993. On the other hand, dominant categories such as by-products of food industries, edible oil, meat, and furs and leather, reduced their share significantly from 85 % in the latter half of 1980s to 79% in the first 4 years of the 1990s.

Table 3.3.8 Exports of Agricultural Manufacturers

(US$ million)

	By-products	Fats and oils	Meat	Furs and leather	Processed fish	Processed vegetables	Others	Total
1986	822	656	465	351	9	67	316	2,686
1987	877	546	599	371	11	101	371	2,876
1988	1,443	921	607	383	17	119	453	3,943
1989	1,335	876	716	374	23	160	522	4,006
1990	1,200	1,151	873	488	15	213	724	4,664
1991	1,270	1,221	892	514	246	199	585	4,927
1992	1,456	1,131	772	463	233	256	512	4,823
1993	1,456	1,079	748	618	271	166	591	4,929

Source: INDEC.

2) Exports of industrial manufactures

In 1993, MOI exports occupied the second place in total exports. Product categories with exports of more than US$100 million each in 1993 were machinery/devices/electrical materials, automobiles, iron and steel, chemicals, textiles, paper and printing, plastics, and leather products . Table 3.3.9 presents the evolution of

MOI exports, which has a pattern different from that of MOA. MOI exports recorded remarkable growth of 33.6% in 1993 over the previous year. The decreases in 1991 and 1992 are attributable to an expansion of domestic demand brought about by strong economic growth. This was as a part of the mixed results from specific policy measures to some industries and as well as caused by a transition in comparative advantages that had continuously occurred in each industry.

Table 3.3.9 Export of the Industrial Manufactures

(US$ million)

	Household appliance	Automobiles	Iron and steel	Chemicals	Textiles
1986	280	212	474	249	67
1987	270	135	532	291	116
1988	384	171	913	458	141
1989	430	190	1,234	487	205
1990	486	223	1,163	523	213
1991	562	266	912	504	148
1992	502	390	626	519	118
1993	753	718	697	558	165
	Paper and pulp	Plastics	Leather products	Others	Total
1986	29	43	30	112	1,496
1987	49	83	47	172	1,695
1988	93	179	60	234	2,633
1989	116	170	65	289	3,186
1990	153	171	70	362	3,364
1991	113	146	77	256	2,984
1992	126	145	74	243	2,743
1993	150	130	118	376	3,665

Source: INDEC.

b. Imports of the manufacturing sector

Table 3.3.10 shows the evolution of imports by the manufacturing sector, which were estimated by the Study Team based on an analysis carried out by Secretaria de Programcion Economia presented in *Economic Report 1993*.

Table 3.3.10 Imports of the Manufacturing Sector

(US$ million)

	Intermediate goods	Capital goods	Parts & accessories	Total
1986	2,362	289	401	3,052
1987	2,532	508	594	3,634
1988	2,581	494	575	3,650
1989	2,118	372	350	2,840
1990	2,069	305	332	2,705
1991	3,419	642	553	4,614
1992	4,742	1,230	1,030	7,002
1993	5,066	1,552	1,060	7,678

Source: Estimated from INDEC data.

Imports of the manufacturing sector consist of capital goods, parts and accessories for capital goods, and intermediate goods. Statistical data on the second and third good categories are not available but data on the first category are available.

Based on the assumptions that the sector's imports of parts and accessories are proportionate to those of capital goods and that all intermediate goods were imported by the sector, the Study Team calculated the sector's elasticities of the increase in imports with respect to an increase in production as follows.

	1987	1988	1989	1990	1991	1992	1993
IIP variation (%)	+1.4	-4.6	-11.5	-4.6	+12.7	+15.1	+4.3
Import variation (%)	+19.1	+0.6	-22.2	-4.7	+70.5	+51.7	+9.7
Elasticity	13.6	--	1.9	1.0	5.6	3.4	2.3

Reflecting a decline in economic activity of the sector in relation to the whole economy, the share of the manufacturing sector's imports in total imports decreased from 66.4% in 1990 to 45.7% in 1993.

c. Trade balance

During the period from 1986 to 1993, the manufacturing sector contributed to the country's foreign exchange earnings to a large extent with a cumulative gains of US$19.6 billion (Table 3.3.11). With rapid growth in exports and stagnant imports , the sector had a considerable trade surplus every year in the latter half of the 1980s. The surplus reduced significantly in 1992 with a sharp increase in imports by the sector.

Table 3.3.11 Trade Balance of the Manufacturing Sector

(US$ million)

	Exports	Imports	Balance	Cumulative gains
1986	4,183	3,052	1,131	1,131
1987	4,521	3,634	887	2,261
1988	6,577	3,650	2,927	3,148
1989	7,204	2,840	4,364	6,075
1990	8,036	2,706	5,330	10,439
1991	7,908	4,614	3,294	15,769
1992	7,573	7,002	571	19,063
1993	8,594	7,678	916	19,634

Source Based on INDEC data.

(5) Industrial competitiveness

a. The situation of industrial development and competitiveness since 1990

The food industry is outstanding among the eight industries in Argentina. The food industry ranks first or second in GDP, the number of employees, and total exports. (Table 3.4.12)

Industrial GDP per employee, an indicator of the labor productivity of the sector, was 3.0 pesos in 1993 in the 1986 constant price (Table 3.3.13). This number was 6.9 pesos, 3.7 pesos and 3.0 pesos for the chemical, metal, and machine industries, respectively. Five other industries, i.e., paper, food, textile/leather, nonmetal and wood industries, remained less than the average.

Table 3.3.12 GDP, Employment and Exports by Industry, 1993

	GDP		Employees	Exports	Export ratio
	1986 pesos	Current pesos		Current US$	
	(1,000)	(million)	(1,000)	(million)	(%)
1 Food industry	725.4	14,733	289	4,171	28.3
2 Machinery	741.7	15,064	247	1,471	9.8
3 Textile/leather	352.2	7,153	139	1,133	15.8
4 Metal industry	122.9	2,496	33	697	27.9
5 Chemical/petroleum	782.9	15,900	113	688	4.3
6 Paper/printing	170.3	3,459	64	150	4.3
7 Wood industry	73.9	1,501	63	96	6.4
8 Nonmetal industry	152.4	3,095	75	79	2.6
Total	3,152.8	64,032	1,067	8,594	13.4

Note: 1. Current GDP was estimated by the Study Team with the deflator used in the total GDP.
2. Number of Employee was as of 1992.
Source: Based on INDEC data.

Table 3.3.13 GDP and Exports per Employees, 1993

	GDP per employee		Export per employee
	1986 peso	Current US$ 1,000	Current US$ 1,000
1 Food industry	2.5	(51.0)	14.4
2 Machinery	3.0	(61.0)	6.0
3 Textile/leather	2.5	(51.5)	8.2
4 Metal industry	3.7	(75.6)	21.1
5 Chemical/petroleum	6.9	(140.7)	6.1
6 Paper/printing	2.7	(54.0)	2.3
7 Wood industry	1.2	(23.8)	1.5
8 Nonmetal industry	2.0	(41.3)	1.1
Total average	3.0	(60.0)	8.1

Source: Based on INDEC data.

The three industries with relatively high productivity, i.e., machinery, chemical/petroleum, and metal, produced only 52.3% of the sector's GDP and exported only 33.2% of the sector's total exports (a total of MOA and MOI). Although the sector is in the process of restricting and thus its full results remain to be seen, the current performance cannot be considered good enough for a country which has a relatively long history of industrialization and a relatively high level of income like Argentina. This evaluation is based on the development patterns of industrial countries, which almost always experienced a shift from labor-intensive industries to capital-intensive and/or high-tech industries associated with productivity improvement in the past.

Manufacture exports per employee was US$8,100 in 1993. Industries such as metal, food, and textile and leather have considerable competitiveness in world markets and large exports per employee, i.e., US$21,100 for metal, US$14,400 for food, US$8,200 for textile and leather. Exports by the food industry and the textile and leather industry alone accounted for 61.7% of total manufacture exports. These exports consist mainly of MOAs in which the source of competitiveness does not lie in the

manufacturing production but in the availability of raw materials at relatively low prices in the country.

b. Competitiveness of the Argentine machine industry

In terms of international competitiveness, the eight industries can be classified into four ranks as below.

Top ranking:	Food, metal
Second:	Textile and leather
Third:	Machinery
Fourth:	Chemical, paper and printing, wood, nonmetal

As observed in industrialization in many developing countries, the development of the manufacturing industry often accompanies a sustained uprise of the relative share of the machine industry in GDP as well as in exports. In Argentina, many branches of machinery are significantly different from each other in competitiveness. For instance:

1) High growth is observed in GDP and exports of automobiles and household appliances as evidence for strong competitiveness. A sharp decline is observed in the production of auto parts and in the manufacturers of consumer electronic parts as evidence that these industries are out of competition due to the rationalization of terminal companies.

2) The international competitiveness of the machine tool industry has declined due to a low level of investment, insufficient export finance, and high prices.

3) Most promising industries in world markets such as computers and communications electronics have not been developed sufficiently in Argentina. Since tariffs are not levied on these products, there is little possibility of their local production in the near future.

Exportable goods are presently limited to a few items such as automobiles, auto parts, household appliances, etc. However, the export of automobiles is supported by the Automotive Regime, a specific industrial policy formulated for the development of the industry. To be internationally competitive, one passenger car model required a production scale of at least 300,000 units per year. One of the difficulties of Argentina's automobile industry is the small size of the local market for many models.

Table 3.3.14 presents the evolution of the export structure of manufactures. It is not clear whether there was a change in the export pattern between 1986 and 1993.

There is no indication that there was comparative advantage in the machine industry with respect to the food industry.

Table 3.3.14 Export Structure of Manufactures

(Current US$ million, %)

	1986		1989		1993	
	Value	Share	Value	Share	Value	Share
Machine	492	12.0	620	8.8	1,471	17.6
Chemicals/Metals	846	20.6	2,157	30.6	1,670	19.9
Textiles/Leather	608	14.8	817	11.6	1,133	13.5
Foods	2,164	52.7	3,451	49.0	4,109	49.0
Total	4,110	100.0	7,045	100.0	8,383	100.0

Source: Based on INDEC data.

c. Improvement in productivity and export performance

Labor productivity has improved in every industry since 1990. Main factors for the rise in productivity were the rapid recovery in production due to economic stabilization and the reduction in the labor force through restructuring. As to the change in competitiveness itself, more detailed analysis is necessary to find how much that had been improved. It is because factors such as rises in wages and other costs should be taken into account for the calculation of productivity.

With respect to the export performance, export growth was recorded in the food and machine industries while negative growth was observed in other six subsectors. In particular, some export industries such as metals and textiles and leather reduced their exports significantly. As a result, the growth of value added in these industries became stagnant. The competitiveness of these two industries was weakened between 1990 and 1993, in spite of the productivity improvement.

Table 3.3.15 Changes of GDP, Employment and Exports by Industry in 1990-1993

(% per annum)

	GDP	Number of employees	Exports
1 Food industry	5.8	0.8	3.3
2 Machinery	15.3	-4.8	27.5
3 Textile/leather	2.9	-4.5	-8.2
4 Metal industry	4.2	-13.1	-15.7
5 Chemical/petroleum	3.7	-1.6	-0.3
6 Paper/printing	4.2	0.1	-0.6
7 Wood industry	11.1	5.0	-4.6
8 Nonmetal industry	13.5	-4.0	-5.8
Total average	7.9	-2.3	2.3

Note: Rate of the number of employees covered period from 1990 to 1992.
Source: Based in INDEC data.

(6) Review of the industrial policy

a. Feature of Argentine industrial policy

The objective of Argentina's new industrial policy is to adapt domestic prices to international levels for enhancing the competitiveness of manufacturing industries. The elimination of incentives is a significant change to be noted. Table 3.3.16 illustrates the measures carried out in the last few years. Measures to induce restructuring are trade liberalization and the reduction of tax incentives to industrial production. In the field of small- and medium-sized industries, institutional arrangements for finance are also provided.

Table 3.3.16 Current Industrial Policy Measures

Year	Type of measures	Brief points
1989	Tax incentives	Economic Emergency Law: Under the law 50% of the industrial promotion benefits were deferred for 1 year, exchange for a bond subject to indexation payable after two years.
		The re-registration of the firms and the requirement for a sworn declaration of their actions and the benefits.
1991	Trade	Reduction in the average tariff, with the structure scaled to provide greater protection to consumer goods.
		Export reimbursement, suspended in mid-1989, was re-instituted.
		Elimination of freight reserves for national-flag vessels.
		The simplification of requirements for registration of Importers and Exporters.
		Elimination of the statistical tax on exports in November 92.
	Tax	The approval of new projects was suspended until September 1993.
		Regulations for the exchange of promotional benefits for fiscal credit bonds, which could be used for the payment of taxes.
		The government has decided that the country is unable to afford subsidies of the nature (law 23614 dated 1988 will no be implemented).
1992	Trade	New tariff structure introduced: (1) Equality of treatment for industrial input and parts and spares whether or not produced, in order not to discriminate against the possibility of local production of the goods. (2) An increase in the scaling of tariff on the principle of value added content of product.
		Eliminating the special treatment given to the CONSUMER ELECTRONICS.
		Reimbursement on all export was increased.
		(1) Statistical tax was increased from 3% to 10% on imports. (2) Tariff on capital goods not manufactured in the country were exempted of this increase.
	Tax	In Tierra del Fuego free trade zone a timetable was published reducing VAT benefits until they extinguish in 1996.
		The Industrial Specialization and Reconversion Regime.
	Finance	The three-year program for the encouragement and development of small and medium sized business (refer next clause).
1993	Trade	Tariffs ceased to be applied on most CAPITAL GOODS.
		Satistical tax of 10% reduced to 3% for intermediate goods.
		Special protection of paper imports and textile imports.

These measures had two basic objectives: 1) To move the prices of industrial inputs close to those international market levels by trade liberalization or special regimes for industrial promotion; and 2) To reduce gradually or eliminate benefits and incentives related to taxes and duties previously provided by the government. However, there are some aspects that could not be solved only with these measures. There are some industries in Argentina that still cannot reach the economies of scale

necessary to be competitive in international markets in the short term. These industries have to make much effort to survive under the new industrial policy framework.

1) The Automotive Regime

In 1991, the Argentine government sanctioned a new decree, No. 2677/91, introducing a series of changes to the framework of the existing automatic regime. It has generated remarkable improvement in production, exports, employment, and profitability. As a result, the industry can now attract foreign direct investment. While the industry has benefited from the Regime to a large extent, the financial costs spent on the grant of the 2% import tariff are relatively small.

2) The industrial specialization and reconversion regime

The Industrial Specialization and Reconversion Regime (IRS), which was enacted in December 1992 and started in January 1993, has positive impacts on the export of various industrial products, such as steel and metal products, chemical products, and so forth.

IRS is similar in nature to the Automotive Regime as it is a commitment program aimed at promoting exports. A difference between the two regimes is that the Automotive Regime requires automotive terminals to submit commitment programs for restructuring, which requires a large amount of investment and changes in production strategies, e.g., the renewal of makes and complementation with Brazil.

In 17 months after the commencement of the regime, 171 programs submitted by companies in various industrial sectors were approved. While these companies have to contribute to export promotion, they can obtain a special license to import, at a 2% tariff, goods in the same category as they have exported. The base value of exports in 1992 were US$506.6 million, while the increased value which those companies had committed themselves to reach in 1993 was US$155.7 million, an increase of 30.7% over the base year.

b. Small- and medium-sized industry development program

Access to financial resources is seriously limited in small- and medium-sized industries in Argentina. Banks and other financial institutions are, generally speaking, reluctant to lend money to private business, particularly to small-sized ones without substantial guarantees. Due to the insufficiency of financial resources, those companies are far behind larger companies in restructuring and modernization. For the purpose of improving financial and technological conditions of those industries, the government

started the small- and medium-sized industry development program (the 3-year program) at the end of 1992.

1) Financing

Fourteen financial schemes have been implemented (Table 3.3.17). Four credit lines with interest rates between 8.4% and 12% per annum and terms of 3 to 5 years are available for production and technological improvement. One credit line is available for research and development. Five short- and long-term credit lines with interest rates from 8% to 13% per annum are available for exports and imports.

Table 3.3.17 Financing Schemes of the 3-Year Program

Schemes	Entities responsible	Objectives	Terms
F1	SOI/banks	modernization of production equipment	10-12% p.a., 4 years
F2	SOI/banks	working capital	10-12% p.a., 18-36 months
F3	SOI/banks	improvement of production technology	11-12% p.a., 36 months
F4	SOI/BNA	conversion of production	8.4% p.a., 7 years
F5		not specified	not specified
F6	SOI/banks	not specified	12-15% p.a., 48 months
F7	SEP	technology	12% p.a., 4 years
F8	SSTN/BNA	research and development	50% p.a. less, 4 years
F9	BICE	export of capital goods	8-10% p.a., 0.5-5 years
F10	SOI/BNA	export of capital goods	10% p.a., 4 years
F11	BNA	export promotion	10-13 p.a. 5-4 years
F12	BNA	export promotion	10% p.a., 180 days-1 year
F13	SALF	export promotion	Libor + 2.5%, 2 years
F14	SOI	consortiums constitution	grant

Note: SOI: Secretariat of Industry. SEP: Secretariat of Economic Program. SSTN: Secretariat of Science and Technology of the Nation. BNA: Banco de la Nacion Argentina. BICE: Banco de Inversiones y Comerico Exterior. SALF: Secretariat of Agriculture, Livestock and Fisheries.
Source: The Secretariat of Industry.

The total amount of these credit lines, which include 4 lines applicable to the agricultural sector, is US$1,600 million. Of the total, US$1,000 million is allocated for the acquisition of capital goods, US$500 million for the procurement of working capital, and US$100 million for a program coordinated by INTI (the National Institute of Industrial Technology) for the improvement of technology and management. Another credit line of US$400 million, which is to be disbursed through the Banco de la Nacion, is established for the purposes of technological and management modernization and export financing. US$1,000 million has been disbursed, of which US$270 million is for purchasing of capital goods and more than US$500 million for working capital.

While average interest rates of non institutional loans are around 18% per annum, these rates of institutional credits bring significant financial aid to small- and medium-sized business. But the interest rates are still higher than levels which industrial return(profitability) can afford.

2) Support and assistance services

Under the 3-year program, support services are provided by INTI, National Institute of Cooperative Action, Productive Poles, Industrial Expansion System for Small and Medium Companies, Information and Industrial Statistics Center, PyMEs Windows, Suppliers Development Program, Fundacion Exportar, and Fundacion Invertir. These programs are expected to have positive impacts on industrial development in the country. For instance, the supplier development program is expected to contribute substantially to improving the competitiveness of Argentine industries in terms of quality and production capacity. Some of these programs have already obtained some results, while others are still in the process of building up.

c. The Supplier Development Program

Based on the Presidential Decree No. 1255/94, the Supplier Development Program (SDP) will start in the 1995 fiscal year. The program is intended to become an useful tool for fulfilling aims such as the acquisition of new technologies and improved organizational and administrative capacities. It will enable Argentine small- and medium-sized industries to play a major and dynamic role within the existing economic framework.

The responsible entities are the Secretariat of Industry, INTI, terminal companies, and small- and medium-sized companies (suppliers). SDP is divided into the following three major modules. For each module, actions will be taken to attain the goal.

1) Quality: To improve competitiveness, specially in world markets, through technical assistance that incorporates the quality concept as a basic prerequisite.
2) Industrial design: To establish industrial designs appropriate in small- and medium-sized companies and its utilization as a basis to improve quality.
3) Technological reconversion: To improve productive efficiency by incorporating new technologies.

Though the program is in a provisional stage, the current situation of SDP can be summarized as: 1) NIT has already organized an executive committee (with around 30 experts) for each module; 2) Less than 30 terminal companies have shown interest in SDP; and 3) Only two provinces , Cordoba and Santa Fe, has shown interest in participating in SDP. These facts indicate that the private sector as well as provincial governments do not seem to understand sufficiently the significance of enhancing international competitiveness through the development of suppliers. It should be

widely publicized that the SDP is a very important strategy to surmount the comparative disadvantage of Argentina.

3.3.1.2 Industrial technology

(1) Technology trends necessary for industrial development in the near future

The following is a list of major technologies expected to have large industrial impacts on society between now and the year 2000.

a. Information communications

The most important technology will probably be the construction of fiber-optic cable networks. The U.S. information superhighway project, for example, calls for linking the entire country with fiber-optic cables for the high-speed distribution of a wide variety of data.

Another growing field is wireless communications, with great technological strides being made in such areas as mobile communications and wireless LANs.

There is also rapid technological progress in multimedia, the unified transmission of voice, image, and data over the same circuits.

Also rapidly developing is human interface technology enabling computer access through interactive interfaces, handwriting input, and voice input. Virtual reality is another technology that has already entered the first stages of implementation.

b. Electronics

The major technological developments in the electronics field are in VLSIs and display devices. The first 256-megabit DRAM appeared in 1993. Development is now underway of a 1-gigabit version to appear in 1996. Once this appears, a single IC chip will be capable of storing data equivalent to 4,000 newspaper pages.

Display device development is spurred by growth in the portable information products market. The main activity now is in the development of high-speed color liquid crystal displays for this market. In the television display arena, thinner electron tube devices exploiting electron beam technology have begun to appear and are attracting considerable attention.

c. New materials

One field for which there are great expectations is the development of such new materials as superconductors, thin-film diamonds, and inclined magnetic field materials.

Superconducting materials have applications in linear motor propulsion, electric power storage, and particle accelerators. Development is now concentrating on finding superconductors that work at higher temperatures. Thin-film diamonds are a subject of active research as a next-generation semiconductor material because they combine the high heat conductivity of diamonds with semiconductor characteristics.

d. Mechatronics

Industrial robots are already widespread in Japan and are now spreading throughout the world. Robots are finding new applications in such fields as construction and search and rescue.

Large-scale research projects applying techniques from microelectronics to the creation of micromachines using parts with dimensions in micrometers are now underway in Germany, the U.S.A., and Japan. In Japan, for example, one project, which began in 1990, will spend ¥25 billion over a ten-year period. One result that has already come out of this research is a surgical catheter, made of sub-millimetric parts and fiber-optic cable, capable of repairing blood vessels from inside.

e. Biotechnology

Protein engineering, the construction of totally new proteins by remodeling existing proteins from nature, is expected to make major contributions to such fields as medicine and sensor technology.

Researchers in Europe, North America, and Japan are actively striving to automate the process of determining DNA chlorine radical distribution, a technology basic to the development of genetic engineering, from DNA extraction stage to chlorine radical distribution.

f. Energy

Among the technological developments expected in this field are fuel cell electrical generation, hydrogen fuel, methanol fuel, secondary batteries, primary batteries, and solar batteries.

Current fuel cell plants already in operation for use in developing practical technology have high energy conversion ratios between 40% and 60%, are suitable for air generation, are low in pollution, and are suitable for installation in urban settings. The technology generates electricity through an electrochemical reaction between hydrogen from such fuels as natural gas, methanol, and coal gas and chlorine.

Japan has launched the International Clean Energy Network Using Hydrogen Conversion (WE-NET) Plan, a project that will allow countries blessed with renewable energy resources to cheaply produce hydrogen through electrolysis and use that hydrogen as a secondary energy source. The plan hopes to make a major contribution toward resolving energy and environmental issues that the entire world faces. Japan's New Energy and Industrial Technology Development Organization (NEDO) is running confirmation trials of a new thermal electric power plant running on methanol, a fuel that promises higher conversion efficiency.

Battery technologies that are started to attract market attention include secondary batteries, primary batteries, and solar batteries. The shift toward compact, portable information products has produced a demand for highly compact batteries. The markets for such secondary batteries as nickel hydride batteries and lithium ion batteries are beginning to grow rapidly. Primary lithium batteries are another growth market because of their potential as concentrate energy sources. Demand for lithium as a battery electrode material is also growing rapidly. Japan is putting great effort into the development of solar batteries for home power generation and power generation in remote areas and to making the batteries cheaper.

g. Transportation and traffic

In the field of sea transport, an experimental "techno super liner" will be completed in 1995 in Japan. With a top speed of 80 kilometers per hour and a loading capacity of 1,000 tons, the vessel will dramatically reduce the time it takes to travel between Japan and the rest of the world by sea. The liner is expected to begin regular operations by the year 2000.

Development of a superconductive linear motor car is under way as a new mode of land transport.

h. Others

Greater environmental awareness is causing many to focus on the development of electrical automobiles and decomposable plastic.

In Japan, a high population density is steering attention to the development of underground space. Underground pipelines for the disposal of waste and an underground distribution network have been examined. Japan's tunnel excavation technologies are among the world's best.

The textile industry, which is experiencing severe competition with developing nations, is fighting back with new technological development. Japanese textile

manufacturers have developed super-thin polyester materials (0.1 - 0.01 denier), which are being called new synthetic fibers. With these new textiles, Japanese manufacturers are producing fabrics with entirely new functions and quality than that offered by conventional synthetic fibers, while other Japanese textile manufacturers are developing scented materials.

(2) Trends of Argentina's industrial technologies

a. Research and Development investment

Table 3.3.18 Research and Development Investment by the Argentinean Government, 1993

(Million pesos)

R&D expenses	% of GDP	Number of workers involved in R&D (1,000)	
			Number of researchers (1,000)
1,251	0.49	25*	-

* The number of workers involved in R&D refers to employees of research institutions, which include both public and private facilities.

Source: Prepared based on Sistima Nacional de Ciencia y Technologia, *Industrializacion e Incorporacion de Progresso Tecnico en la Argentina*, and the Ministry of Economy and Public Works and Services, *Economic Report 1993*.

The proportion of research and development borne by the government as a percentage of GNP is 0.51% for Japan, 1.24% for the U.S.A., and 0.49% (GDP) for Argentina. Although Argentina's figure is close to that of Japan, the private sector's expenditures in Argentina are unknown. The government aims to raise the R&D expenditures to 1% of GNP, increasing the support for technological development.

b. Technological potential

Generally speaking, in countries that have made progress along the industrialization path, science and technology are themes that draw strong popular interest. Furthermore, comparatively larger segments of their populations have typically received specialized training in engineering-related fields. It is worthwhile here to examine the state of high-school education from these perspectives.

As Table 3.3.19 illustrates, Argentina compares closely with (West) Germany, Sweden, and Japan in terms of the percentage of all students enrolled in technical schools. That would seem to suggest Argentine students have a high level of interest in engineering fields. However, Table 3.3.19 also presents data on another useful indicator; human resources focused in technically oriented occupations. In this case, on a population-share basis, Argentina compares closely with Australia but is quite distant from Japan, Sweden, and other industrial countries. Among South American countries, Venezuela is on the upper end of the scale in this regard, at virtually the same level as Britain.

Table 3.3.19 Students in Engineering and Scientific and Technical Manpower

(1,000 persons)

	Students of Engineering (Education at the third level)			Scientific and Technical Manpower				
				Total			Potential Scientists and Engineers	Potential Technicians
	Year	Number	% of all Student	Year	Number	% of total population		
Argentina	1987	129.4	17.2	1991	1,134.0	3.5	630.0	504.0
Venezuela	1988	73.3	14.7	1991	2,102.8	9.6	943.0	1,159.8
Japan	1991	488.7	16.9	1987	13,627.0	11.2	8,672.0	4,955.0
China	1992	720.6	31.8	1988	9,661.0	0.9	-	-
Federal Republic of Germany	1991	354.3	19.0	1989	5,190.0	8.4	3,040.0	2,150.0
Sweden	1992	35.3	17.1	1992	982.9	11.4	468.2	514.8
United Kingdom	1991	205.4	14.9	1991	5,140.0	8.9	3,038.0	2,102.0
Australia	1992	43.6	7.8	1986	838.1	5.2	521.0	317.1

Note: Education at the third level.
(1) Programs leading to an award not equivalent to a first university degree.
(2) Programs leading to a first university degree of equivalent qualification.
(3) Programs leading to a postgraduate university degree of equivalent qualification.

Source: UNESCO, *Statistical Yearbook 1994.*

To make significant new inroads in the arena of industrialization, it seems to be imperative that Argentina devote more energy to the cultivation of technically proficient human resources. The Argentine government has already introduced programs aimed at lifting product quality and is in the process of strengthening the country's position in scientific and technological domains. Should it successfully combine those actions with work to cultivate well-trained human resources, Argentina can be expected to climb further up the industrialization ladder.

c. Industrial technology policies

Centering around the Presidencia de la Nacion Secretaria de Ciencia y Technologia, the government is promoting science and technology policies and increasing spending on R&D. The government is planning to eventually budget 1% of GDP for R&D. There are some 400 research institutes in Argentina, most of which are public facilities. The country plans to set national research and development goals and support R&D activities to achieve that goal.

Goals in R&D are different between the public sector and the industrial sector, but considering the necessity of increasing efficiency of R&D, it is important that both sectors maintain close relationships with each other. Some important issues to consider are the direction in which private companies are pushing their technological development, what kind of corporate activities they are trying to adopt, what their technological development systems are, and what expectations they have vis-a-vis the government.

Technological development requires considerable effort and time. Therefore, an industrial environment in which companies can carry out activities for an extended period is necessary for success.

d. Steps in the pursuit of quality

In striving to become more competitive in the industrial technology arena, keeping costs low and earning consumer trust by providing products of uniformly high-quality are more important than efforts to develop or introduce new technologies in the short term.

With the purpose of strengthening the international competitiveness of its products, in August 1994 the Argentine government adopted measures to improve product quality through the National Standards, Quality, and Certification System. The system comprises three levels. At the first level is the establishment of the National Standards, Quality, and Certification Council, namely, the high-level government institution responsible for administering the system itself. At the second level is a standards institution with the power to establish and revise industrial standards and with a reach that applies to international standards as well. All the officially sanctioned institutions within the system correspond to the third level.

By requiring certificates of quality for business transactions, the system provides a mechanism that encourages its application starting with a revision of national purchasing frameworks. The idea behind the adoption of this system is to boost quality, and its scope of application covers the certification of industrial processes, products, and services. It may be worth to study whether Argentina is fitted to use this system to promote, as quickly as possible, acceptance of the idea that improvements in quality translate into improved competitiveness, not just in deliveries to the public sector, but in the private-sector marketplace as well.

Japan to date has seen programs in quality control gain acceptance on a national scale; many companies in fact encourage their employees to play an active, independent role in the pursuit of quality enhancements. Corporate measures aimed at improving quality are considered to be more effective when top executives lead their promotion, and when the benefits are translated into hard currency terms.

e. Industrial technological capacity

Five fields are discussed below in relation to the industrial technological capacity of Argentina's manufacturing sector; machine-related technologies, raw material and material-related technologies, telecommunications-related technologies, electronics-related technologies, and heavy electric-related technologies. The

explanations are based on interviews with specialists familiar with industrial associations, companies and industries, as well as interviews with foreign manufacturing companies, information obtained from factory visits, and publication materials.

1) Machine-related technologies

The automobile industry is the current leader of this field. Foreign automobile makers are the most conspicuous. These foreign companies place orders for components with domestic automobile component manufacturers. At the same time, they process components themselves and assemble automobiles. As it is easy to import capital goods by national policies, foreign companies with large capital carry out high-speed, high-accuracy production using state-of-the-art facilities. Naturally, these companies bring their own production expertise from their countries.

In comparison to these companies, domestic companies carry out production at full capacity using antiquated facilities. These domestic companies are facing the issue of how to increase efficiency. It is unknown whether technological expertise in the automobile industry is disseminated.

Furthermore, the machine processing industry, which includes the production of machine tools, suffers from delays in investment in new production facilities and automation. This has weakened the competitiveness of this industry, resulting in a flood of low-priced, yet high performance imports.

Based on this, attracting foreign companies and instructing domestic companies to forge close relationship with them is the only way to improve the technological capacity of machine-related industries. Promoting tie-ups with overseas companies that have excellent technological capacities is also a possibility. Another way to improve production technologies is employing engineers at companies.

2) Raw material and material-related industries

Argentina's raw material and material-related industries such as petrochemicals, aluminum, iron, meet international technological standards because the country is rich in such natural resources as natural gas, oil and hydroelectric power. If state-of-the-art facilities were installed, products that meet a certain quality could be produced. However, the development of new products requires a different kind of technological capacity. Advances are so far limited to the improvement of product performance through plant modification or productivity improvement.

3) Telecommunications-related technologies

When the telephone business was privatized, two foreign companies, Telecom and Telefonica, began operating. As for hardware, digital exchanges are produced by foreign companies. As multimedia spreads on a global scale, it is important to focus on the development of various software designed to promote the utilization of multimedia.

4) Electronic-related technologies

The country has been producing audio, television and computer peripheral equipment, all of which are assembled with electronic components. Accordingly, an important point in this area is whether the country can produce electronic components, including semiconductors. There are companies that are producing condensers and resistance components, but it is difficult for them to mass produce these components with uniform quality. There are very few components that foreign electrical equipment manufacturers can use.

Looking at the technological trend in the world, the electronics industry is one of the key factors for industrial development. It is necessary to analyze how and in what direction Argentina can foster the electronics industry.

5) Power technology

The country is actively investing in power development, including the construction of hydraulic power stations by Yacyreta. There is a great demand for electrical equipment. Although German and French companies are involved in deals to produce some of Argentina's power cables and power transformation panels, such arrangements are uncommon.

The production of power transformation equipment and generators requires steel plates for heavy electrical applications. Although the steel industry is recognized as an export sector, materials such as stainless steel and silica steel plates are not produced. Materials must therefore be imported to manufacture electrical equipment domestically. This electrical equipment features technologies for which material characteristics are significant.

3.3.1.3 Major subsectors

(1) Iron and steel industry

The industry is mainly run by three integrated steel producers. Aceros Parana is a manufacturer of a flat sheet, while Siderca and Acindar are manufacturers of non-flat steel. Siderca concentrates its production on seamless pipe directed for the oil and gas

industry. Siderca and Acindar produce their steel products by a less capital intensive and flexible process called as direct reduction process whose biggest advantage is its use of natural gas in Argentina as a feed stock as well as an energy source. On the other hand, Aceros Parana produces its steel products by traditional blast furnace process.

The two non-flat steel makers hold competitiveness in price and quality in the world market. The source of their competitiveness is the availability of cheaper natural gas of less than US$3/MMBTU, technology of state of arts in direct reduction process and effect of the recent restructuring. The problem is weakness in arranging finance on favorable terms and conditions for importer. This is especially serious for Siderca. Further restructuring by an investment in new machinery and equipment and reduction in the number of employee seem to be necessary for the flat steel maker to hold competitiveness in the international market due to its relatively small scale.

The industry is an export-oriented industry where the ratio of export to production was 32% in 1993. Siderca exports around 80% of its products to all over the world. Asia is the biggest market for them with a 28% share of its total exports in 1992. Shapes, sheet, and primary forms of steel are also exported to Asian countries as well as to the U.S.A. and neighboring Latin American countries. This means that the industry with direct reduction process holds export competitiveness in the world market.

The demand and supply balance for steel products in Asia is expected to remain in a tight position excluding Japan in the future. Since it has already established sales networks in the Asian region, the industry will be able to expand its export to Asia if it makes the most use of advantages of direct reduction process and continues to follow a business strategy of concentrating its products on niche markets by differentiation and specialization. Institutional support for finance will contribute to the acceleration of export expansion. A bottleneck for export expansion is the industry's limited export capacity that resulted from the limited number of potential exporters. Direct investment can be considered for exporting to the U.S.A. or MERCOSUR countries, making the use of the advantage of direct reduction process.

(2) Aluminum industry

The industry consists of three segments; smelters, remelters, and semi-finished product manufacturers. There exists only one smelter, Aluar. There exist some remelters, but Uboldi leads the industry with a 65% share. The number of semi-finished product manufacturers is quite large, but C&K Alumino leads the market with a 60% share.

The smelter's technology is a state of art, but it is not easy to maintain competitiveness not only in external markets but also in the domestic market due to its relatively small size. Brazil is a potential competitor. The situation is almost the same for a remelter and a semi-finished product producer. Only majors can hold competitiveness due to their state of art technology and management know-how supplied from their multi-national parent companies and the availability of raw materials at an international price level. Others face fierce competition from Brazil owing to a difference in production costs between Argentina and Brazil which is attributable to the difference in the labor cost.

The industry is an export-oriented industry where the ratio of export to production was 60% in 1993. Major export products are ingot and aluminum alloy. Around 40% of exports are directed to Asia. The industry has already established export networks in Asia.

The Asian region is a net importer of aluminum ingot. This situation is expected to continue in the future. There is a chance for Argentina to expand its export. Australia, Canada, and the U.S.A. are strong competitors to Argentina. However, as far as the Asian market maintains current economic growth and Argentina can continue to supply ingot at the international price, it is not difficult for Argentina to keep some share of the growing market. Furthermore, it is considered that importers will seek to diversify supply sources. The possibility of export expansion depends solely on the smelter's export capacity. In the remelter, there is a possibility of export expansion in an area of a specialized ferro-alloy aluminum products supplied with a small batch.

There are some favorable factors for attracting direct investment such as the establishment of MERCOSUR and high growth in domestic demand led by the automobile and construction sectors. However, considering the excess capacities in Brazil and the huge investment cost for a new smelting plant, it will be difficult to expect a grass-root investment in smelting business in the short term. It is a theme to be discussed in a medium- or long-term framework.

(3) Pulp and paper industry

The industry is led by seven companies. Their share of production capacity for pulp in total is almost 100%, while their share of production capacity for paper products is 50%. Among these seven companies, Alto Parana is only one non-integrated pulp manufacturer with a production capacity of 300,000 tons/year and an exporter of pulp.

The Argentine pulp industry has potential competitiveness in the world market. Sources of competitiveness are its abundant forest resources and the low cost of forest development. A problem is that the high interest rate in Argentina hurts its competitiveness. Due to the basic nature of a capital-intensive industry, capital costs to the industry are generally high. The competitiveness of the paper industry is deteriorating against Brazil and Chile due to usage of old machinery and equipment.

Reflecting a stagnant production of papers and stagnant domestic demand for pulp, export of pulp shows an remarkable increase. As a result, the ratio of export to production of pulp increased to 21% in 1993. The industry is an export-oriented industry. The percentage share of the export in total world export of pulp is 0.2-0.4%. Though its position is not so dramatic, Argentina is a regular exporter of pulp in the world market. Destinations of export show a variety and Japan is one of major buyers together with France and Belgium.

There exists a high possibility of export expansion of pulp to the Asian market for several reasons. First, the Asian market is a net importer of pulp and the situation is expected to persist in future, too. Especially, the demand and supply situation for soft wood pulp will be continuously tight. Second, Argentina holds potentially more advantage in forest development than its competitors such as Brazil and Chile. Third, Argentine pulp industry is an export industry and has established its export networks.

Problems are its export capacity for pulp and strengthening of its competitiveness. The limited number of pulp exporters will pose a bottleneck for the export expansion. To be competitive against Argentina's competitors, it will be necessary to develop forest resources in a framework of a long term and target-oriented plan. There will be few possibilities of export expansion to the Asian market for such a bulky and commodity type of paper products as newsprint and tissue paper due to a high transportation cost. Only a special paper such as a coated paper has a possibility but export to MERCOSUR will be given a priority.

Investment for expansion of production capacity for pulp can be expected. Investment in an area of special paper is also expected if it caters for not only domestic demand but also for Brazilian market under MERCOSUR concept.

(4) Cement industry

The industry is run by five manufacturers operating on 16 plants. Export demand is not counted as an important outlet of domestic production as is shown in a

figure of less than 3% of the ratio of export in production. This stems from a special feature of the industry that cement is usually produced near consumption areas and is not a highly tradable good. Export occurs only in the border area between Argentina and other MERCOSUR member countries or Chile. The industry can hold its competitiveness in the domestic market for the reason.

The demand and supply situation for cement in the Asian market is a little bit tight reflecting the high economic growth in the region. The situation will not largely change in the future. The tightness will be intensified if China can not build up production capacity at the same pace of an expansion of the domestic demand. However, it is not realistic to consider that a portion of this excess demand is absorbed by export from Argentina because of its prohibitively high freight cost between Argentina and the region. Considering the excess capacity prevailing both in Argentina and its neighboring countries, the possibility of direct investment from the Asian countries is very small.

(5) Petroleum refinery

Though seven companies are engaged in the refining of petroleum, three of them, YPF, Shell, and Esso, are major players with a 90% market share altogether. As the industry is characteristically located near consumption area, international trade is not so frequent except such a case of export refinery in Singapore. Trade of petroleum products is generally seen in the case that refined products do not meet s the demand pattern in a consumed market. In Argentina, the refineries can produce products in line with the domestic demand pattern by applying special technology. The industry can keep its competitiveness in the domestic market. The source of its competitiveness is the availability of crude oil, first class technology, and the effect of rationalization by privatization and restructuring.

As far as petroleum product is concerned, there is few possibilities of export expansion to the Asian market. However, the possibility of export of crude oil is worthy to study since Argentina has proven reserves of 1.6 billion barrels of oil. In studying the possibility, it will be necessary to study simultaneously the possibility of upgrading of the capacity of loading facilities in Chile. It is because the most efficient way of exporting from Argentina to the Asian market is to utilize the existing oil pipeline running between Argentina and Chile and to connect it to a port facility. Considering the excess capacity of the existing refineries and the current industrial structure consisting of YPF and two majors, grass-root direct investment by Asian countries can not be expected.

(6) Petrochemical industry

There exist four ethylene plants in Argentina. The biggest one is Petroquimica Bahia Blanca producing ethylene of 245,000 tons per year on ethane cracking. Other three plants produce ethylene consuming propane or LPG or naphtha and propane as feed stock, but their production amount is only 65,000 tons per year altogether. There are two aromatic plants operated by Pasa Petroquimica and YPF. The former also produces raw materials for SBR rubber. However, there is no plant producing raw materials for synthetic fibers.

The petrochemical industry has an advantage that cheap natural gas is available. Further, it makes a great effort of restructuring their business and downsizing the number of their employee. However, it is not easy for the industry to maintain its competitiveness due to its relatively small scale and a hike in the labor cost, even in the domestic market. In external markets, in addition to the disadvantage of its small scale, the industry will have to face a fact that its competitor's advantage in the availability of cheaper ethane is bigger than Argentina's.

Due to a limitation in production capacity, some of increases in domestic demand for the industry is absorbed by increased imports. For the same reason, export shows a drastic decrease. These tendencies are especially remarkable for final products as shown in the change of its ratio of import in domestic demand from 26% in 1990 to 47% in 1993 and the ratio of export to production from 29% to 14% in the same period.

Possibility of export expansion to the Asian market is not high for two reasons. One is a lack of export capacity as is seen typically in ethylene. Only one exception is polypropylene, and due to an excess capacity a certain portion of the production is currently exported to China and Hong Kong. However, the export is only on a spot basis. The other reason is the demand and supply situation in the Asian market which is expected to turn to a loose position. Price competitiveness will become a determinant factor for export expansion. Argentine petrochemical industry has an advantage of cheap feed stock for petrochemicals, that is to say, natural gas. However, the price of ethane is higher than that in such a competitor as Saudi Arabia. The price of ethane is US$110/ton in Argentina, while it is only US$20 in Saudi Arabia. This difference is crucial because the cost of ethane represents for 80% of the variable cost of producing ethylene.

Grass-root direct investment for basic petrochemicals seems to be difficult when the growth rate in domestic demand and the current import level are considered. On the

other hand, in some area of derivatives such as PVC, a new investment may be expected since current production capacity is not enough to meet the domestic demand.

(7) Pharmaceutical industry

Though the number of establishments engaged in the industry is not small, the top 20 companies lead the market with a 54% market share altogether. Most of them have a license production agreement with famous multi-national companies such as Merk, Smithkline Beecham, and Glaxo. Some of these multi-national companies have also production facilities in Argentina.

Top companies are competitive in the domestic market because they are provided with licenses from international pharmaceutical companies. However, they do not yet hold competitiveness in external markets because they have been depending on license production and are not yet strong enough to develop their own products.

Exports was US$106 million in 1992 and main destinations were Paraguay, Uruguay, and Chile. Export to the Asian market by multi-national companies operating in Argentina can not be expected because these companies already established their business bases in those countries. The possibility of export by domestic-capital companies depends on their ability to develop their own products which are irrelevant to license production. Even in the case, license production in Asian countries will be sought as a first step.

Under the current market situation in Argentina, where many multi-national companies and influential national companies compete and a substantial part of the market is shared among them, it is not easy for Asian investors to participate in the market. The supply of production license to a national company may be more realistic as a first step for direct investment from Asian countries. The formation of MERCOSUR provides a new comer with an opportunity to participate in the Argentine market.

(8) Personal care product industry

More than 100 companies are engaged in the industry and compete with each other and with imported products. Market leaders are affiliates or subsidiaries of multi-national companies. They have established strong brands, i.e., images for their products, through intensive advertisement. A brand image is very important for the penetration of products into a market. While leading companies with multi-national

brands hold competitiveness in the domestic market, small-sized companies without a multi-national brand are competitive only in a segmented market.

Exports amounted to US$37 million in 1993. Major export products are hair care products and cream which are relatively low-priced items. Main destinations are Paraguay, Brazil, and Uruguay with a 87% share altogether. The industry is competitive against similar industries in neighboring countries. Exports to the Asian market are negligible.

There are very few possibilities of export expansion to Asia because the price of exportable products is too low to absorb the freight cost. Luxurious and expensive products such as perfume are supplied from Asian affiliates or subsidiaries of multi-national companies located in Asia. There are very few possibilities for direct investment from the Asian region, because an Asian brand has no presence in the Argentine market at the moment and it will take a long time to establish presence.

(9) Metal and wood working machinery industry

Around 100 enterprises are engaged in the manufacturing of metal and wood working machinery. These enterprises vary in size from medium to small. There does not exist a concentration in the market by a small number of companies. However, there are leading companies in each specific product area. Domestic demand has shown a sharp increase since 1990 due to the expansion of the automobile sector. However, major gainers from the increase in demand are not local producers but exporters to Argentina. The ratio of import to domestic demand reached 80% in 1993.

An increase in imports from industrial countries like Italy and Germany dose not pose a problem because Argentina can not compete with them. A problem is that Argentina is losing its competitiveness against China, Korea, Taiwan, and Brazil. The deterioration of competitiveness is due to a wide difference in the labor cost between China or Brazil and Argentina. Another factor is the current structure of import duty, that is, machinery can be imported without duty, while electronics parts locally unavailable are imported with a 25% tariff.[1] To regain competitiveness, the industry is required to restructure itself and improve technology with which the industry can concentrate on the production of special and higher value-added products.

The industry was originally an export-oriented industry. However, the ratio of export to production was 36% in 1993, while it was 66% in 1989. The ratio is currently

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1 Recently, the import duty on capital goods has been raised to 10%.

rising again, but it is mainly because some companies, facing an upsurge in imports, are making desperate efforts to develop export markets. Major destinations are the U.S.A., Chile, and Brazil. Export to the Asian market is negligible. Considering that the industry has exported to the U.S.A., if the industry is well restructured and takes appropriate business strategies, there will be a possibility of export expansion to the Asian market in some specific product areas. Direct investment for restructuring could be considered. New investment will cater for demand from the automobile sector not only in Argentina but also in other MERCOSUR countries.

(10) Food processing equipment industry

Establishments engaged in the industry concentrate in Mendoza. Six companies in the province lead the industry. In spite of the current favorable business climate, the industry faces two severe business conditions. One is weak demand from their major customer industries such as wineries and food processing companies. The other is an increase in imports, especially from Italy, backed by favorable finance. To survive under the serious situation, the industry geared to export markets instead of the domestic market.

The industry has potential competitiveness not only in the domestic market but also in external markets. The sources of competitiveness are the availability of qualified skilled labor and its location near user industries. The ratio of export in total sales accounts for 40-60% in most of the leading companies. Their export covers various countries from Brazil, Chile, and Colombia to the U.S.A., Canada, and Italy. Their clients include such world companies as Campbell Soup and Cargill. Argentine products are competitive even with Italian products in price and quality. They have three weak points. First, though their technology is not at a low level, they still depend on foreign technologies such as Italian ones. Their brand image is far behind that of Italy in the international market. Second, though they need investment for obtaining updated technology and improving productivity, they lack financial resources for such investment. Third, the Argentine industry is far behind foreign suppliers in arranging favorable financial terms and conditions for clients.

Considering their features and past export performance and experience based on the concepts of "niches," "small batch," "specialization," and "use of qualified people," there is a possibility of export expansion to the Asian market. However, to do so, appropriate institutional support is needed in R&D activity and the arrangement of better export finance. Possibility of direct investment from Asian countries will be a theme to be discussed in a medium- to long-term framework because industries in Asian

countries are not always competitive against Argentine or Italian companies. However, technical cooperation in quality control and factory management is worthy to consider.

(11) Household appliances industry

Gas appliances such as gas tables, ovens, heaters, and water heaters are manufactured by 15 to 20 manufacturers. Some portion of their products are exported to Bolivia, Paraguay, and Uruguay where local manufacturer of the products does not exist. However, the amount is small. It is not easy for the industry to keep its competitiveness vis-a-vis Brazil even in the domestic market. High production costs and low productivity in Argentina are main reasons. There is little possibility of export expansion to the Asian market because the industry dose not hold competitiveness due to its small production volume and these products are generally manufactured near consuming areas, taking account of safety standards, housing conditions, and life style specific to the area. There is little possibility of direct investment from Asia because of small-sized market and excess production capacity in Argentina.

Around 600 establishments are engaged in manufacturing electrical and electronics household appliances such as refrigerators, washing machines, color-TVs, and VTRs. Electronic products are produced by importing basic and core components, while white goods are produced by using locally manufactured components only with an exception of compressors. Since international manufacturers provide technology and management skills, the industry can keep its competitiveness in the local market. There is little possibility of export to the Asian market because there is no local component supplier. Asia is a worldwide production base of these products. There is a possibility of direct investment from Asian countries which take the development of MERCOSUR markets into account.

(12) Automotive industry

There exist eight car assemblers in Argentina, three for passenger cars and light commercial vehicles and five for trucks and buses. They assemble U.S. or European brand cars. They also manufacture such major components and parts as engines, stamping products, transmissions, and gear boxes incorporated into their assembled cars within their assembly plants or in their subsidiaries or affiliates. The percentage of components manufactured by them in total consumption is 40 to 45%. There exist around 400 independent autoparts suppliers. Establishment with more than 100 employees accounts for 20% of the total, while establishments with less than 100 employees represents 80% of the total.

Business environment of the industry has completely changed since a new policy was announced under Decree 2677/91 in 1991. The new policy aims to achieve international levels of quality, price, and economy of scale and to promote the autoparts industry and its export by exposing the industry gradually to the international market. To achieve these purposes, four measures were taken. The local content ratio was lowered to 60% from 80%. When the industry consumes imported autoparts, it is required to compensate the trade balance with their exportation of assembled cars or components. Import duty was set as low as 2%. New principles were set for the importation of built-up units including an allowance for importation by individuals.

The implication of these measures is profound. With a lowering local content ratio, car assemblers can produce a car at smaller costs than before. The importation of built-up units by car assemblers at very low import duty will make it easier for assemblers to reduce the number of models and versions since complementation among their parent and sister companies becomes easier. A reduction in the number of models and versions will lower production costs for assembly. Importation by individuals will press the local assemblers to lower prices of locally assembled cars.

Under the policy framework, the industry is competitive in the local market. Sources of competitiveness are technology transfer including management know-how from their multi-national parent companies, their efforts to improve productivity, and the favorable market conditions. However, the industry does not hold competitiveness in external markets due to a relative small production scale. The domestic price is said to be still 15% higher than international price. As for the autoparts industry, except multi-national companies, most of autoparts manufacturers are less competitive because they are behind the international standard in technology and management skills. Such a situation was a result of that they have lived in a closed market for many years and were not exposed to international competition and a high level of technology.

Under the compensation program and complementation scheme, export increased remarkably both for assembled cars and parts. A main destination of export of assembled cars is Brazil with a 82% share in total exports, while autoparts are more widely exported to Brazil, Germany, Uruguay, France, Chile, and the U.S.A. Possibility of export to Asian markets will be a theme to be discussed in a medium- to long-term framework. It will be realized only when local assemblers develop and manufacture a new type of car directed not only to MERCOSUR but also all over the world or accelerate complementation among their world networks. There is little possibility of exporting autoparts to Asian markets except for some special products which are produced for complementation for a after-sale market or a special purpose.

There is a possibility of direct investment for developing and manufacturing a "MERCOSUR car". Direct investment in assembly plants will be necessarily accompanied by investment in certain autoparts production. Independent investment in autoparts production can be also expected when potential of the future development of automotive industries in MERCOSUR and shortage of excellent autoparts suppliers are taken into account.

(13) Tire industry

The industry is run by four companies. Among these, three are of U.S., European, and Japanese origin, respectively and only one company is of Argentine origin. The industrial structure seems to be oligapolistic but competition among four companies is fierce and is intensified by the increase in imports. The industry holds its competitiveness in the local market. Sources of competitiveness are technology transfer including management skills from their parent companies, efforts to improve its productivity by aggressive investment in machinery, and accelerated complementation among neighboring countries.

The ratio of export to production was 12% in 1993. Main destinations of export were Latin American countries and the U.S.A. The reason why imports increased so much in spite of the industry's competitiveness in the local market is explained by active complementation by makers and a lack of production capacity under a fast growing market situation. Those multi-national companies in Argentina take a policy of division of labor among counties in the American continent by supplying some special types of products to their sister companies in other countries and receiving another special types of products from these sister companies. This is a complementary exchange of products. As a result, the industry's dependence on import is also high as indicated by the parentage of import in total domestic demand, namely, 24%.

It will be difficult to expect the multi-national companies to export to the Asian market because they have their production bases in the region. There is a possibility for the non-multi-national company to export to the region since the company has a great experience in exporting retread tires to European countries. There are few possibilities for an Asian company to enter into the market through grass root investment when the current industrial structure is considered.

(14) Tractors and agricultural machinery industry

Three manufacturers and three importers are engaged in the industry. All of three manufacturers are multi-national companies of American or German origin and are engaged in importation business as well. Domestic demand has shown a recovery since 1991 but the level is far below the past record. The realized market size is far below the potential size because average Argentine farmers can not afford to replace their old tractors by new ones with their current earnings from agricultural operation. The industry has potential competitiveness. The source of competitiveness is their technology provided by their parent companies. However, due to the limited domestic demand and a lowered import tariff from 15% to zero, the industry can not materialize its potential competitiveness.

Imports have increased since1991 and the ratio of import to domestic demand reached 33% in 1993 by two factors. First, import duty was lowered to zero from 15% for capital goods including tractors. Second, facing the stagnant domestic demand, local manufacturers have begun to take a strategy of outsourcing of finished products, kits, and components from their sister companies in other countries for the purpose of improving productivity in their factories and making their operation more efficient. Exports are negligible. Destinations of export and origin of import for outsourcing are mainly Brazil, the U.S.A. and U.K., where the Argentine manufacturers have their parent or sister companies.

There is little possibility of export to the Asian market because tractors developed and produced in Argentina do not fit small-scale farming, which is dominant in most Asian countries. There is little possibility of direct investment from Asian countries because of excess capacity in Argentina and less competitiveness of Asian products.

(15) Meat processing industry

The industry slaughters cattle and produce various types of meat products ranging from child cuts and frozen cuts to canned products and cooked products. While the domestic market is shared by a quite large number of small meat packers, only a small number of companies are exporting.

The industry holds its competitiveness not only in the domestic market but also in external markets. Sources of competitiveness are abundant natural resources, good quality, and low production costs. Argentina's competitors are Australia, New Zealand, and the U.S.A. Argentina can compete with these countries in the production of both

cattle and fresh meat due to its lower labor cost. A problem is the incidence of the foot and mouth disease (FMD).

Exports of the industry recorded US$600 million in 1993. Chilled cuts were exported mainly to European countries including Germany, U.K., Netherlands, and Belgium, while frozen cuts were directed to more countries from Chile, Hong Kong, Singapore, and European countries to Israel and Brazil. Canned and cooked products were exported largely to the U.S.A. and U.K.

Exports to the Asian market are not large due to the FMD problem. However, if countries taking the zero risk concept, such as Japan and Korea, change their import policy for meat, there will be a high possibility of export expansion to the Asian market. It is because demand for beef is expanding with an increase in income in the Asian market and changing habit of eating. There is a good sign that Argentine meat has just begun to penetrate into the market in Singapore and Malaysia, where the European concept for FMD is taken . Direct investment by importers of raw meat in Singapore or Malaysia can be expected.

(16) Dairy products industry

The number of dairy farmers and dairy products producers were estimated to be 22,000 and 750 in 1992, respectively. Among a quite large number of establishments, several companies and organizations lead the industry and the market. Major products are cheese, powdered milk and butter. Argentina is a net exporter of dairy products, though the balance was reversed in 1992 and 1993 due to high domestic demand and a shortage of export capacity. Since the industry can increase its production capacity through improvement in productivity, the balance will again turn to a net exporter's position in a few years. Principal export markets are Brazil and the U.S.A. for cheese and Brazil and Algeria for powdered milk and butter.

The industry holds competitiveness not only in the domestic market but also in external markets. The source of competitiveness is the availability of a low cost material, milk, which is attributable to ecological factors of the pampas region and excellent genetics. However, an unfavorable factor in the industry is the high ratio of labor cost in total cost brought about by inactive investment in automation in the past. Export subsidies provided by competitors' governments also offset the Argentine advantage completely. In addition, most of importing countries set import quotas. Japan is one of exceptional countries that do not set any import quota. However, for that reason, competition is intensified in the Japanese market and it is difficult to make

a profit from export to Japan. Though demand for dairy products is increasing remarkably in Indonesia and Thailand, export to these countries from Argentina is not so easy because of a high freight cost, especially in a time when the international price of dairy products is low. There is little possibility of direct investment from Asian countries because they are behind Argentina in technology and experience.

(17) Wine industry

There are two types of wine, i.e., table wine and fine wine. The ratio of fine wine consumption in total wine consumption is around 20%, while the remaining 80% is table wine consumption. In the area of fine wine, there exist many small wineries focusing their production on only fine wine. In the area of table wine, among many establishments, only four companies hold a 90 % share in the market. These four produce fine wine, too. The industry has potential competitiveness in both the local and international markets with raw materials of good quality. A problem is less penetration of their brands in external markets.

Wine is exported in the forms of grape concentrate, bulk wine, and bottled wine. Total exports under these categories recorded US$40 million in 1992. Main destinations are Paraguay, the U.S.A., Japan, and Chile. Asian countries are not wine consumers basically, but their consumption is gradually increasing not only in Japan, where income level is high and life style and eating habit are westernized, but also in such a country as Thailand. Argentine brands have not yet well penetrated into the Asian market unlike French, Italian, or Californian wine and it probably takes a long time for penetration. Possibility of export expansion in a short term exists only in grape concentrate and bulk wine. There is a possibility of direct investment from Asian countries for securing grape concentrate or bulk wine.

(18) Beer industry

Though the industry is run by nine companies, a 80% market share is held only by one business group, Quilmes Group, which consists of three companies. The percentage of canned beer consumption in total beer consumption is still only 3% and half of the 3% is imported. Malt, one of raw materials for beer, is produced by six companies. While most of them are breweries producing for their self-consumption, there exists an export-oriented malt company which is an international joint venture among an Argentine company, a Canadian company, and a Brazilian company.

Beer is not a tradable good except canned beer. Furthermore, beer is one of products whose brand image is very important for sales. It will take a long time for the

industry to export Argentine beer to the Asian market because Argentine brands have not yet penetrated in the world market. Exporting malt to the Asian market seems to have a great export potential for the following three reasons. First, Argentina can crop barley that yields good quality malt. Second, there exists a big market. Japan is one of the biggest importers, as well as Brazil and China. Third, major importers such as Japan take a diversification strategy for sources of malt. A problem is a transportation cost. Under the current transportation mode and method, transportation cost to the Asian market reaches one third of the price of malt.

Asian branded beer is not yet widely known in Argentina. Direct investment from Asian countries for the substitution of export can not be expected in a short term. The possibility of investment for "development and import" arrangement by Japanese breweries or merchandisers is worth studying. Direct investment in malt production will be conceivable when malt is imported from Argentina but importers begin to feel the instability of supply from Argentina.

(19) Non-alcoholic beverage industry

Though the number of establishments is quite large, two groups, Coca-Cola and Pepsi-Cola, hold a 96% market share altogether. Each of the two groups produces not only Coca-Cola or Pepsi-Cola branded products but also its own brand products in such areas as fruit juice and mineral water, though the combined share of these products in their total sales is 15%, respectively. The two groups hold their competitiveness in the local market by the protection of their famous brand. Their own branded products are not so competitive as to be exported to external markets. The remaining 4% of the non-alcoholic beverage market is held by small- and medium-sized companies who deal only local branded products.

Export by the Coca-Cola and Pepsi-Cola group companies to the Asian market is limited to their own branded products since their business territories are determined under a license agreement with their parent companies and they are not allowed to sell their products with Coca-Cola or Pepsi-Cola brand beyond the territory. The export of their own branded products may be difficult under the little penetration of those brands in the Asian market. However, there is a high possibility of export expansion in the area of concentrated fruit juice. As for direct investment, possibility solely depends on whether the investor can develop a new brand product which can beat Coca-Cola or Pepsi-Cola branded products in Argentina. It will not be so easy. Since Argentina is abundant in agricultural resources including fruits, direct investment for "development and import" arrangement can be expected.

(20) Food industry

The industry manufacturers edible oil, wheat products, and other food products. The industry has potential competitiveness not only in the local market but also in external markets. The main source of competitiveness is abundant agricultural resources. However, the industry can not make best use of the advantage for such problems as high internal costs, high prices of agricultural products consumed as raw materials, and underdevelopment of the packaging industry. A leading company like Molinos can overcome these problems by integrating the production from raw materials and packages to final products and improving their productivity. Actually, the company exports around 20% of their products, though its principal export markets are Latin American countries. However, it is difficult for many small- and medium-sized companies to solve these problems by themselves and to increase their exports.

Exports to the Asian market by the industry are negligible. The industry is interested in exporting to the Asian market but they seem to be busy expanding export to MERCOSUR at the moment. Human resources are too limited for developing both the MERCOSUR and Asian markets simultaneously. To enter the Asian market, it is necessary for the industry to establish strong international brands which can compete with their competitors such as Italian companies in addition to solving the above problems. This is not so easy even for leading companies. Most Asian technologies seem to be behind that of Argentina in the areas of edible oil and wheat products. There are few possibilities for direct investment from Asian countries.

(21) Confectionery industry

The industry manufacturers cookies and cakes as well as biscuits and chocolates. While the number of establishments in the industry is quite large, a few companies including one multi-national company lead the market. Even for the leading companies, exports are still at a low level, i.e., only 5-6% of total production, because their brands do not yet penetrate all over the world. 70% of exports are directed to the Latin American market. Exports to the Asian market are negligible. Export expansion to the Asian market will become feasible when the industry establishes their international brands. The industry is busy with formulating MERCOSUR strategies and the Asian market seems to be out of their scope. Considering the availability of raw materials of good quality, direct investment by companies with international brands is possible. The investment will cater for not only the Argentine market but also the MERCOSUR market.

(22) Cigarettes industry

Two companies, Massalin Particilares and Nobleza-Piccardo, manufacture almost 100% of cigarettes consumed in Argentina. Massalin manufactures Philip Morris's branded cigarettes under a license agreement with Philip Morris, while Nobleza manufacturers BAT's branded cigarettes under a license agreement with BAT. These two companies hold competitiveness in the local market. Sources of competitiveness are their technology provided by Philip Morris and BAT and continuous efforts to improve productivity. However, they are not optimistic about competition with Brazil because with the establishment of MERCOSUR, they are compelled to compete with their sister companies in Brazil, struggling for a leading position in the region. They are not yet competitive in external markets because they have not yet established their own brands.

Argentina is one of exporters of worldwide pre-industrial, or unmanufactured, tobacco. Argentina's exports of the product reached US$142 million in 1992 and the share in world total exports was 2.4%. Major destinations were the U.S.A., U.K., and Germany. There is a possibility of expanding the export of pre-industrial tobacco to the Asian market since Argentine products are competitive in terms of quality vis-a-vis products of Brazil and the U.S.A., major exporters. There are two problems. One is the high production costs which are attributable to low productivity in farming and cropping operations of tobacco farmers. The other is a low profile as an exporter in external markets. This stems from the small volume of Argentine supply compared to its competitors such as Brazil. There is little possibility of direct investment from Asian countries when the market structure and strong competitiveness of Argentine companies are taken into account.

(23) Textile industry

With all downsizing of the industry in the process of restructuring, it still creates a large number of jobs. In terms of employment, therefore, this industry is still an important industry. The industry can not hold competitiveness in the area of products for which the labor cost is a determinant factor for competitiveness. The industry is only competitive in the areas of specialized products. However, only multi-national companies are capable of developing those products.

Domestic demand for textiles has expanded due to the economic stability and an increase in the purchasing power of households. The expansion can also be explained by that the country's textile consumption was previously at a relatively low level. However, a substantial part of the expansion was filled by import. In synthetic fibers

and yarns, for example, 42% of the domestic demand was supplied by import in 1993. The ratio of export to production reached 30% in 1993 as the industry was forced to find an outlet of their special products in external markets, faced with increased imports of ordinal products. The industry was inevitably transformed to "export-oriented industry." Major destinations of their exports are Latin American markets, mainly to Brazil. Some of the increase in exports is attributable to complementation within Latin American countries by multi-national companies.

Possibility of export expansion to the Asian market will exist only in the area of specialized products. However, it is not so easy to find such a product and its export expansion requires technology. Multi-national companies in Argentina have the capability of developing such a product and are moving in that direction. However, they have their own production bases in the Asian market and, therefore, they will not export these products from Argentina to the Asian market. There is little possibility of direct investment from Asian countries because of Argentina's relatively high labor costs, though the country produces a wide range of raw materials for textile production such as cotton and wool.

(24) Tanneries

While more than 150 establishments are engaged in leather production, around 95% of total sales is accounted for by 60 member-companies of the Camara de la Industria Curtidora Argentina, an association of the industry.

The industry holds strong competitiveness in both local and external markets. Source of competitiveness are low production costs, good quality, and export capacity based on abundant resources. One problem is limitations of the production volume of tanned leather. The volume is determined by the number of cattle slaughtered for meat production, which is currently around 12 million heads per annum but has been in a declining trend in recent years.

Around 80% of the industry's sales come from export to 60 countries all over the world. Argentina is the biggest exporter in the world with a 6% share of total world exports. The industry is a typical export-oriented industry. Argentina's principal export markets are the U.S.A., Italy, Hong Kong, Brazil, and Canada. Asian countries as a whole account for 24% . As for direct investment from Asian countries, there are few possibilities because the Argentine industry has sufficient capital and technology.

(25) Footwear industry

While a quite large number of establishments are involved in the industry, three companies lead the market. They are Gatic, which is manufacturing Adidas, New Balance, and Freeman branded shoes, Alpagatas, which is manufacturing Nike and Topper branded shoes, and Panam, which is importing Reebok branded shoes. They hold their competitiveness not only in the local market but also in neighboring markets. Sources of competitiveness are the availability of qualified and skilled labor, the availability of leather of good quality, their technology, international brands, integrated production from tannery and manufacturing of fabrics to shoe making, and cost reduction efforts by outsourcing, mainly from China, Korea, and Taiwan. To be competitive in external markets, they are required to have the capability of developing their own brands. Other companies are not able to maintain their competitiveness even in the local market because of the difference in labor costs between Argentina and Asian countries.

The industry's exports were US$26 million in 1992. Major destinations were the U.S.A., Paraguay, and Bolivia. Exports to the Asian market are negligible. Export expansion to the Asian market is not so easy for the following reasons. First, the number of potential exporters is limited at the moment. Second, even existing potential exporters have to develop a strong own brand. Third, the Asian region is the biggest footwear production center in the world. Many Asian countries are major exporters of footwear and it is difficult for Argentina to compete with them because of their low labor costs. A possibility will exist in outsourcing of a middle or high quality products from industrial countries like Japan. As for direct investment from Asian countries, there may exist a possibility of investment from a company which has a well-known international brand and is seeking opportunities in MERCOSUR. The availability of skilled labor and leather of good quality will be an advantage for such investment.

(26) Shoes industry

The industry is defined as a leather shoe industry. Leather shoes accounts for 45% of total shoe sales in Argentina. Most of the establishments in the industry are small-sized companies employing less than 50 people. Grimoldi, which is employing around 870 people, is an exceptional case.

The industry is potentially competitive. Sources of competitiveness are an availability of skilled labor and leather of good quality. However, in the current products area, it is difficult for them, except some big concerns, to keep competitiveness even in the local market for the following two reasons. One is a wide difference in

labor costs between Argentina and world exporters, mainly Asian countries and Brazil. The other is lower productivity. In order to improve productivity, new investment in machinery is necessary, but the number of companies that can afford to make new investment is limited because financial resources for investment are limited to small-sized company. To revive the Argentine traditional industry, the formulation of an appropriate market segmentation strategy and the improvement of productivity are indispensable. The ratio of import to domestic demand reached 26% in 1993, while the ratio of export to production was only 4% in the same year. Major destinations of export were Latin American countries and the U.S.A.

The industry's primary concern lies on how to do with a mounting threat of increasing imports from Asian countries and Brazil as well as how to challenge the enlarging market of MERCOSUR. As for export to the Asian market, the export of products of average quality is not feasible because China, Korea, and Taiwan hold competitiveness in terms of production costs. Possibility exists only in the case that a powerful merchandiser in the region work as a middleman between Argentine shoe makers and Asian consumers and distribute their products in the Asian market, using merchandiser's brand. Mass production of low quality shoes is not fit for Argentina. There is little possibility of direct investment except license production.

(27) Leather goods industry

Around 240 companies join in Camara Industrial De Las Manufacturas Del Cuero y Afines De La Republica Argentina, an association of the industry. They cover half of total establishments of the industry. Most of the companies are small- or medium-sized with 10-60 employees. Major products are handbags, belts, wallets, and leather jackets. With all the advantage of availability of good quality leather and good production technology, it is not easy for the industry to keep its competitiveness even in the local market. It is because the industry can not compete with cheap products from China. To survive under such a situation, the industry is required to find an outlet of their products in external markets and take a strategy of segmenting the markets by producing higher quality products which China can not produce.

While domestic demand shows a declining trend, imports are surging up. As a result, the ratio of import to domestic demand is expected to increase up to 24% in 1994. Facing the increase in imports, the industry has tried to expand exports. Exports dramatically increased to US$89 million in 1993 from US$51 million in 1992. Principal export markets are the U.S.A. and Germany. Their exported products are sold under the buyer's or store's brand instead of the manufacturer's brand.

There is possibility of export expansion to the Asian market since their products have been accepted with good reputations in such sophisticated markets as the U.S.A. or Germany. As Asian countries are also world major exporters of leather goods, a deliberate marketing strategy is needed for Argentina's export promotion for the region. It is recommended to use buyers' or stores' brands because it will take much time and costly for the industry to establish their own brands in the international market. As for direct investment, there are few possibilities because Argentina's labor cost is higher than that of most of Asian countries, which do not have any advantage in technology over Argentina.

(28) Flexible packaging industry for food

The industry is classified as one of plastic industries. The industry produces various kinds of bags and sacks for rice, bread, pasta, and candies. The industry consumes low density polyethylene, oriented polypropylene, and polyester as raw materials. The manufacturing process is not complicated but a special printing technique on plastic films is required. Among a large number of companies engaged in the industry, 10-15 companies lead the industry. Leading companies are competitive in the local market. Sources of competitiveness are their updated production technology and the introduction of advanced management know-how from industrial countries. Actually, their productivity is competitive with that in Brazil. However, it is still 20-30% less than that in industrial countries such as the U.S.A., Japan, and Germany.

The industry is located near their customers because a quick response to customer's order and shortening of delivery time are keys to success. There is little possibility for the industry to export to the Asian market. Direct investment from Asian countries can not be expected because the industry can be easily started or expanded with relatively small capital in response to growth in demand. Technical cooperation may be considered for the improvement of productivity.

3.3.2 Issues

Issues for the manufacturing sector are summarized with special attention to export expansion to and direct investment from the Asian market. They are categorized into two groups; issues for the manufacturing sector in general and issues for major subsectors.

3.3.2.1 Issues for the manufacturing sector in general

(1) To upgrade the potential of small- and medium-sized companies

Large-sized companies are competitive both in local and external markets based on their technology, their management skills, their human resources, and their financial resources. One of their weak points is lack of internationally established own brands. The gap in potential between large-sized and small- or medium-sized companies seems to be big. To upgrade the potential of small- and medium-sized companies is indispensable for industrial development because the number of these companies far exceeds the number of large-sized companies. In trying to upgrade the potential, the following analyses seem to be necessary.

1) Analysis for a better financial system

Positive capital investment is a fundamental condition to activate the sector. But insufficient capital investment has yielded an unsatisfactory performance in the manufacturing sector of Argentina. The present interest rate higher than rates of return on capital can be considered one of reasons for the low level of investment. Therefore, analysis should be conducted on the possibility of financial system improvement that would allow local manufacturers better access to financial resources. In addition, it should be studied whether capital investment of small- and medium-sized industries could be increased by introducing venture capital and an appropriate leasing system in Argentina.

2) Analysis for promotion of innovative small- and medium-sized industries

Small- and medium-sized industries are a very important source of new venture business as well as job creation and employment. How to promote and create innovative small- and medium-sized industries should be analyzed.

3) Reinforcement of support services for small- and medium-sized companies

To broaden the export base, upgrading of small- and medium-sized companies is indispensable. To upgrade these companies, the following two schemes should be studied: a) diagnosis and improvement of plants by international experts; and b) setting up new quality standards.

(2) To do the best for improving productivity

After the opening the market, the international price became a yardstick for local products in Argentina. A company which cannot quote international prices cannot compete. Improving productivity is indispensable to reach international costs as well as for the procurement of materials, energy, and services at international prices. Since raw

materials are available at the international price under the trade liberalization policy, special attention should be paid to the prices of non-imported inputs such as labor, finance, energy, and other services.

Another aspect of improving productivity is to strengthen linkages between export industries and supplies of inputs. The competitiveness of manufactured products depends not only the productivity of the industry concerned but also the productivity of suppliers of inputs to the export industry. Inputs include raw materials, industrial materials, and services. For export expansion, it is necessary to study how to improve "total productivity" and what kind of institutional support is required for realizing such improvement. This kind of study is especially needed for the development of natural resource-based industries such as food, meat, confectionery, and pre-industrial tobacco.

(3) To enhance export capacity

There are some cases in which an industry cannot expand export even with its strong competitiveness. This is often due to a shortage of export capacity. The export capacity of an industry is determined by the number of potential exporters and the export capacity of each exporter. In Argentina, at present, the number of potential exporters is limited in almost all industries as far as export to Asian markets is concerned. This is especially true for material and capital-intensive industries. It is necessary to increase the number of potential exporters for massive export expansion. Considering that this takes a long time, it is necessary to expand each company's export capacity through capital investment and the better and efficient utilization of its existing machinery and equipment.

(4) Utilizing engineering-related human resources

Graduates of Argentine technical high schools are considered to be comparatively well-trained. Wages in Argentina also are thought to be higher on average than in Asia or in neighboring countries of South America. Still, in view of their levels of ability, Argentine engineers with high-school education are described as highly productive or strong in terms of "cost-performance." Thus, it seems to be vital for Argentina to strive to develop industries that can actively capitalize on its reserves of technically proficient human resources.

(5) Tackling environmental issues

With respect to environmental issues, particularly the handling of industrial waste and waste water effluent, Argentina lags behind the industrial world. It is crucial

to acknowledge the significance of environmental problems and take actions to tackle them effectively as soon as possible.

Though Argentina is abundant in energy resources such as natural gas and crude oil, more attention to energy conservation is needed in every sector of the economy from industry and commerce to households when a long-term trend of energy consumption and burdens on the environment are considered.

(6) Strategies for the acquisition of advanced industrial technologies

1) Technology transfers could be encouraged through the local manufacturing operations of firms that possess sophisticated foreign technological expertise and production know-how.

2) Efforts could be made to develop technologies that strengthen the international competitiveness of industries in the agricultural, forestry, and fishery fields, or in similar industries already strong at home. One possibility would be the development of a system that integrates the selection, packaging, and storage of agricultural products.

3) Argentina could pursue joint ventures with foreign firms for the production of methanol, lithium-ion batteries, and other products that draw on its wealth of natural resources and export to markets where those products are in hot demand, e.g., to North America or East Asia.

3.3.2.2 Issues in major subsectors

(1) To redefine the concepts of "differentiation," "specialization," "niche," and "small batch"

The export potential of Argentine manufactured products seems to lie in products manufactured based on the above concepts. Relevant industries are many but those with higher potential are iron and steel, aluminum remelting, and food processing machinery. Though these concepts are not new themselves, their definitions have to be clarified in the Argentine context. By doing so, it can be better examined what kind of support the government can and should provide in the areas of technological development and finance for export promotion of the industries concerned. Through redefining the concepts, factors that can be real sources of the competitiveness of Argentine manufacture will be elucidated. Some ideas on the development prospect of the sector may also be derived.

(2) To design a "MERCOSUR product" to attract foreign direct investment

In order to attract direct investment from East Asian countries, it seems to be necessary to demonstrate to potential investors how the establishment of MERCOSUR has changed the investment climate of Argentina. One way of doing this is to organize a project which manufactures a typical "MERCOSUR product" with a new manufacturing concept. "MERCOSUR product" is a product which is manufactured somewhere in MERCOSUR not only for the local market but also for other MERCOSUR markets, taking account of manufacturing conditions in each country of MERCOSUR. The automobile industry may be a candidate of such a project. Needless to say, the project should be initiated principally by the private sector, but it is worth studying whether there is need for government support for accelerating its development.

(3) To export Argentine products with high value added as much as possible

Argentina is abundant in various natural resources. The country has earned much foreign exchanges through exporting these natural resources. One example is leather-based industries. In order to earn more foreign exchanges and to create better-paid jobs, it is necessary to export these natural resources with as high value added as possible. However, the export of products with high value added is more difficult than the export of raw materials or their primary forms. This is because markets for the former are more sophisticated than markets for the latter and their sales depend largely on non-price factors. It is principally the private sector's responsibility to think about how to improve non-price factors of their products. However, it is worth studying how the government can support such a project.

(4) To strengthen the foundation of the autoparts industry by attracting advanced foreign capital and technology

Under the new policy for developing the automobile industry, the car assembling industry began to walk a new road. Thanks to a favorable market condition, the industry is in a good shape. However, its long-term prosperity depends on the success of restructuring of the autoparts industry. The autoparts industry, except multi-national companies, is behind the international standards of technology and management. It is necessary to strengthen the autoparts industry with advanced foreign capital and technology and to design an effective measures to attract foreign capital into the industry.

(5) To improve infrastructure for export expansion by the private sector

Even when an Argentine product has been proved to be internationally competitive, often Argentina can not expand its exports to East Asian markets due to insufficient infrastructure development. The underdeveloped loading facilities for crude oil are one example. Infrastructure must be further developed for export expansion. Considering financial constraints in the public sector, it is necessary to develop a new scheme to improve infrastructure without heavy burdens on public finance. In other words, it is crucial to formulate policy measures for accelerating the privatization of infrastructure business.

3.4 External Trade

3.4.1 The Present Situation

3.4.1.1 Trends of Argentine trade

During the 1980s and in the early 1990s Argentina maintained trade surpluses that ranged from US$541 million to US$8,276 million, with an exception of the US$2,520 million deficit in 1980 (Table 3.4.1). In 1992, however, the tendency was reversed with a sharp increase in imports of capital goods as well as consumer goods and a moderate increase in exports. The country recorded a trade deficit of US$2,637 million (US$12,235 million for exports versus US$14,872 million for imports) for the first time in a decade. This situation is expected to continue, at least for a few years, due to the expansion of investment and other economic activities under the comprehensive economic reform and outward-oriented trade policies. In the first ten months of 1994, imports reached US$17,708 million while exports remained at US$12,864 million.

Table 3.4.1 Trade Balance, 1980-1993

Year	US$ million			Annual changes (%)	
	Exports	Imports	Balance	Exports	Imports
1980	8,021.0	10,541.0	-2,520.0	–	–
1985	8,396.0	3,814.0	4,582.0	3.6	-16.8
1986	6,852.2	4,724.0	2,128.0	-18.4	23.9
1987	6,360.2	5,818.8	541.4	-7.2	23.2
1988	9,133.0	5,322.0	3,811.0	43.6	-8.5
1989	9,579.3	4,203.2	5,376.1	4.9	-21.0
1990	12,352.5	4,076.7	8,275.8	28.9	-3.0
1991	11,977.8	8,275.3	3,702.5	-3.0	103.0
1992	12,234.9	14,871.8	-2,636.9	2.1	79.7
1993	13,090.4	16,786.0	-3,695.6	7.0	12.9

Source: INDEC, Argentina.

(1) Export

In contrast to the slow growth in the first half of the 1980s, Argentina's exports expanded rapidly during the latter half of the decade (Table 3.4.2). Since 1990 Argentine products have shown a tendency of greater participation in world markets (Table 3.4.1). Argentina's exports grew from US$9,579 million in 1989 to US$13,090 million in 1993. In 1993 exports recorded an increase of 7% from the previous year.

Table 3.4.2 Growth of Exports by Type of Good, 1980-1993

Type of Good	Average annual change (%)					US$ million
	1980-85	1985-90	1991	1992	1993	1993
Primary Products	2.9	-1.9	-1.1	5.3	-5.8	3,272
Manufactures of Agricultural Origin	-2.5	12.4	5.6	-2.1	2.2	4,929
Manufactures of Industrial Origin	-0.7	16.9	-11.3	-8.1	33.6	3,665
Fuels and Energy	15.1	11.7	-22.2	20.6	32.5	1,224
Total	0.9	8.0	-3.0	2.0	7.0	13,090

Source: INDEC, Argentina

Over the last decade Argentina gradually shifted its emphasis for exports towards manufactures of industrial origin (MOIs). The share of MOIs in total exports increased from 18% in 1985 to 28% in 1993 while the share of primary products decreased from 44% to 25% for the same period (Table 3.4.3). Manufactures of agricultural origin (MOAs) continued to be important foreign exchange earners, though with some fluctuations in the share in total exports. Fuels and energy increased the importance in total exports in the early 1990s. While cereals, fats and oils, and by-products of food industries are still the top three items in Argentina's exports, there was noticeable growth in exports of some MOIs such as transport equipment and machinery and electrical machinery and devices in recent years (Table 3.4.4). This development can be explained by new investments made under the economic reform.

Table 3.4.3 Exports by Type of Good, 1980-1993

Type of Good	1980	1985	1990	1991	1992	1993
Primary Products	39.8	43.8	27.0	27.6	28.4	25.0
Manufactures of Agricultural Origin	36.8	30.9	37.8	41.1	39.4	37.7
Manufactures of Industrial Origin	19.9	18.4	27.2	24.9	22.4	28.0
Fuels and Energy	3.5	6.7	8.0	6.4	7.6	9.4
Total (%)	100.0	100.0	100.0	100.0	100.0	100.0
(US$ million)	8,021.0	8396.0	12,352.5	11,977.8	12,234.9	13,090.4

Source: INDEC, Argentina

Table 3.4.4 Exports by Product Category, 1980-93

(US$ million)

Product Category	1980	1985	1990	1991	1992	1993
Primary Products	3,194.0	3,678.8	3,391.1	3,301.2	3,474.7	3,271.9
Cereals	1,631.0	2,262.0	1,374.1	1,066.7	1,542.7	1,453.3
Oilseeds	671.0	735.2	827.7	1,081.2	786.2	696.5
Unprocessed Fish and Shellfish	135.0	143.6	299.7	199.9	315.6	435.0
Fresh Fruits	184.0	123.4	204.4	262.2	283.3	209.8
Unprocessed Vegetables	121.0	93.9	177.7	192.4	165.7	185.3
Other Primary Products	452.0	320.7	507.5	498.8	381.2	292.0
Agricultural Manufactures	2,951.0	2,597.0	4,663.9	4,927.4	4,822.7	4,928.8
By-products of Food Industries	413.0	515.2	1,199.8	1,270.0	1,455.8	1,456.0
Fats and Oils	524.0	992.8	1,151.3	1,221.1	1,103.8	1,078.5
Meat	966.0	397.7	873.2	892.0	772.3	747.9
Furs and Leather	372.0	293.9	488.0	513.6	463.2	617.8
Processed Fish and Shellfish	8.0	4.5	15.4	246.2	233.4	271.4
Other Agricultural Manufactures	668.0	392.9	936.2	784.5	794.2	757.2
Industrial Manufactures	1,596.0	1,541.2	3,364.3	2,983.5	2,743.1	3,665.5
Machinery and Electrical Machinery and Devices	317.0	268.3	485.7	561.9	501.8	752.7
Transport Equipment	174.0	236.2	223.1	266.3	389.6	718.2
Common Metals and their Manufactures	318.0	508.1	1,163.3	912.4	626.2	696.8
Chemicals	317.0	279.2	522.5	503.7	518.9	558.5
Textiles and Clothing	66.0	49.7	212.5	147.9	117.7	164.6
Other Industrial Manufactures	404.0	199.7	757.2	591.3	588.9	774.7
Fuels and Energy	280.0	566.1	985.2	765.7	924.0	1,224.1
Total	8,021.0	8,396.0	12,352.5	11,977.8	12,234.9	13,090.4

Source: INDEC, Argentina.

In primary product exports for the period of 1990-1993, cereals ranked first with an increase of 6% for the period (Table 3.4.4). Oilseeds ranked second, though their exports decreased in 1993. Unprocessed fish and shellfish showed a significant increase of 45%. Fresh vegetables and fruits were also important among primary products throughout the period.

In MOA exports for the period of 1990-1993, the most important were fats and oils and by-products of food industries (e.g., soybean pellets). They were followed by meat, which decreased by 14% for the period, and then by processed fish and shellfish, which has been exhibiting a remarkable increase in recent years. Exports of furs and leather also showed an important growth of 27% in 1990-1993.

In MOI exports for the period of 1990-1993, the most important category was machinery and electrical machinery and devices, which increased by 55%. Transport equipment recorded even greater growth, i.e., 222%. Common metals and its manufactures decreased by 40% while chemical products increased by 7%. Textiles and clothing decreased by 23%.

(2) Import

Argentina's imports showed a decreasing tendency in the first half of the 1980s and were stagnant in the latter half of the decade (Table 3.4.5). In 1991, however, imports started to increase and doubled between 1991 and 1993, i.e., from US$ 8,275 million to US$ 16,786 million. Among imports for the period of 1980-1993, intermediate goods ranked first, followed by capital goods, consumer goods, or parts and accessories for capital goods, depending on the year (Table 3.4.6). In 1993, intermediate goods accounted for 30% in total imports, capital goods for 25%, consumer goods for 21%, and parts and accessories for capital goods for 17%.

Table 3.4.5 Growth of Imports by Economic Use, 1980-1993

Type of Good	Average annual change (%)					US$ million
	1980-85	1985-90	1991	1992	1993	1993
Consumer Goods	-35.0	6.8	358.8	111.7	10.0	3,527
Intermediate Goods	-14.0	4.0	65.2	38.7	68.3	5,066
Capital Goods	-21.3	-2.0	125.6	115.7	33.0	4,115
Parts and Accessories for Capital Goods	-10.5	-0.8	79.0	109.5	8.4	2,809
Fuels	-14.3	-7.1	43.0	-8.0	-7.2	386
Passenger Vehicles	-61.6	43.1	158.3	292.6	7.1	849
Total	-18.4	1.3	103.0	79.7	12.9	16,786

Source: INDEC, Argentina

Table 3.4.6 Imports by Economic Use, 1980-1993

Type of Good	1980	1985	1990	1991	1992	1993
Consumer Goods	19.5	6.2	8.1	18.3	21.6	21.0
Intermediate Goods	34.2	44.5	50.8	41.3	31.9	30.2
Capital Goods	22.0	18.4	15.6	17.3	20.8	24.5
Parts and Accessories for Capital Goods	11.9	18.8	16.9	14.9	17.4	16.7
Fuels	9.3	12.0	7.7	5.5	2.8	2.3
Passenger Vehicles	2.3	0.1	0.3	2.4	5.3	5.1
Total (%)	100.0	100.0	100.0	100.0	100.0	100.0
(US$ million)	10,541.0	3,814.0	4,076.7	8,275.4	14,871.4	16,786.0

Source: INDEC, Argentina

(3) Trading partners

Argentina's trading partners substantially changed in the early 1990s. In the 1980s the two main destinations for Argentine exports were EU and the U.S.A. (Table 3.4.7). In 1993, while EU as a group still accounted for 28% (US$3,650 million) in total exports, MERCOSUR became the most important destination, with a share of 28% (US$3,661 million). On a country basis, Brazil was a single largest buyer of Argentine products (21%), followed by the U.S.A (10%). The growth of exports to MERCOSUR countries is striking when compared to their shares of 14% in 1980 and 8% in 1985. The shares of EU and NAFTA in total exports have tended to decrease since 1990.

Table 3.4.7 Major Destinations of Argentine Exports

(US$ million)

Country	1980	1985	1990	1991	1992	1993
MERCOSUR	1,136.7	667.5	1,832.7	1,977.1	2,326.9	3,661.1
Brazil	765.0	496.3	1,422.7	1,488.5	1,671.3	2,790.5
NAFTA	859.6	1,318.7	2,067.8	1,516.7	1,638.4	1,556.8
U.S.A.	696.0	1,003.5	1,665.0	1,210.0	1,349.4	1,273.4
EU	2,426.5	2,040.9	3,743.6	3,956.2	3,819.4	3,650.2
Netherlands	n.a.	856.3	1,374.6	1,328.3	1,212.0	1,270.5
Germany	n.a.	305.6	650.8	731.7	730.6	628.8
Italy	n.a.	300.6	523.2	573.9	524.7	505.1
Chile	n.a.	111.1	462.3	487.7	580.9	590.8
Total	8,021.0	8,396.0	12,352.5	11,977.8	12,234.9	13,090.4

Source: INDEC, Argentina.

In exports to MERCOSUR in 1993, MOIs occupied 43%, primary products 25%, and fuels 18%, whereas MOAs had the largest share (53%) in exports to EU. The distinctive composition of exports to MERCOSUR can be explained by the increased complementary production at intra-industrial and intra-firm levels among the member countries, especially between Argentina and Brazil. Exports to NAFTA consisted mainly of MOAs (41%) and MOIs (40%) in 1993.

MERCOSUR also became the most important supplier of goods to Argentina in 1992. In total imports, 25% (US$4,214 million) came from MERCOSUR, another 25%

(US$4,184 million) from NAFTA, and 20% from EU in 1993, as compared to their shares of 12%, 24%, and 30% in 1980, respectively (Table 3.4.8). In 1993 major items imported from MERCOSUR are intermediate goods (36% in total imports), parts and accessories for capital goods (22%), consumer goods (17%), and capital goods (13%). Imports from NAFTA and EU consisted mainly of intermediate goods, capital goods, and parts and accessories for capital goods, which altogether accounted for 80% in imports from the respective regions.

Table 3.4.8 Major Suppliers of Argentine Imports

(US$ million)

Country	1980	1985	1990	1991	1992	1993
MERCOSUR	1,304.7	697.6	875.2	1,804.4	3,754.7	4,213.6
Brazil	1,072.3	611.5	717.9	1,526.3	3,338.8	3,569.9
NAFTA	2,544.0	780.0	1,001.2	2,073.0	3,496.5	4,183.6
U.S.A.	2,362.5	685.0	861.5	1,845.2	3,226.3	3,858.6
EU	3,132.9	1,068.3	1,117.9	2,033.2	3,633.4	3,436.2
Germany	n.a.	n.a.	350.0	729.4	1,083.4	1,023.5
Italy	n.a.	n.a.	202.0	356.4	760.5	980.7
France	n.a.	n.a.	144.0	255.0	573.8	738.7
Chile	n.a.	n.a.	112.0	381.4	645.8	706.0
Total	10,541.0	3,814.0	4,076.7	8,275.4	14,871.8	16,786.0

Source: INDEC, Argentina.

Table 3.4.9 shows trade balances with major trading partners in recent years.

Table 3.4.9 Trade with Major Regions and Countries

Region/ Country	Exports			Imports			Balance	
	US$ million		Change (%)	US$ million		Change (%)	US$ million	
	1992	1993	1993/92	1992	1993	1993/92	1992	1993
ALADI	3,917.6	5,262.4	34.3	4,981.3	5,434.2	9.1	-1,063.7	-171.8
EU	3,729.8	3,650.2	-2.1	3,633.0	3,858.6	6.2	96.8	-208.4
NAFTA	1,638.8	1,556.8	-5.0	3,496.5	4,183.6	19.7	-1,857.7	-2,626.8
Japan	375.0	466.8	24.5	697.2	668.5	-4.1	-322.2	-201.7
Others	2,573.7	2,154.2	-16.3	2,063.8	2,641.1	28.0	509.9	-486.9
Total	12,234.9	13,090.4	7.0	14,871.8	16,786.0	12.9	-2,636.9	-3,695.6

Source: INDEC, Argentina.

In 1993 the trade balance with ALADI was still negative, though the deficit declined sharply from the pervious year's US$1,064 million to US$172 million. The reduction in the deficit was primarily generated by significant improvement in Argentina's trade balance with Brazil. In 1993 Brazil occupied 53% in Argentina's total exports to ALADI and 66% of its total imports from ALADI.

In 1993 the trade balance with EU turned to be negative (US$491 million) with a 2% decline in Argentine exports to EU and a 6% increase in Argentine imports from EU. The decline in exports to EU was the most noticeable in the primary product sector, i.e., -8% from 1992.

In 1993 Argentine exports to NAFTA decreased by 5% while imports increased by 20%, resulting in a deficit of US$2.6 billion.

(4) Trade with East Asia

Exports to East Asian countries are still small while imports from those countries are rapidly growing in recent years (Table 3.4.10). Argentina's imports from nine East Asian countries (Japan, Korea, China, Hong Kong, Taiwan, Singapore, Malaysia, Indonesia, and Thailand) increased from US$325 million in 1990 to US$2,348 million in 1993 but exports to these countries remained virtually unchanged around US$1,400 million for the same period. Japan accounted for around 4% both in total exports and in total imports and Korea 3% in imports but less than 1% in exports.

Table 3.4.10 Trade with East Asian Countries

	Exports (US$ million)				Share in total exports (%)			
	1990	1991	1992	1993	1990	1991	1992	1993
Japan	394.9	453.5	375.0	466.8	3.2	3.8	3.1	3.6
Korea	50.9	65.3	81.6	49.1	0.4	0.6	0.7	0.4
Taiwan	47.9	72.5	87.5	77.1	0.4	0.6	0.7	0.6
China	241.0	247.5	128.3	163.3	2.0	2.1	1.1	1.2
Singapore	40.4	54.7	66.8	38.4	0.3	0.5	0.6	0.3
Indonesia	92.8	57.9	80.2	74.0	0.8	0.5	0.7	0.6
Malaysia	125.8	57.4	61.4	73.4	1.0	0.5	0.5	0.6
Thailand	82.3	54.1	24.2	29.0	0.7	0.5	0.2	0.2
Hong Kong	59.7	74.1	106.1	155.8	0.5	0.6	0.9	1.2
Total	1,398.4	1,501.2	1,323.5	1,410.9	11.3	12.5	10.8	10.8

	Imports (US$ million)				Share in total imports (%)			
	1990	1991	1992	1993	1990	1991	1992	1993
Japan	132.8	393.3	697.2	668.7	3.3	4.8	4.7	4.0
Korea	75.8	207.8	467.5	528.0	1.9	2.5	3.1	3.2
Taiwan	14.6	79.0	182.4	187.7	0.4	1.0	1.2	1.1
China	12.1	55.4	170.4	214.8	0.3	0.7	1.2	1.3
Singapore	45.3	60.9	167.4	200.7	1.1	0.7	1.1	1.2
Indonesia	0.6	0.6	14.2	26.3	0.0	0.1	0.1	0.2
Malaysia	2.8	4.1	5.8	13.3	0.1	0.1	0.0	0.1
Thailand	0.1	2.4	10.2	22.5	0.0	0.0	0.1	0.1
Hong Kong	13.7	101.2	272.5	388.2	0.3	1.2	1.8	2.3
Total	324.7	948.6	2,105.8	2,347.7	8.0	11.5	14.2	14.0

	Trade Balance (US$ million)				Share in total deficit (%)			
	1990	1991	1992	1993	1990	1991	1992	1993
Japan	262.2	60.2	-322.2	-201.9	..	..	12.2	5.5
Korea	-25.0	-142.5	-385.9	-478.9	..	..	14.6	13.1
Taiwan	33.4	-6.4	-94.9	-110.6	..	..	3.6	3.0
China	228.9	192.1	-42.1	-51.6	..	..	1.6	1.4
Singapore	-4.9	-6.2	-100.6	-162.2	..	..	3.8	4.4
Indonesia	92.2	52.1	65.9	47.6	..	..	..	..
Malaysia	123.0	53.4	55.6	60.1	..	..	..	..
Thailand	82.2	51.7	14.1	6.5	..	..	..	..
Hong Kong	46.0	-27.1	-166.3	-232.4	..	..	4.5	6.3
Total	1,073.7	552.6	-782.3	-936.8	..	..	29.7	25.6

Note: ".." indicates "not applicable" due to no overall trade deficit (i.e., in 1990 and 1991) or no trade deficit with the particular country.
Source: INDEC, Argentina.