

**ANNEX 10**  
**OUTLINE OF EXPORT PROCESSING ZONE**  
**IN KOREA, TAIWAN, HONG KONG**



ANNEX 10 OUTLINE OF EXPORT PROCESSING ZONE IN KOREA, TAIWAN, HONG KONG

	South Korea	Taiwan	HongKong
1. Background at the time when the establishment of the Zones was studied	<p>(1) Deterioration of international balance of payments due to widening trade deficit, decrease in foreign currency income due to the end of Vietnam War and U.S. plan to halt unconditional aid to South Korea (1970).</p> <p>(2) Use of idle manpower and necessity of regional development</p> <p>(3) Necessity of boosting international competitive strength through the introduction of new technology and management techniques to strengthen exports.</p> <p>(4) Corresponding measure in Taiwan and HongKong in attracting foreign capital</p>	<p>(1) Deterioration of trading conditions based on the stagnation of prices of primary products.</p> <p>(2) Stagnation of U.S. aid scheduled in 1965.</p> <p>(3) Together with the stifling of policies on import substitution, import dependency of production assets and interim assets was rising.</p> <p>(4) Rise in the rate of unemployment due to the mass inflow of people from the Mainland (China)</p>	<p>(1) In the past, the typical industrial zone of HongKong used to center around 10-20 story industrial apartments privately capitalized, the so-called factory apartment.</p> <p>(2) Because of this, the majority was processing-type of light industry with restrictions such as pressure-resistant ceiling and flooring, environmental pollution regulations, etc.</p> <p>(3) In consideration of the advancement and diversification of the industry of HongKong, industrial sites which do not have such restrictions as these are necessary.</p>
2. Course of Development	<p>1963 Conceptualization of the establishment of the Seoul Kunglongdon export processing zone, with the economic circles taking the lead.</p> <p>Dec. 1968 Study on the establishment of an export free zone began by the economic circles and government.</p>	<p>May 1956 Study began on a processing base within the Port of Kaohsiung. Adopted as an alternative plan to the stifling of industrialization based on import substitution</p> <p>1958 - 59 With regard to the establishment of the Zone, funding assistance to depend on conferences on issues with U.S.</p>	<p>1961 Accompanying the advancement of industry, the large-scale land development plan of Shinkai District originated.</p> <p>Prior to 1976, the Lands Department, HongKong Government took charge of the development and administration of HongKong lands.</p>

	South Korea	Taiwan	HongKong
	Jan. 1970 Law on the establishment of an export free zone proclaimed. Partial construction and recruitment of entrant firms began.	1964 Drawing-up of the final proposal to establish the export processing zone.	1977 The HongKong Government, because of advancement of industry, decided to develop industrial sites. The HongKong Industrial Estates Corporation - HKIEC) was established.
	1971 F/S Feasibility study by UNIDO-Bachtel (Swiss)	1965 Said proposal was legislated and, in March, construction began.	1978 Construction of Taipo Industrial Estate and Yuen Long Industrial Estate began.
	By Dec. 1972 there are already 62 entrant firms, with the investment amount from foreigners totaling to US\$33.9 million.	1967 2 years upon completion, the zone was filled up with entrant firms. Because of the favorable result of Kaohsing EPZ, construction of a new EPZ was studied so as to complete it.	
	1973 Creation of the 3rd section of the Masan Free Export Zone.	1969 Construction of Nantze EPZ and Taichung EPZ started.	
	1973 The 2nd FEZ began with the development of a part of the Yuuri Region Industrial Estate		
3. Pertinent Legislations	Export Industry Industrial Estate Development Promotion Law (1963)	Export Processing Zone Control Act (1965)	HongKong Industrial Estates Corporation Law (1977)
	Free Trade Zone Act. (1970)	Export Processing Zone Trade Control Act	
4. Administering Agencies	MAFEZ, Industrial Estates Administration. As the agency over it, there is the Industrial Estates Administration, Department of Commerce & Industry.	Kaohsing Export Processing Zone Administration	Hong Kong Industrial Estates Corporation

5. Development Funds

The whole of Masan Export Free Zone US\$27,520,000 (total 160ha) including harbors

Total amount of funding for the construction of 3 processing zones US\$29,530,000 (total 182 ha), including harbors.

Total amount of funds for the construction of two industrial estates was \$115,000,000. (total 136 ha), inclusive of reclamation.

Breakdown: U.S. assistance US\$10,040,000 (34%)

6. Entry Conditions

(1) 22 types of industries; however, provided there is an approval from the Department of Commerce and Industry, other types are also possible.

(1) 25 types of industry to be induced and encouraged. (2) Industry-types that will not have a negative effect on existing Taiwanese domestic industries.

(1) Must be acknowledged to be inoperable inside the usual industrial building due to reasons of, for example, floor and ceiling pressure-resistability, etc.

(2) 100% independent foreign capital is possible; however, joint venture is given priority.

(3) Inspection and handling of raw materials and semiconductor products must be easy.

(2) Must not violate environmental pollution control rules and regulations.

(3) Export market must be sure.

(4) Must not cause environmental pollution and such problems.

(3) Must have a new production process or an existing large-scale technological improvement in the production process.

(4) Foreign currency earnings must be high.

(5) Minimum investment amount must be Taiwanese \$20,000,000.

(4) Must introduce high-technology to Hongkong.

(5) Production technology must be high.

(6) The product must all be exported.

(4) Must introduce high-technology to Hongkong.

(6) Must be labor-intensive.

(7) Value-added amount must be 25% or higher than the FOB price.

South Korea

Taiwan

HongKong

7. Incentives

- |  |   |  |
|--|---|--|
| <p>(1) Tax exemption for the importation of machinery and equipment, facilities, raw materials and semi-processed items.</p> <p>(2) Exemption from income tax for 5 years and for 3 years thereafter.</p> <p>(3) Exemption from total amount of corporate tax for 5 years, and a 50% reduction for 3 years thereafter.</p> <p>(4) Exemption from total amount of property tax for 5 years, and a 50% reduction for 3 years thereafter.</p> <p>(5) Exemption from total amount of real estate acquisition tax for a period of 5 years, and a 50% reduction for 3 years thereafter.</p> <p>(6) Guarantee on remittance on home country.</p> <p>(7) Administrative assistance.</p> <p>(8) Offering of apartments for foreigners.</p> <p>(9) Restriction of labor's right to strike.</p> | <p>(1) Tax exemption on importation of machinery and equipment facilities, materials and semi-manufactured items.</p> <p>(2) Exemption from sales tax, commodities tax and export tax.</p> <p>(3) Exemption from project income tax for a period of 5 years.</p> <p>(4) 5 years thereafter, 18% income tax rate.</p> <p>(5) For profits directed to reinvestment, in case the amount is 25% or lesser than the income of the year, income tax exemption.</p> <p>(6) In the purchase of a standard factory, it is possible to obtain a bank loan to the maximum of 70% of the total amount payable on installment basis within 10 years.</p> <p>(7) Procedures accompanying the factory construction and the company operation can be done within the EPZ administration office.</p> <p>(8) Services such as storage, forwarding, clinics, and the like are available within the Zone.</p> | <p>(1) Land rental rates are cheaper as compared to general-use land.</p> <p>(2) Completely equipped with infrastructures.</p> <p>(3) Customs duty-free; aside from that, tax system same as outside the Zone.</p> |
|--|---|--|

	South Korea	Taiwan	HongKong
8. Form of Administration	<p>Both land and standard factory are on lease contract.</p> <p>Masan FEZ - 0.5 US\$/m<sup>2</sup>/year  Yuuri FEZ - 1.0 US\$/m<sup>2</sup>/year</p>	<p>Land are all on lease contract.</p> <p>Standard-type factory may be subdivided.</p> <p>0.55 US\$/m<sup>2</sup> - 0.67 US\$/m<sup>2</sup></p>	<p>All under lease system. Lease rates are only for land-building as well as administrative services. In principle, lump sum payment upon effectivity of contract. Period of lease contract shall to be prior to June 30, 1947. From July 1997 thereafter, to shift to annual rental rate system where the lease rate shall correspond to 30% of Property Rateable Value.</p> <p>Taipo - 160 US\$/m<sup>2</sup>  Yuen Long - 141 US\$/m<sup>2</sup></p>
9. Effects of the Establishment of the Zones	<p>(1) Foreign exchange earnings</p> <p>US\$70,980,000. (approx. 300 times within a 5-year period since 1971). However, full-fledged exports commenced in 1973. The amount of foreign exchange earnings where the amount of exports to South Korea is deducted from FEZ was US\$65,590,000 in 1975.</p> <p>(2) Employment</p> <p>In 1975, the number of persons employed within FEZ was 23,000, occupying 1.2% of the South Korean manufacturing industry</p>	<p>(1) Foreign exchange earnings</p> <p>In the case of Kaohsiung EPZ, exports began in 1966. On its 5th year in 1971, export amount was \$156,000,000, and even the export-import difference amount was \$57,750,000.</p> <p>In 1974, already the 4th year since the start of Nantze &amp; Taichung, the difference between export and import total amount of 3 sites was \$21,420,000.</p> <p>(2) Employment</p> <p>Total number of people employed in the three sites at its peak in 1973 was 75,557 persons.</p>	<p>Unclear.</p>

	South Korea	Taiwan	HongKong
10. Problems	<p>(1) Defects in low wages and labor management.</p> <p>(2) Deficiency in linkage effect.</p> <p>(3) Impossibility of technological development.</p> <p>(4) Absence of re-investment.</p> <p>(5) The deepening of the two-tiered structure of South Korea.</p>	<p>(1) The Zone, being a labor intensive-type centering on assembly and process work, no effect of technology transfer occurs.</p> <p>(2) The Zone, having an "enclave-like" character within, has adopted wage lower than outside.</p> <p>(3) The Zone, being a labor-intensive-type centering, on assembly and processim work, has little scope to bring about technology transfer.</p> <p>(4) Backward linkage effects out of the Zone are too little.</p> <p>(5) Through transfer pricing, the profit of a Zone firm is manipulated at will by the multinationals.</p>	<p>Basically, all land rental contract period of coverage must be prior to June 30, 2047. The present system of land rental authorized rates and published rates end on June 30, 1997. Beyond that, it shifts to annual rental rate system.</p>
11. EPZ up to the present	<p>(1) Masan export free zone (81 ha) Non left.</p> <p>(2) Yuuri export free zone (32 ha) None left.</p> <p>The Zones are the two places mentioned above.</p>	<p>(1) Kaohsing EPZ (69 ha) No more land.</p> <p>(2) Nantze EPZ (90 ha) Remaining land several hectares.</p> <p>(3) Taiching EPZ (23 ha) No more land.</p>	<p>(1) Taipo Industrial Estate (69 ha) No more land.</p> <p>(2) Yuen Long Industrial Estate (67 ha) Remaining land 30 ha.</p>



**ANNEX 11**  
**JAPANESE INVESTMENTS IN THE ZONES**



## ANNEX 11 JAPANESE INVESTMENTS IN THE ZONES

As of Mar. 1, '90

<u>NAME OF COMPANY</u>	<u>PRODUCT/ACTIVITY</u>	<u>PROJECT COST</u>
<u>BATAAN EXPORT PROCESSING ZONE(BEPZ) OPERATIONAL</u>		
Accessories Specialists, Inc.	Ladies' glass & beaded shoes	P 1.75 M
Bataan International Garments Inc.	Men's wear & trousers, jackets & parka coats	4.00 M
Bataan Leather Goods Inc.	Leather & vinyl gloves	50.19 M
Doophil Mfg., Corp.	Garments	1.36 M
Iwahori Phils., Inc.	Flint & piezo electronic disposable lighters	4.61 M
Mariveles Apparel Corp.	Men's suits & sports coats	12.57 M
Mikuni International, Inc.	Baseball caps, Video cassette housing & sorting of metal scrap	1.00 M
Mitsumi Phils., Inc.	Electronic components	6.29 M
Pasing Textile Ind. Inc.	Fashion gloves & sunglasses	1.98 M
<u>APROVED BUT NOT YET REGISTERED</u>		
Mikuni Electronics Corp.	Wire & cable connectors for computers	2.70 M
<u>WITH LETTERS OF INTENT</u>		
Shoritsu Mfg. Co., Ltd.	Forged steel	

<u>NAME OF COMPANY</u>	<u>PRODUCT/ACTIVITY</u>	<u>PROJECT COST</u>
<u>BAGUIO CITY EXPORT PROCESSING ZONE OPERATIONAL</u>		
Commonwealth Garments Mfg.	Garments	P 1.5 M
<u>MACTAN EXPORT PROCESSING ZONE OPERATIONAL</u>		
Far East Wire Harness, Corp.	Wire harness	10.08 M
Kamiya Pacific Trading & Mfg. Corp.	Manufacturer of motors & alternators of various brands & amperages	2.7 M
Taiyo Yuden (Phils.) Inc.	Manufacture of electronics components such as compound filters	281.0 M
Lookwell Philippines, Inc.	Manufacture of shell buttons & other fashion accessories	10.38 M
Philippine Izumi Corp.	Manufacture of autoparts, steering wheels, plastic parts & leather wrapping for steering sheels	8.00 M
Yamashin Cebu Filter Mfg. Corp.	Hydraulic filters	3.80 M
TOA Kiko Cebu Corp.	Electronic lighting fixtures	8.00 M
Phil. Tonan Corp.	Water supply, hardware, kitchen apparatus & equipment	8.00 M

<u>NAME OF COMPANY</u>	<u>PRODUCT/ACTIVITY</u>	<u>PROJECT COST</u>
NEC Technologies Phils. Inc.	Manufacture & sale of transmission & tele-communication equipment & system specifically certain types of coil & transformers, panels & data	P 85.00 M
KH Cebu Corp.	RTW Ladies dresses	15.00 M
Cebe Eirai Corp.	Knitted working gloves	25.35 M
Meiden Technology Corp.	Electronics	7.00 M
Phil. Kenko Corp.	Lenses & piano	30.00 M

REGISTERED BUT NOT OPERATIONAL

Mobilia Phils. Inc.	Manufacture of exclusively designed interior furniture such as tables, chaire & sofat	20.00 M
Trigger Co., Phils.	Carbide-typed circular sawa	27.00 M

UNDER EVALUATION

Nakamura Phils. Corp.	Electronic components	
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WITH OFFICIAL RESERVATION OR LETTER OF INTENTS

Velbon Tripod	Tripod	
Sagami Hatsujo		
Muramoto (Sumitomo)	Assembling car stereo deck	

<u>NAME OF COMPANY</u>	<u>PRODUCT/ACTIVITY</u>	<u>PROJECT COST</u>
Asahi (Pentax) Optical	Optical instruments such as camera	
Seberu Pico		
Muramoto Ind. Co. Ltd.		
T.V. parts		

CAVITE EXPORT PROCESSING ZONE OPERATIONAL

Iwax Philippines, Inc.	Disposable lighters & component parts	P 30.00 M
Unipac Int's (Phils.)	Reconditioning & overhauling of used car engines	4.25 M
San Tech, Inc.	Manufacture of computer components	55.31 M
Ocean Industries	Children's t-shirts, dresses, jeans, pants, shorts, blouses & jackets	2.2 M
Kingsreich Corp.	Reconditioning of used automotive engines	18.84 M
Luminary Int'l. Inc.	Fashion bags & accessories	4.00 M

REGISTERED BUT NOT YET OPERATIONAL

Mikado Propeller	Manufacture of marine propeller	16.00 M
Nihon Garter Phils, Inc.	Manufacture & processing of carrier tapes	21.30 M
Fox Knit Apparel	Garments (Knitted socks)	3.20 M

<u>NAME OF COMPANY</u>	<u>PRODUCT/ACTIVITY</u>	<u>PROJECT COST</u>
Nihon Growbell (Phils.)	Production of printed matters & paper ware & high tech processing of prepaid magnetic cards, toy parts using fabricated press machines	P 8.60 M
Alex P. KC Corp.	Manufacture of components of pleasure & house exterior products such as gutter, doors & fences	15.00 M
Japan Mufflers Corp.	Exhaust pipes & mufflers for motor vehicles	20.88 M
TOEI Corp.	Bed covers, blankets, pillows, bed sheets, bed pads, cushion, table cloths, sleeping bags	14.00 M
Clarion Mfg. Phils Corp.	Car radios, stereos & components	300.00 M
JPN Inc.	Industrial name plates panels & boards	30.00 M

REGISTERED BUT WITHOUT PHYSICAL PRESENCE

Iwax Motors, Inc.	Fabrication or assembly of passenger cars (CKD-CEU), heavy duty trucks for construction, mining & shipping industries, farm tractors & reconditioning of engines gloves from PVC, nylon & textile materials	20.23 M
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<u>NAME OF COMPANY</u>	<u>PRODUCT/ACTIVITY</u>	<u>PROJECT COST</u>
WWT Enterprises	Men's socks	P 32.487M
Sansei Electric Corp.	Wire harness	30.4 M
Unix, Inc.	Micro-computer/ electronic parts	20.00 M
Justpark Asian Corp.	Steel fabrication	59.092M

APPROVED BUT NOT YET REGISTERED

Hayakawa Electric Wire Co.	Wire harness	
Sentoh Denshi Ind. Inc.	Speakers for car & radios	

UNDER EVALUATION

Seti Mfg. Phils. Corp.	Reconditioning, replacement/fabrication of parts & assembly of completely knocked down (CKD) light to heavy duty trucks & other transportation equipment	
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**ANNEX 12**  
**LIST OF THE MAJOR JAPANESE BANKS**



## ANNEX 12 LIST OF THE MAJOR JAPANESE BANKS

May, 1990

Bank	Section	Tel	Address	Programs	Budget
The Mitsui Taiyo-Kobe Bank Ltd.	Asia Div.	03-501-1111	1-1-2, Yurakucho, Chiyoda-ku, Tokyo	Jointly holding case by seminar &/or case investment con- sultant services	
The Mitsubishi Bank Ltd.	Hoojineigyou Div.	03-240-3952	2-7-1, Marunouchi Chiyoda-ku, Tokyo	"	"
The Industrial Bank of Japan Ltd.	International Investment Information Center	03-214-1111	2-7-1, Marunouchi, Chiyoda-ku, Tokyo	"	"
The Sumitomo Bank Ltd.	Trade & Investment Consultant Center	03-282-8111	1-3-2, Marunouchi, Chiyoda-ku, Tokyo	"	"
The Sanwa Bank, Ltd.	Gaikoku Gyomu Div.	03-216-3111	1-1-1, Otemachi, Chiyoda-ku, Tokyo	"	"
The Fuji Bank, Ltd.	Jigyoojoocho Kaihatsu Div. Asian Div.	03-201-9245	1-5-5, Otemachi, Chiyoda-ku, Tokyo	"	"
The Daiichi Kangyo Bank, Ltd.	Jigyoojoocho Div.	03-596-3438	1-1-5, Uchisaiwaicho, Chiyoda-ku, Tokyo	"	"



**ANNEX 13**  
**OUTLINE OF THE CAVITE EXPORT PROCESSING ZONE (CEPZ)**



## ANNEX 13      OUTLINE OF THE CAVITE EXPORT PROCESSING ZONE (CEPZ)

### (1)    Present Situation of the CEPZ

The Philippine Government issued results of its reexamination of the Master Plan which was drawn up in 1980 and of an evaluation of the Facilities Expansion Program for Phase II and after as the "Study on the Cavite Export Processing Zone" ("Study") in August, 1989. It clarifies future planning directions. On the one hand, in response to a request from the Philippine Government, the OECF dispatched a Survey Team in December, 1989 to evaluate the preparation program of Phase II to IV and estimate costs involved. Hereafter we shall quote from the Survey Report of the SAPROF Survey Team referring to it as "SAPROF".

#### 1)    Program for Land Use

According to the "Study" the total surface area for development of the CEPZ is 2,831,450 sq. m (283 ha). Of this it is planned to use 61.4% for industrial area, 15.7% for roads, 0.8% for administrative buildings, etc. 2.4% for service facilities and to leave 19.6% as green or unused space.

The reason for the small percentage of industrial use area and the large size of the unused plots is the creek in the middle of the site running from north to south and which accounts for the large part of the unused area. It is legally required that a sufficient area be left as-is along such a creek.

With the exception of Block XI, the Sub-station area and the Park area, all of the sites planned for development in Phase I have been completed. The reason why work on Block XI has not been commenced is that the access road to the Cavite College of Arts and Trade which adjoins the CEPZ is found in the area and needs to be displaced. Another reason is that relocation of the residents now living in the site area is not proceeding.

Table A13-1 indicates the development plans of each Phase planned in the "Study".

#### 2)    Site Preparation

The CEPZ, with the exception of the creek, is flat, sloping toward the north with an inclination of approximately 0.2%. The creek which runs across the middle of the site from north to south cuts it into two roughly equal halves.

The sites scheduled for development from Phase II are heavily weeded and the program of work involves weeding, preparing the ground, and the construction of a stone embankment

to protect the creek.

3) Roads

a) On-site Roads

Roads are categorized as main roads and general roads. Main roads are 24 m wide, with a carriageway of 14 m and 5 m pavement on each side. The general roads are 12 m wide, with a carriageway 7 m wide and pavement of 2.5 m on each side. The composition of the carriageway is a 5 cm road bed, a 10 cm thick facing or a 25 cm thick concrete coat as surfacing.

Mercury lighting is provided for both road types but due to insufficient maintenance there are few stretches of road that are satisfactorily lit.

b) Access Roads to the CEPZ

There are two main roads which join the CEPZ to Metro Manila. For details please refer to the attached Exhibit A13-I, "Road Map for Metro Manila and Cavite Province".

i) Manila Cavite Coastal Road  
(M.M./Bacoor/Kawit/Novelita/Rosario/CEPZ)

The road with two or three lanes on each side which runs from north to south along the harbor of Manila Bay is only complete as far as Bacoor on the south. From here southward on to the CEPZ there is only a narrow national highway with one lane each side. Not only is the carriageway narrow for this stretch of road there is no shoulder and jeeps and tricycles which constitute the popular forms of transport are numerous which means that these slow vehicles tend to hold up other traffic in the morning and evening rush periods.

The stretch of road between Bacoor and Rosario is closed to heavy vehicles other than motor cars for three hours in the morning and evening in the interests of the residents of the area.

ii) South Superhighway  
(M.M./Carmona I.C./Trece Martires/Tanza/Rosario/CEPZ)

This has the merit that it is possible to use the highway up to the Carmona I.C. but it is a considerable distance and at times there is considerable congestion at the



exit from the highway to the general road in Manila city. These drawbacks detract from the advantage of the highway at times.

At present the container trailers and trucks which transport the raw materials, equipment, and finished products require 4 to 5 hours to make the journey between Manila harbor and the CEPZ when using the detour route, that is, the South Superhighway. Further, using the Manila - Cavite Coastal Road for commuting it often takes 2 hours for the 30 or so km.

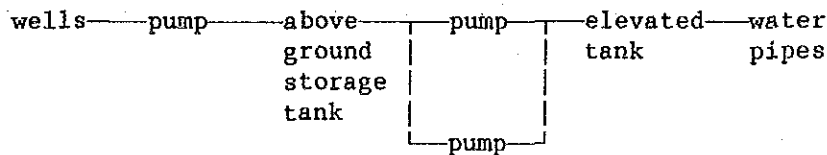
4) Water Supply

a) Water Pumping and Storage

Provision of the water for industrial, drinking and fire fighting use inside the CEPZ is to be carried out in each Phase of development according to the Master Plan. At the completion of Phase I the following facilities for pumping and storage of water was planned.

Deep bore well (244 m deep)	2 wells
Pumping equipment (one vertical type 1 combined with two horizontal types)	2 sets
Storage tank (elevated above ground, 1,500 cubic m)	2 tanks
Storage tank (suspended, 375 cubic m)	2 tanks

At present, there are only a few blueprints, and other technical documents are non-existent, so it is impossible to know why these particular facilities were planned for provision.



The following points became clear during the present survey:

- i) Because of inadequate coupling of one of the wells for water supply it is still not in use.
- ii) The well depth is shallower than on blueprints.
- iii) The deep wells supply the elevated tank directly (even though an elevated tank of 1,500 cubic m is not used, its function as a storage tank for emergencies is incapacitated).

- iv) The chlorine injector is not used because of malfunctioning.
- v) Only one set of the pumping equipment is in use, and sufficient maintenance and inspection are not being performed.
- vi) Though other electricity requirements on the site are supplied directly from the NPC that used for pumping is supplied by MERALCO, and because of power failures pumping is interrupted occasionally.

b) Water Distribution Facilities

As with pumping and storage equipment that for water distribution is planned to be installed at each phase of development.

The asbestos cement piping with an inside diameter of 150-250 mm is used. There is a worldwide tendency to prohibit the use of asbestos materials and this is one item which requires reconsideration. "SAPROF" also recommends the replacement of this piping.

Separate piping is not provided for industrial or drinking water use, and the same one pipe is used for distribution to each company. Further, the only pressure is that resulting from the elevated water tank (18 m) so that companies furthest from the tank receive the water at less than half full pressure. Some companies have installed their own elevated tank equipment.

c) Water Consumption

There is no documentation at all concerning water consumption. The "Study" estimates of this are shown in Table A13-2.

5) Power Supply

a) Power Supply and Demand of Luzon Grid

The Philippine Government plans to increase its electric generation capacity from the 6,546 MW of 1987 to a level of 7,050 MW in 1992. These plans shown in Table A13-3 form part of the Medium Term Philippine Development Plan (1987 - 1992).

The NPC (National Power Corporation) generates electricity from a generating and distribution grid called Luzon Grid located in Luzon. The electric distribution is carried out by an organization consisting of the Manila Electric Company (MERALCO) and on a local level by various Corporations. The CEPZ is supplied

with electricity directly from the NPC.

The generating capacity of the Luzon Grid is as follows:

- Diesel fuel (4 stations)	1,925 MW (46.8%)
- Hydroelectric (11 stations)	1,226 MW (29.8%)
- Geothermal (2 stations)	660 MW (16.1%)
- Coal fuel (1 station)	300 MW (7.3%)

The total capacity is for 4,111 MW. The growth in generating capacity over the last ten years has been 3% per year. This falls below the national average for the Philippines which has been 5% per year.

In order to meet the demand for electricity on the Luzon Grid the NPC established a program for strengthening its capacity. This included the establishment in 1988 of one coal fueled generating station at Calaca II producing 300 MW and of 3 geothermal stations (Bacon-Manito, Maibarara, Mak-Ban) producing 190 MW. With a total capacity of 490 MW these represent 11.9% of actual generation. However, realization of part of the program has been delayed.

All electric circuits of the Luzon Grid are connected. Electric consumption throughout Luzon is thus supplied from the total network of power stations. In areas such as the north of the island possessing only hydroelectric stations generation falls off in years of little rainfall. At such times supply must be supplemented from other regions.

Table A13-4 gives the long-term supply and demand balance for electricity on the Luzon Grid up to the year 2000. This was issued in 1986 by the NPC. It would seem to show that a balance is maintained. However, demand growth has been estimated at the low levels of 3% per year around the time of planning and 5.5% for the 1990s. These low estimates are unrealistic. In fact the NPC has begun a reevaluation of demand growth assuming a 7.5-8% level for the 1990s.

b) Electric Supply to the CEPZ

As the CEPZ is supplied directly from the NPC there are no power failures in general practice. However, considerable fluctuations in voltage are frequent. The following are possible explanations for these fluctuations.

- i) Either the demand for electricity and amount generated are not matched or generating equipment capable of responding to peak time demands is not installed.

ii) Sufficient electric generating equipment is installed but actual generating efficacy is below the specified values because of superannuation.

iii) Insufficient capacity of the power transmission or substation facilities.

With regard to: i), according to the newspaper appeal for cooperation in saving electricity issued by the NPC the generating capacity for an average weekday in late September of 1989 was 3,120 MW whereas peak time demand was 2,880 MW. This means that with only 240 MW to spare not even a 10% surplus margin was available.

Regarding ii), with the exception of the 3 stations of the Angat Aux hydroelectric station (1986 completion), the Magat hydroelectric station (1984) and the Calaca geothermal electric station all other power stations were completed in the 1960s and 1970s. Some of the stations even date to the 40s and 50s. Even if regular maintenance has been carried out a general deterioration in generating capacity is to be expected.

Finally, regarding iii), the possibility of voltage fluctuations arising from the Rosario substation installed to serve the CEPZ can be ruled out in view of the quality of equipment. This substation has one set of substation equipment for 50 MVA and 115/34.5 kV transformation, and 2 sets of 34.5 kV transmitters. One of the transmitters is on loan to MERALCO since the present electricity consumption of the CEPZ is small. This will be returned to the CEPZ for serving CEPZ purposes once future demand there increases.

c) Plans for the Tertiary Sector Provision of Generating Equipment

The present estimated demand of the three private sector groups (Ayala-Layona Industrial Park, First Cavite Industrial Park and Sta. Rosa Industrial Estate) planning development in the Cavite Province is around 185 MW. If we assume that CEPZ has a capacity of 40 MW this gives a total of 225 MW. This represents just over 5% of the generating capacity of the Luzon Grid. The three private industrial estates currently plan to rely completely on the purchase of their electricity supply from NPC or MERALCO. However, these estates could form a tertiary sector in cooperation with the NPC and under its supervision which would aim at the installation of BOT type generating facilities to assure a steady supply of electricity. In view of the construction period for the generating equipment to be installed the selection of steam-generation power equipment such as a gas turbine, etc. would seem the likeliest choice. If the CEPZ were to participate in this program uncertainties concerning electric supplies would be removed. The basic thinking for this is shown in diagram form as Figure A13-1.

6) Communication Facilities

At present there are 12 Long Distance Direct Dial Lines (LDD Lines) and 50 local lines available in the CEPZ. The 12 LDD lines are connected by microwave directly to Manila. Further, the 50 local lines are on circuit with the exchange of Rosario. The biggest problem of the CEPZ is the insufficient number circuit lines and particularly of LDD Lines in comparison to the number of tenant companies.

The Rosario telephone exchange uses an old type German Siemens-make switchboard. This only has 950 standard volume terminals. However, there are actually 1,123 circuits connected here and so there is no excess capacity whatsoever.

7) Sewerage and Drainage

Two lines of sewerage and drainage facilities were planned under the Master Plan. However, neither the designer, CEPZ or EPZA has the design conditions, calculations and blueprint plans in storage. The waste from two lines are to be discharged into the natural treatment facilities of Ragoon and after natural convection and purification this is discharged into the creek.

a) Sewerage Line

This line accommodates waste water from the factories, domestic waste and waste from other facilities besides the factories such as the EPZ administrative offices, etc. The domestic waste water is discharged into this line after passing through the individual purification tanks installed in each company. Liquid waste from the factories is discharged directly or after treatment at the individual factories according to the company's discretion.

The "Study" underlines the fact that such waste is discharged into Ragoon with no or little treatment and proposes the installation of treatment facilities in line with laws of public hygiene and pollution.

b) Drainage Line

Rain which falls on the road surfaces is collected in the roadside drain mouths and from there is carried by drainage lines and discharged directly in Ragoon.

c) Waste Water Treatment

For the time being Ragoon will continue to be used as the waste water treatment

facility.

8) Solid Waste Disposal

There is no documentation in the Master Plan whatsoever concerning solid waste disposal. Solid wastes which can be incinerated are transported by truck several times each week to the area scheduled for site extensions, to be burnt there. There is no enclosure around the incineration area and environmental measures against smells or smoke are not taken. Companies rely on local enterprises for the treatment of metal wastes.

9) Perimeter Fence

There is a wire mesh fence only around the Phase I development area. This is 2 m high and has barbed wire at the top, but has been cut open at 10 or more places. Further, several sections which were blown down during the typhoon of October, 1989 are still not repaired.

10) SFB (Standard Factory Buildings)

There are 6 SFB in the CEPZ at present. These were originally aimed are for use by companies which;

- a) Have limits on early investment sums,
- b) Will commence operations at early date (to serve as provisional factory space until the completion of their own factory construction), or
- c) do not require a large land area or factory.

In order to satisfy such needs SFB are provided at EPZ in other foreign countries as shown below.

Country	Estate	Factory Type	Stor-ies	Unit Surface Area (sq. m/floor)	Rent (US\$/sq.m /month)	Building
Thailand	Laem Chabang	A	2	927	-	S/S
		B	3	832	-	R/C
Singapore	Julong	T6	1	913-920	4.35	R/C
		C6	1	1,432	5.25	S/S
		D6	1	2,362	4.34	S/S
		E6	1	3,561	4.11	S/S

Taiwan	Nantze	4	979	-	-
The Philippines	Cavite	1	1,000	2.41	S/S

Notes: S/S = Steel Frame Building, R/C = Reinforced Concrete Building

In normal EPZ the SFB are provided in the early phases of development. This responds both to the desire of companies to start operations at an early date and the desire on the part of the EPZ to attract investors. Further, many of the companies which desire a tenancy in the SFB are light or assembly industries of a labor intensive nature. These use small-scale equipment and rely on cheap labor and often want to make a quick recovery of investment capital. In the case of the CEPZ, also, most of the SFB tenants are involved in sewing, clothing or electric appliance assembly.

The following structural problems exist in the SFB of the CEPZ:

- As there is no electric conduits in the floor the tenants are forced to do wiring themselves.
- Damage was caused in the typhoon of October, 1989 to the roof tiles and walls.
- There is no essential equipment for administrative or storage activities.
- The access doors for equipment are too narrow.

#### 11) Fire Protection

According to the Master Plan a branch pipe is to be set at every 100 meters of the mainburied along the roadsides, for a fire hydrant to be installed. However, although tenants have already moved in and roads have been constructed, no hydrants were seen. The fire engine parked behind the present administration offices are the only fire fighting equipment. Individual tenants have installed small hand-powered fire extinguishers.

#### 12) Administration Building

At present, the administration building located to the right of the estate gate is responsible for all activities relating to administration, management, coping with the tenant industries and personnel employment, etc. There are no other commercial, recreational or medical service facilities in the estate.

## **(2) Provision Plan for Other CEPZ Related Facilities**

At present the provision of the infrastructural facilities and facilities relating to development from Phase II to V are under consideration. Further, barring exceptional circumstances the provision of facilities foreseen for Phase II to V of the CEPZ will take place according to the survey results of the SAPROF Survey Team.

### **1) Land Use Plan**

Modification of the following points of the Master Plan and "Study" are to the future advantage and convenience of both the CEPZ and tenants. Exhibit A13-II, the "Final Layout for Cavite Export Processing Zone" is attached as a layout plan showing the completed development.

- Another entry gate at the east opposite the existing gate on the west needs to be indicated on the layout plan since it is assumed that in the near future the scheduled Cavite-Manila Coastal Road is to pass on the east side of CEPZ.
- A motor pool site needs to be secured inside the EPZ for bus service within the estate. Further, consideration needs to be given for securing a space for boarding and leaving commuter vehicles from outside the estate.
- It is necessary to secure space for waste (both solid and liquid) treatment equipment. Equipment should be installed in conjunction with the progress of the phases of development.
- Consider a plan for the installation of a telegraphic substation and a telephone exchange inside the estate.
- Consider the addition of those support facilities and service facilities which are both strongly demanded by tenants and which would strengthen the estate's merits.

The importance of a detailed reexamination of land use in the light of the above points has already been pointed out by "SAPROF" and needs no repetition.

### **2) Site Preparation**

The Lagoon cuts from north to south across the area which is to the east of the area scheduled for development during Phases II and III. The legally determined protection of the Lagoon is to be carried out as part of the site preparation. In the Master Plan this is to be carried out with a stone embankment. However from a long-term view, protection with a



concrete bank is proposed ("SAPROF" has already made the same proposal).

3) Roads

a) On-Site Roads

The following points need to be born in mind in the future at the time of road construction:

- To carry out without fail CBR tests at the time of doing the road floor and facing
- In order to avoid dry cracking of the concrete surface 13 mm diameter iron reinforcements are to be embedded at 150 mm intervals
- Set the concrete slump of less than 3 cm
- Make use of straw mats or a similar substitute for curing the concrete, while sprinkling with water
- Coat the concrete with a 5 cm thickness of asphalt concrete to cushion vehicles against vibration

It should be possible with the above measures to reduce to a minimum damage caused to road surfaces by the passing of heavy container trailers etc.

b) Access Roads

We consider here future road plans relating to the CEPZ:

i) Manila-Cavite Coastal Road

There are plans for a 10.6 km extension up to Noveleta of the Coastal Road which at present has been finished between Manila and Bacoor.

At present, the Philippine Government has notified the DPWH (Department of Public Works and Highways) that this extension plan is to be promptly carried out. The URPO (Urban Road Project Office) is currently involved in a reexamination of the plan.

The road is scheduled to be a 4-lane concrete-surface road.

ii) Noveleta-CEPZ Diversion Road

This is for the new construction of a 3.5 km concrete-surfaced two lane (each side) road to Tanza on the south east side of the CEPZ in order to provide a detour from the congested route through Rosario City for the extension of the coastal road to Noveleta. The completion of this road is expected to make the transport and handling of goods to the CEPZ from the east gate much easier.

iii) Plan for Manila City Roads

The plan for 6 circular roads and 10 radial roads, which was proposed in the JICA survey report of 1973 to improve the road network of Metro Manila, is proceeding to plan.

iv) Plan for the Container Yard at Sangley Point

The Sangley Point US Naval Air Base is located at Cavite City. There is a plan for the transformation of this base into a container yard, connected with Manila harbor. This will serve the dual aim of easing the congestion of Manila harbor and of creating a handling center for the general development plan for the CALABAR area. There is a plan to widen the 5.5 km road connecting Sangley Point to Noveleta.

4) Water Supply

According to both the Master Plan and the "Study" a final total of 9 deep bore wells is planned, with wells to be opened gradually with the progress of the various development phases. The background to this plan is the fact that the present supply capacity of the MWSS (Metropolitan Waterwork and Sewerage System) which supplies drinking water to the area surrounding the CEPZ is not of sufficient volume to meet the needs of the CEPZ. Also the MWSS does not have any plans for the future expansion of its equipment capacity or supply facilities.

In surveys hereafter it is necessary to bear in mind the following points in the light of the above situation.

a) Underground Water Distribution in Cavite Province and Environs

The Cavite state faces Lake Taal on the south, Lake Laguna to the East and is bordered by Manila Harbor from the northeast to north sides. Hills several kilometers widerun from north to south between Lake Laguna and Cavite province and water

from Lake Taal and rainfall from the hills runs into Lake Laguna. Thus the underground water sources of Cavite province include sea water coming from the area along Manila harbor.

b) Possibility of Water Supply to CEPZ from MWSS

The MWSS supplies water to six cities in the northern part of Cavite Province including the CEPZ. Because of fears of a deterioration in the quality of well water the MWSS plans extensions to the Manila water piping for drinking water for the residents which presently extends as far as Kawit. It will lay piping for drinking water for the residents of the entire area covered by its operations. As it would be necessary to modify the supply pipe at the branch sections in order to supply water for industrial use to the CEPZ it is impracticable.

c) Possible Use of Lake Laguna for Water Supply

In order to use the water of Lake Laguna for irrigation in the three states of Batangas, Cavite and Laguna work is being carried out to install pumping up pipes and laying of the main pipe is expected to be completed by the end of 1990. The volume pumped will be 10.3 tons per second and this is readily awaited for agricultural use especially in the dry season.

The DPWH / MWSS are currently examining a proposal for the supply of part of the above water to the industrial estates and industries of the CALABAR area for industrial use.

If this supply is realized, not only will several problems that would arise from pumping up underground water be obviated but also it will have the beneficial effect of allowing a reduction in the installation and maintenance works necessary in the estate.

d) Securing A Water Supply for the CEPZ

The realization of either a), b) or c) will require a long time. As an early realization of the development plan is desirable from the viewpoint of the needs of companies wishing to become tenants, an independent water supply needs to be secured for the time being. Thus drilling of wells is proposed on the basis of an estimate of water consumption needs of tenants.

The above completes an examination of the basic items relating to water supply sources for the CEPZ. However, as details regarding the placing of bore wells, the scale of their equipment, specifications, installation timing, etc. have been dealt with in "SAPROF" they

are omitted here.

**Note: Calculation of Required Water Supply**

As to the calculation of the cost of equipment required for future water supply it is necessary to carry out accurate estimates at the earliest date. However, actual requirements will depend largely on the type and scale of tenant industries and as long as these aspects remain unclear it will be difficult to provide useful estimates. In such a case, it is best to adopt a calculation method which reduces to a minimum error margins by using statistical precedents. The attached Exhibit, A13-III "Extract of Industrial Basic Unit for Japanese manufacturing industries", provides statistical data on "Water Consumption by Industrial Sector". This is data taken from Japanese industrial statistics which has been adapted to account for the industrial sectors of already installed and expected tenants of the CEPZ. Exhibit A13-IV, "Outline of Companies for Cavite Export Processing Zone", shows the surface area of sites, number of employees, water consumption and electricity consumption of tenant industries of Phase I. The appropriate figure for water consumption as given from an analysis of these two exhibits is for approximately 50 cubic m per day for each hectare (10,000 sq. m). The figure of employees for the same area would be 300 employees per 10,000 sq. m.

Total water consumption of CEPZ (Industrial + personal use) for Phase I - IV would be  $50 \times 180 = 9,000$  cubic m per day. Water consumption for personal use in CEPZ (Phase I-IV) would be  $300 \times 180 = 54,000$ ;  $0.5 \times 54,000 = 2,900$  cubic m per day.

If the water consumption of the support and service facilities is taken to be 200 cubic m per day with a 15% loss then the total water consumption for one day will be 10,600 cubic m.

**e) Water Pumping and Storage**

At present, water pumped up from the wells is stored directly in the elevated water tanks. The storage volume of the elevated tank is only 375 cubic m. It is necessary to consider using the existing surface tank which has a storage capacity of 1,500 cubic m.

**f) Water Distribution Facilities**

The water stored in the elevated water tanks is sent to the individual companies through underground piping. The water pressure is that generated naturally due to the difference in elevation of the water tank and piping. As the water tank is at a height of

18 m and the piping is laid at a depth of 0.6 m there is a total difference of 18.6 m. Normally the mouth of the water conduit is 0.5-1 m above ground and taking into account friction loss the water pressure at the conduit mouth is only some 5 m (0.5 kg/sq. m).

The water piping is also used for fire extinguishing and so a high water pressure is required. It is advisable to improve the water distribution facilities as follows;

- Replace the present asbestos piping with steel piping which will resist the higher pressure.
- Assure a pressure of at least 2 kg/sq. m at the conduit mouth. Further, bear in mind emergency contingencies; and select materials which can resist a pressure of 7 kg/sq. m.
- Install a new water pump at the mouth of the elevated water tank.

g) Water Quality Control

In the questionnaire survey conducted of tenant companies, doubts and complaints concerning the water quality (hardness, presence of salts, doubts as to effectiveness of sterilization) were voiced. In the future, in anticipation of the entry of advanced technology industries it is necessary to notify the tenant companies concerning water quality in order to obtain a high purity of industrial water. Further, this water is also used for drinking and so sufficient quality control is required. It is necessary to provide the equipment and administrators to implement regular water quality checks. A concrete evaluation and proposals have been put forward by "SAPROF".

5) Communications

The PLDT has for several years been improving and expanding communication facilities of the whole CALABAR area with the 14th and 16th OECF loans as an integrated part of overall development of this region. The improvement and expansion of facilities in the Cavite province which has been given priority status has been part of this.

Communications of the CEPZ are under the jurisdiction of the Rosario telephone exchange. Replacement of the 950 line EMD switchboard exchange by the new electronic SPCD exchange system is at present underway. This work is scheduled for completion in September, 1991. This will result in the opening of 1,250 new lines. Once such improvements have finished the CEPZ will receive some 600-700 new lines. However, this will be once the CEPZ has completed development, and there is urgent need for 120 lines,

to be completed during 1990, for the companies already in CEPZ.

By the end of 1990 there will be more than 21 companies in the CEPZ. It is possible that each company will possess more than three telephones and, in addition, facsimile equipment.

6) Sewerage and Drainage

a) Sewerage Line

It is necessary for the CEPZ to undertake the guidance and supervision of each industry in relation to the treatment and disposal of waste liquids. Companies requiring equipment for the treatment of waste factory liquids should be made to install this. The EPZA should ensure that such equipment is the most suitable.

The EPZA needs to establish prior standards for water quality and notify tenants of these. In the final analysis it is the EPZA which is to decide the treatment equipment to be installed for reaching water quality standards. As the scale and standards of equipment for biochemical treatment, filtration and sedimentation varies it is necessary to carry out a thorough examination before making decisions.

b) Drainage Line

i) Calculation of Waste Water Volume

The volume of waste water is to be determined on the basis of estimates derived from design data and calculation methods concerning the rainfall volumes, drainage time to water collection points according to design estimates, the strength of rainfall, the surface area and number of drains of facilities and equipment concerned.

ii) Decision on Drainage Equipment

The waste liquid discharge from a given area is to be calculated on the basis of the above waste water volume estimates. On the basis of this gutters, drainage piping and its diameter is to be calculated.

c) Waste Water Treatment

As "SAPROF" has already indicated this in the concrete details of the basic plan for waste water treatment inside the CEPZ it is omitted here.

7) Solid Waste Disposal

At present, the only scheduled development concerning burnable solid wastes is the installation of an open air burning system. As an increase in solid wastes proportional to the increase in the number of tenant companies is anticipated, the installation of treatment facilities sufficient to deal with this is necessary.

Disposal by incineration is the best method for CEPZ. However, as both incineration equipment and operation are costly the planning and implementation should be staged to take place in conjunction with the phases of development.

An important point for consideration relating to the introduction of incinerator equipment is how to treat the ash. In the case of CEPZ since the incinerator site is to be secured outside of the estate once estate development is fully completed this question requires serious study.

8) Perimeter Fencing and Securities

a) Perimeter Fencing

Hereafter, the total area for development will be expanded and the number of industries increase. As fencing will play an important role in the protection of company equipment, capital goods, products, etc. and for the safety of employees its prompt provision is essential.

b) Securities

In addition to assuring the security of employees and tenant industries a thorough check is to take place at gates of movements in and out, and policies for upgrading security undertaken.

Main measures include:

- Establishment of a security system and personnel
- Supervision of entries and exits
- Regular patrols and inspections of perimeter fencing
- Regular patrols inside the estate, inspections of common service facilities

9) Standard Factory Building

In the event of an expansion of such facilities in the future the following points must be borne in mind. The standard factory building should.

- a) Be 1,000-3,000 sq. m in size, so as to have a floor area suitable to the scale of equipment of the companies served (two- or three-story buildings),
- b) Be of sufficiently durable construction to endure natural contingencies,
- c) Reflect consideration to methods of finishing the floor (thickness, flatness, wiring, pipe gutters),
- d) Have doors of adequate width for moving machinery and equipment, and
- e) Show an upgrading of ventilation.

#### 10) Fire Protection

As there are a large number of industries in the CEPZ which employ inflammable materials such as textiles, plastics or leather, etc. fire protection measures are essential. The following require urgent implementation:

- a) The installation of extinguisher pumps as part of the water distribution system
- b) The installation of hydrants according to the master plan
- c) The installation of a hose and its box at the side of each hydrant
- d) The formation of a joint fire fighting team composed by the CEPZ and tenant industries
- e) The installation of fire fighting equipment suitable to fires at elevated positions
- f) Installation of emergency warning systems
- g) The acquisition or installation of emergency aid equipment such as ambulances, etc.

#### 11) Support and Service Facilities

There are types of equipment which are indispensable to an export processing zone and others which should be installed so that the CEPZ can fulfill its tasks in the operation, administration and support of industries. The former include a custom house, export inspection office, clearance agency, container yard, packaging companies, etc. The latter include administrative and managerial offices, research and training facilities, parking lots, banking institutions, medical services, shopping center, residential facilities (for executives and shopfloor employees) and guest accommodation, etc.

Table A13-5 indicates the details of support and service facilities available at other export processing zones in neighboring countries.



As the development of the CEPZ proceeds, the number of tenant companies and employees will increase. It is necessary that a policy concerning the regulation of the inflow of employees into the estate be established to regulate their transfer.

Once Phase V is completed the distance from the gates to the central area of the estate will be 3-4 km. It is necessary to set up some independent means of transport for the estate precincts both for the safety and health of employees and for security reasons. One proposal is for a loop-line coach service to and from the gates in the morning and evening, while transportations could be by minibus and jeepneys during the daytime hours.

Table A13-1 ESTIMATED LAND USE (PHASE WISE)

Unit : m<sup>2</sup>

	<u>Phase I</u>	<u>Phase II</u>	<u>Phase III</u>	<u>Phase IV</u>	<u>Phase V</u>	<u>Total</u>
<u>Total Area</u>	<u>634,994</u>	<u>641,424</u>	<u>404,810</u>	<u>701,470</u>	<u>448,752</u>	<u>2,831,450</u>
Industrial Land	396,180	394,742	279,089	390,854	278,894	1,739,759
Road Right of Way	106,109	84,098	97,312	89,055	68,424	444,998
Adminis. Area	19,950	0	0	0	3,525	23,475
Utilities Area	22,780	0	0	36,300	9,830	68,910
Green & Open Space	89,975	162,584	28,409	185,261	88,079	554,308

Table A13-2 ESTIMATION OF WATER CONSUMPTION

(Unit : m<sup>3</sup> /day)

	Daily Average	Daily Maximum	Hourly Maximum
Domestic	1,380	1,725	3,036
Industrial	5,620	7,306	11,240
Loss	1,050	1,365	2,800
Total	8,050	10,396	17,076

Assumed Factors/Multipliers:

Domestic	1.25	2.2
Industrial & Losses	1.30	2.0

Table A13-3 ENERGY SUPPLY MIX

Unit: MW

Kind of Energy	1986 (%)	1987	1988	1989	1990	1991	1992 (%)
Hydro	2,132 (33.0)	2,221	2,235	2,254	2,275	2,297	2,297 (32.6)
Coal	534 (8.3)	534	534	534	534	534	934 (13.2)
Geothermal	894 (13.9)	894	894	894	894	1,004	1,004 (14.2)
Oil	1,925 (29.8)	1,925	1,925	1,925	1,925	1,925	1,925 (27.3)
Diesel	778 (12.1)	773	733	675	675	675	675 (9.7)
New	191 (2.9)	198	205	210	214	214	214 (3.0)
Total	6,455 (100.0)	6,546	6,527	6,493	6,518	6,650	7,050 (100.0)

Source: Medium-Term Philippine Development Plan (1987 - 1992)

Table A13-4 ESTIMATED ENERGY DEMAND SUPPLY BALANCE IN LUZON GRID

Year	1985	1986	1987	1988	1989	1990	1991	1992	1995	2000
Sales Volume (GWH)	13,135	13,461	13,908	14,564	15,226	15,974	16,810	17,829	21,392	28,352
Growth Rate (%)		102	103	105	105	105	105	106	120	133
Generation Volume (GWH)	14,449	14,756	15,362	16,004	16,732	17,553	18,472	19,592	23,508	31,156
Growth Rate (%)		102	104	104	105	105	105	106	120	133
Load Factor (%)	71.4	69.2	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
Loss Rate (%)	9.1	8.8	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0

Note : Actual figures for 1985, 1986

Source: NPC

Table A13-5 SUPPORT & SERVICE FACILITIES IN NEIGHBOURING COUNTRIES

SUPPORT & SERVICE	MASAN (KOREA)	NANTZE (TAIWAN)	LAEM CHABANG (THAILAND)
NEGOTIATION WITH GOVERNMENT	○	○	○
MANPOWER ARRANGEMENT	○	○	○
TRAINING/EXHIBITION CENTER	○		○
INCINERATOR	○		○
TAX OFFICE		○	
CUSTOM/QUARANTINE	○	○	○
IMMIGRATION	○		
COMMUNICATION	○	○	○
POLICE/FIRE STATION	○		○
BANKS	○	○	○
TRANSPORT/PACKING	○		○
CUSTOM BROKER	○		
TRAVEL AGENT	○	○	
ACCOMODATIONS	○		○
SHOPPING CENTER	○		○
CLINICS	○		○
HOUSINGS FOR MANAGERS			○
HOUSINGS FOR WORKERS			○
RECREATION FACILITIES	○		○

Figure A13-1 SINGLE LINE DIAGRAM OF POWER SUPPLY FOR FOUR (4) INDUSTRIAL ESTATES

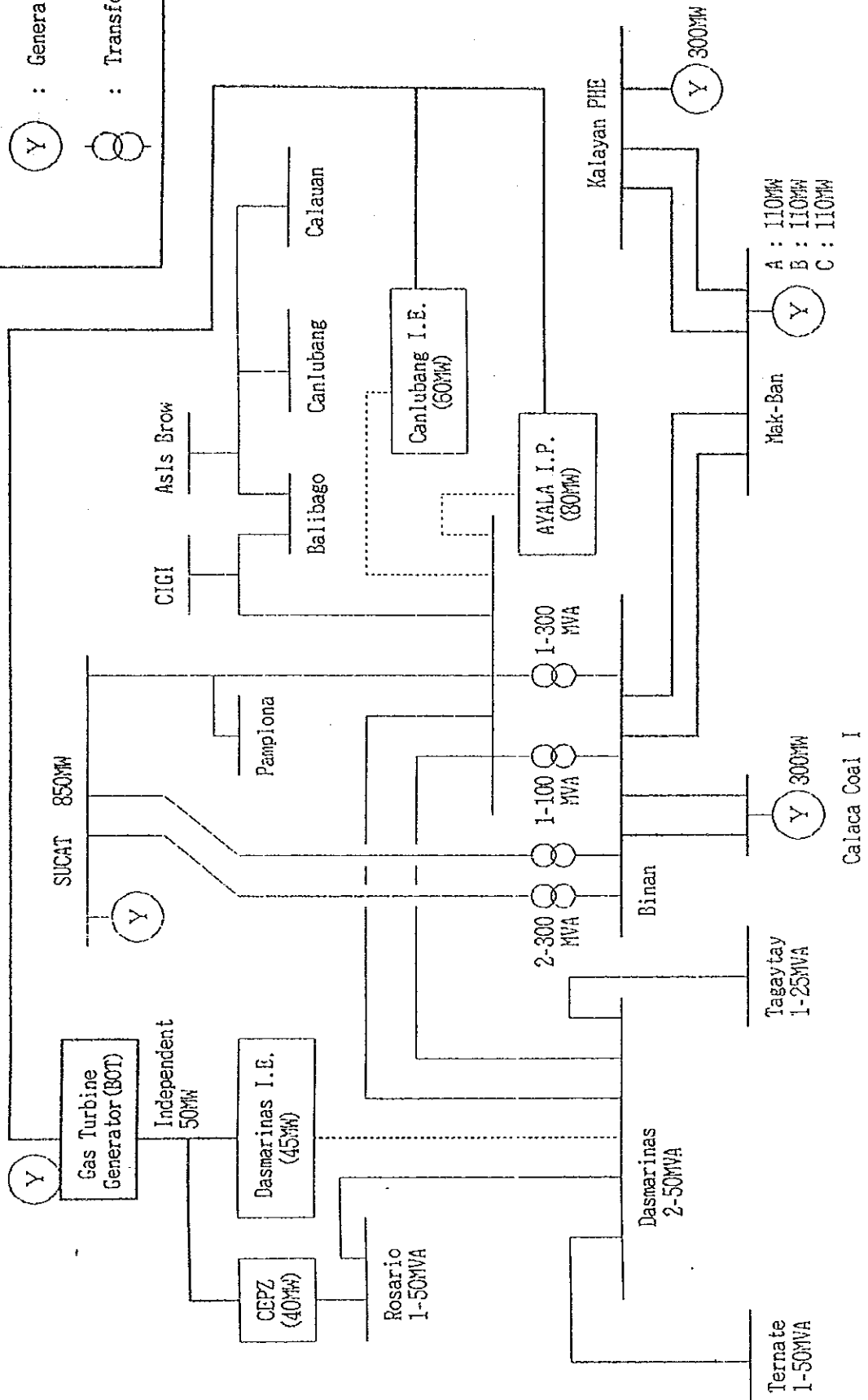
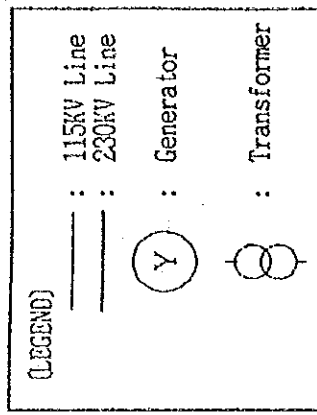










EXHIBIT A13-III EXTRACT OF INDUSTRIAL BASIC UNIT FOR JAPANESE MANUFACTURING INDUSTRIES

CODE	NAME OF INDUSTRY	ENGAGED PERSON (psn)	VALUE OF SHIPMENT (M¥)	SITE AREA (m <sup>2</sup> )	BUILD. SPACE (m <sup>2</sup> )	REQUIRED WATER (m <sup>3</sup> /day)	VALUE OF SHIP. PER PSN (M¥/psn)	EMPLOY RATIO PER AREA (psn/Mm <sup>2</sup> )	WATER RATIO PER AREA (m <sup>3</sup> /d/Mm <sup>2</sup> )	VALUE OF POWER PER AREA (M¥/m <sup>2</sup> )	WATER RATIO PER BUILD. (m <sup>3</sup> /d/Mm <sup>2</sup> )
18	Food Manufactur- ing	97	2,348	13,319	3,757	560	24,206	7.3	42.0	1.36	149.1
181	Live-stock Products	104	2,975	14,738	3,147	670	28,606	7.1	45.5	1.56	212.9
182	Sea food Processing	77	1,344	6,062	2,286	256	17,455	12.7	42.2	1.66	112.0
183	Canned and pre- served fruits and vegetable	81	948	9,143	3,046	409	11,704	8.9	44.7	0.80	134.3
184	Seasonings	118	3,047	27,362	8,717	2,029	25,822	4.3	74.2	0.84	232.8
185	Flour and grain mill products	81	5,156	15,156	6,191	118	63,654	5.3	7.8	3.15	19.1
186	Sugar processing	151	8,964	123,618	9,797	6,932	59,364	1.2	56.1	0.34	707.6
187	Bakery and con- fectionery products	119	1,396	7,167	2,487	170	11,731	16.6	23.7	2.00	68.4
188	Beverage industries	108	5,290	30,455	9,518	976	48,981	3.5	32.0	0.84	102.5
189	Prepared animal foods and organic fertilizer	67	5,524	20,388	5,813	228	82,448	3.3	11.2	1.68	39.2
191	Animal and vegetable oils and fats	129	9,872	34,023	8,298	1,438	76,527	3.8	42.3	2.25	173.3
192	Miscellaneous food and related products (1)	69	1,261	8,449	2,578	562	18,275	8.2	66.5	2.19	219.0



CODE NAME OF INDUSTRY	ENGAGED PERSON (psn)	VALUE OF SHIPMENT (MM₹)	SITE AREA (m²)	BUILD. SPACE (m²)	REQUIRED WATER (m³ day)	VALUE OF SHIP. PER PSN (M₹/psn)	EMPLOY RATIO PER AREA (psn/Mm²)	WATER RATIO PER AREA (m³/d/Mm²)	VALUE OF POWER PER AREA (M₹/m²)	WATER RATIO PER BUILD. (m³/d/Mm²)
193 Miscellaneous food and related products (2)	87	1,125	6,466	1,847	318	12,931	13.5	49.2	1.86	172.2
20 Textile mills products	96	1,145	15,883	5,886	739	11,927	6.0	46.5	1.47	125.6
201 Silk reeling products	94	2,064	23,178	7,269	491	21,957	4.1	21.2	0.34	67.5
202 Spinning mills	223	2,671	56,265	20,444	2,596	11,978	4.0	46.1	1.67	127.0
203 Twisting and bulky yarns	63	871	13,017	4,834	433	13,825	4.8	33.3	2.06	89.6
204 Woven fabric mills	72	944	11,219	4,439	335	13,111	6.4	29.9	1.39	75.5
205 Knitting mills	76	699	5,520	1,753	89	9,197	13.8	16.1	1.03	50.8
206 Dyeing and finishing textiles	96	1,066	13,520	6,021	1,554	11,104	7.1	114.9	1.94	258.1
207 Ropes and knittings	84	955	14,475	5,449	106	11,369	5.8	7.3	0.70	19.5
208 Lace and other textile goods	63	760	10,275	3,392	114	12,063	6.1	11.1	0.59	33.6
209 Miscellaneous textile mills products	76	1,415	16,951	5,410	474	18,618	4.5	28.0	0.95	87.6

CODE NAME OF INDUSTRY PERSON	ENGAGED PERSON (psn)	VALUE OF SHIPMENT (MM\$)	SITE AREA (m <sup>2</sup> )	BUILD. SPACE (m <sup>2</sup> )	REQUIRED WATER (m <sup>3</sup> day)	VALUE OF SHIP. PER PSN (M\$/psn)	EMPLOY RATIO PER AREA (psn/Mm <sup>2</sup> )	WATER RATIO PER AREA (m <sup>3</sup> /d/Mm <sup>2</sup> )	VALUE OF POWER PER AREA (M\$/m <sup>2</sup> )	WATER RATIO PER BUILD. (m <sup>3</sup> /d/Mm <sup>2</sup> )
21 Apparel and other finished products	70	412	3,060	981	23	5,886	22.9	7.5	0.74	23.4
211 Outer garment, except Japanese style	71	382	2,833	888	21	5,380	25.1	7.4	0.77	23.6
212 White shirts and underwear	74	360	3,205	934	20	4,865	23.1	6.2	0.65	21.4
213 Hats	60	405	1,035	682	8	6,750	58.0	7.7	1.37	11.714
214 Fur apparel and apparel accessories	65	1,036	2,929	1,118	24	15,938	22.2	8.2	0.85	21.5
215 Miscellaneous textile, apparel, etc.	65	334	2,715	889	22	5,138	23.9	8.1	0.61	24.7
219 Miscellaneous fabricated textile products	58	775	5,007	1,905	42	13,362	11.6	8.4	0.70	22.0
22 Lumber and wood products	69	1,258	19,454	4,573	70	18,232	3.5	3.6	0.70	15.3
221 Sawing, planing mills and wood products	51	847	17,275	3,182	39	16,608	3.0	2.3	0.41	12.3
222 Millwork, plywood and prefab-wood products	107	2,264	27,345	7,963	141	21,159	3.9	5.2	1.06	17.7
223 Wooden containers	52	482	8,187	2,605	12	9,269	6.4	1.5	0.47	4.6
224 Wooden footwear	X	X	X	X	X	X	X	X	X	X
229 Miscellaneous wood products	56	705	12,849	2,356	45	12,589	4.4	3.5	0.39	19.1

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23	Furniture and fixtures	74	990	10,303	3,469	45	13,378	7.2	4.4	0.60	13.0
231	Furniture	79	1,050	11,100	3,762	47	13,291	7.1	4.2	0.61	12.5
232	Furniture for religious purposes	52	418	3,942	1,544	24	8,038	13.2	6.1	0.90	15.5
233	Sliding doors and screens	50	511	8,672	2,442	17	10,220	5.8	2.0	0.33	7.0
239	Miscellaneous furniture and fixtures	63	1,100	7,982	2,629	62	17,460	7.9	7.8	0.57	23.6
24	Pulp, paper and paper products	101	2,530	30,478	7,500	5,300	25,050	3.3	173.9	2.53	706.7
241	Pulp	203	6,741	232,739	23,718	47,333	33,044	0.9	203.4	1.03	1,995.7
242	Paper	188	5,816	83,716	16,295	21,527	30,936	2.2	257.1	3.56	1,321.1
243	Paper coating and glazing	90	2,388	21,140	6,422	989	26,533	4.3	46.8	1.30	154.0
244	Paper products	81	1,304	7,017	2,944	60	16,099	11.5	8.5	1.04	20.4
245	Paper containers	68	1,470	11,692	4,806	84	21,618	5.8	7.2	0.70	17.5
249	Other pulp, paper and paper worked products	85	1,334	16,165	4,955	773	15,694	5.3	47.8	1.76	156.0

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25 Publishing, printing and allied industries	99	1,727	2,872	1,258	56	17,444	34.5	19.5	3.41	44.5
251 Newspaper industry	308	5,685	2,072	1,123	118	16,458	148.6	56.9	12.96	105.1
252 Publishing industry	130	4,129	1,537	770	20	34,408	78.1	13.0	3.67	26.0
253 Printing industry	77	1,107	3,229	1,399	52	14,377	23.8	16.1	2.83	37.2
254 Plate-making for printing	60	549	2,738	723	91	9,150	21.9	33.2	1.93	125.9
255 Book-binding and printed matters	64	523	2,551	1,478	18	8,172	25.1	7.1	2.41	12.2
259 Service industries relate to printing trade	X	X	X	X	X	X	X	X	X	X



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26 Chemical and allied products	186	7,106	75,625	11,520	4,429	38,204	2.5	58.6	2.09	384.5
261 Chemical fertilizers	125	4,708	93,218	17,743	7,363	37,664	1.3	79.0	1.71	415.0
262 Industrial chemicals	134	3,873	96,647	11,495	3,579	28,903	1.4	37.0	3.63	311.4
263 Industrial organic chemicals	258	14,760	154,466	18,248	9,247	57,209	1.7	59.9	2.43	506.7
264 Chemical fibers	677	16,245	280,223	68,662	37,561	23,996	2.4	134.0	1.22	547.0
265 Oil and fat products, soaps, detergents, etc.	123	4,330	21,645	5,299	472	35,203	5.7	21.8	1.11	89.1
266 Drugs and medicines	179	5,037	33,570	5,797	1,136	28,140	5.3	33.8	1.00	196.0
269 Miscellaneous chemical and allied products	138	4,728	36,079	6,095	1,198	34,261	3.8	33.2	0.94	196.6
27 Petroleum and coal products	261	66,266	416,149	15,575	6,356	253,893	0.6	15.3	0.92	408.1
271 Petroleum refining	455	150,038	916,385	20,694	13,781	329,754	0.5	15.0	0.63	665.9
272 Lubricating oils and greases	57	2,173	14,033	2,843	3,612	38,123	4.1	257.4	0.66	1270.5
273 Coke	552	55,933	439,394	58,650	8,298	101,328	1.3	18.9	3.61	141.5
274 Briquettes and briquette balls	58	720	12,829	5,854	61	12,414	4.5	4.8	0.82	10.4
275 Paving materials	41	1,025	16,577	2,944	165	25,000	2.5	10.0	0.80	56.0
279 Miscellaneous petroleum and coal products	59	2,879	24,877	5,074	210	48,797	2.4	8.4	1.28	41.4

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28	Rubber products	162	2,601	21,069	7,137	471	16,056	7.7	22.4	2.05	66.0
281	Tyres and inner tubes	722	17,659	146,702	49,098	3,288	24,458	4.9	22.4	2.23	67.0
282	Rubber and plastic footwear	118	1,222	8,764	3,098	155	10,356	13.5	17.7	1.15	50.0
283	Rubber belts, hoses, mechanical	139	1,864	14,844	5,154	330	13,410	9.4	22.2	2.16	64.0
289	Miscellaneous rubber products	88	1,323	12,010	3,716	338	15,034	7.3	28.1	1.96	91.0
29	Leather tanning and products and fur skins	76	989	5,209	1,680	85	13,013	14.6	16.3	0.84	50.6
291	Leather tanning and finishing	85	1,820	13,139	5,439	572	21,412	6.5	43.5	1.02	105.2
292	Mechanical leather products	X	X	X	X	X	X	X	X	X	X
293	Boot and shoe cut stock and findings	60	396	2,354	743	13	6,600	25.5	5.5	0.76	17.5
294	Leather footwear	87	1,137	4,101	1,214	21	13,069	21.2	5.1	0.95	17.3
295	Leather gloves and mittens	43	634	3,352	983	9	14,744	12.8	2.7	0.44	9.2
296	Luggage	58	629	5,207	1,282	17	10,845	11.1	3.3	0.40	13.3
297	Handbags and small leather goods	67	561	3,622	946	22	8,373	18.5	6.1	0.53	23.3
298	Fur skins	100	1,141	15,201	6,993	431	11,410	6.6	28.4	1.01	61.6
299	Miscellaneous leather products	68	994	2,620	644	9	14,618	26.0	3.4	0.82	14.0

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30 Ceramic, stone and clay products	85	1,336	29,382	5,647	297	15,718	2.9	10.1	1.65	52.6
301 Glass and its products	150	2,786	26,735	8,621	591	18,573	5.6	22.1	3.04	68.6
302 Cement and its products	64	1,250	30,633	3,871	258	19,531	2.1	8.4	1.66	66.6
303 Structural clay products	62	544	16,890	4,853	48	8,774	3.7	2.8	0.76	9.9
304 Pottery and related products	106	782	16,606	6,063	95	7,377	6.4	5.7	0.95	15.7
305 Clay refractories	159	2,268	52,075	16,990	552	14,264	3.1	10.6	1.03	32.5
306 Carbon and graphite products	157	3,517	112,131	20,350	1,310	22,401	1.4	11.7	2.81	64.4
307 Abrasive products	103	1,490	27,141	6,944	328	14,466	3.8	12.1	2.64	47.2
308 Aggregate and stone products	62	771	40,747	3,800	411	12,435	1.5	10.1	0.70	108.2
309 Miscellaneous ceramic, stone and clay products	82	1,488	28,931	6,646	423	18,146	2.8	14.6	1.76	63.6

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31	Iron and steel industries	227	8,779	114,049	223,010	2,421	38,674	2.0	21.2	3.03	10.9
311	Iron smelting, with blast furnaces	6,270	272,486	4,789,419	762,849	110,335	43,459	1.3	23.0	2.31	144.6
312	Iron smelting, without blast furnaces	212	8,669	236,305	23,548	8,226	40,892	0.9	34.8	5.81	349.3
313	Steel with rolling facilities	651	30,342	245,070	61,259	5,501	46,608	2.7	22.4	6.88	89.8
314	Steel materials and rolling mills	132	5,598	43,117	14,110	698	42,409	3.1	16.2	2.34	49.5
315	Coated steel	137	4,479	27,876	10,082	524	32,693	4.9	18.8	1.74	52.0
316	Steel forgings and castings	121	1,887	31,364	7,703	351	15,595	3.9	11.2	2.35	45.6
317	Iron castings	95	1,483	20,561	6,597	236	15,611	4.6	11.0	2.67	34.3
319	Miscellaneous iron and steel	69	3,280	18,174	5,470	56	47,536	3.8	3.1	0.85	10.2

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32 Non-ferrous metals and products	189	7,010	67,549	16,041	1,569	37,090	2.8	23.2	4.07	97.8
321 Primary non-ferrous metals smelting	435	24,816	390,477	59,086	9,237	57,048	1.1	23.7	5.80	156.3
322 Secondary non-ferrous metals smelting	82	4,992	32,120	7,469	731	60,878	2.6	22.8	8.93	97.9
323 Rolling of non-ferrous metals and alloys	294	9,972	75,349	25,813	2,470	33,918	3.9	32.6	3.13	95.7
324 Non-ferrous foundries	95	1,749	13,958	3,994	144	18,411	6.8	10.3	1.61	36.1
325 Electric wire and cable	202	7,464	50,295	15,034	655	36,950	4.0	13.0	1.69	43.6
329 Miscellaneous non-ferrous metal products	98	2,462	48,533	6,199	1,176	25,122	2.0	24.2	1.27	189.7

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33 Fabricated metal products	85	1,420	12,483	4,130	112	16,706	6.8	9.0	1.12	27.1
331 Tin cans and other plate steel products	122	3,422	12,451	5,516	112	28,049	9.8	9.0	2.36	20.3
332 Table ware, cutlery, hand tools, etc.	74	1,034	8,948	2,716	91	13,973	8.3	10.2	1.03	33.5
333 Heating apparatus and plumbing supplies	127	2,368	14,690	4,922	133	18,646	8.6	9.1	0.94	27.0
334 Fabricated metal products	86	1,639	18,726	5,781	94	19,058	4.6	5.0	0.53	16.3
335 Stamped, coated, engraved & heat treated metal	69	813	6,654	2,485	151	11,783	10.4	22.7	2.50	60.8
336 Fabricated wire products	67	1,200	13,424	4,037	158	17,910	5.0	11.8	1.50	39.1
337 Bolts, nuts, rives, screws and wood screws	80	1,230	9,909	3,664	76	15,375	8.1	7.7	2.03	20.7
339 Miscellaneous fabricated metal products	91	1,190	7,976	2,902	88	13,077	11.4	11.0	1.77	30.3

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34 General machinery	139	2,493	20,518	6,227	128	17,935	6.8	6.2	0.91	20.6
341 Boilers, engines and turbines	537	11,086	95,806	28,237	880	20,644	5.6	9.2	1.03	31.2
342 Agricultural machinery and equipment	132	2,439	18,778	6,547	115	18,477	7.0	6.1	0.77	17.6
343 Construction and mining machine	194	5,792	42,618	12,101	254	29,856	4.6	6.0	0.98	21.0
344 Metal working machine	121	1,959	18,321	5,740	99	16,190	6.6	5.4	0.84	17.2
345 Textile machinery	132	1,773	18,528	6,890	107	13,432	7.1	5.8	0.72	15.5
346 Special industry machine	97	1,528	14,012	4,557	73	15,753	6.9	5.2	0.75	16.0
347 General industry machine	130	2,216	21,987	6,155	83	17,046	5.9	3.8	0.69	13.5
348 Office, service industry and house-hold machine	153	2,920	14,617	4,497	121	19,085	10.5	8.3	0.82	26.9
349 Miscellaneous	120	1,633	13,166	4,202	132	13,608	9.1	10.0	1.62	31.4

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35	Electrical machinery equipment and supplies	166	2,719	12,290	3,495	141	16,380	13.5	11.5	1.35	40.3
351	Electrical generators, transmission, etc.	152	2,165	14,880	4,331	100	14,243	10.2	6.7	0.95	23.1
352	House-hold electric appliances	179	4,486	17,854	5,901	217	25,061	10.0	12.2	1.15	36.8
353	Electric bulbs and lighting fixtures	135	2,165	11,497	3,457	179	16,037	11.7	15.6	1.30	51.8
354	Communication equipment and related products	185	3,342	10,173	2,938	92	18,065	18.2	9.0	1.02	31.3
355	Electronics equipment	295	6,431	17,175	4,673	172	21,800	17.2	10.0	1.43	36.8
356	Electric measuring instruments	148	1,825	7,829	1,945	56	12,331	18.9	7.2	0.93	28.8
357	Various electronic parts	147	1,762	9,679	2,413	187	11,986	15.2	19.3	2.25	77.5
359	Miscellaneous electrical machinery	125	1,870	11,750	3,288	224	14,960	10.6	19.1	2.17	68.1



CODE NAME OF INDUSTRY PERSON	ENGAGED PERSON (psn)	VALUE OF SHIPMENT (MM\$)	SITE AREA (m <sup>2</sup> )	BUILD. SPACE (m <sup>2</sup> )	REQUIRED WATER (m <sup>3</sup> day)	VALUE OF SHIP. PER PSN (M\$/psn)	EMPLOY RATIO PER AREA (psn/Mm <sup>2</sup> )	WATER RATIO PER AREA (m <sup>3</sup> /d/Mm <sup>2</sup> )	VALUE OF POWER PER AREA (M\$/m <sup>2</sup> )	WATER RATIO PER BUILD. (m <sup>3</sup> /d/Mm <sup>2</sup> )
36 Transportation equipment	255	7,125	42,622	11,727	318	27,941	6.0	7.5	1.24	27.1
361 Motor vehicles and equipment	272	8,525	40,415	12,162	365	31,342	6.7	9.0	1.58	30.0
362 Railroad equipment and parts	192	2,967	22,538	8,737	94	15,453	8.5	4.2	0.64	10.8
363 Bicycles and parts	100	1,752	10,415	4,060	103	17,520	9.6	9.9	1.17	25.4
364 Ship-building and repairing and marine engine	236	3,875	59,333	12,159	216	16,419	4.0	3.6	0.52	17.8
365 Aircraft and parts	618	8,688	149,270	26,377	789	14,058	4.1	5.3	0.36	29.9
369 Miscellaneous transportation equipment	95	2,423	19,434	6,209	74	25,505	4.9	3.8	0.58	11.9

CODE	NAME OF INDUSTRY PERSON	ENGAGED PERSON (psn)	VALUE OF SHIPMENT (MM\$)	SITE AREA (m <sup>2</sup> )	BUILD. SPACE (m <sup>2</sup> )	REQUIRED WATER (m <sup>3</sup> day)	VALUE OF SHIP. PER PSN (M\$/psn)	EMPLOY RATIO PER AREA (psn/Mm <sup>2</sup> )	WATER RATIO PER AREA (m <sup>3</sup> /d/Mm <sup>2</sup> )	VALUE OF POWER PER AREA (M\$/m <sup>2</sup> )	WATER RATIO PER BUILD. (m <sup>3</sup> /d/Mm <sup>2</sup> )
37	Precision instruments and machinery	139	1,835	8,429	2,183	91	13,201	16.5	10.8	1.23	41.7
371	Measuring and analytical instruments, etc.	120	1,510	7,731	2,634	65	12,583	15.5	8.4	0.94	24.7
372	Surveying instruments	136	1,570	4,641	1,370	82	11,544	29.3	17.7	1.22	59.9
373	Medical instruments and apparatus	125	1,702	928	2,222	115	13,616	134.7	123.9	1.33	51.8
374	Physical and chemical instruments	61	774	5,779	1,689	25	12,689	10.6	4.3	0.53	14.8
375	Optical instruments and lenses	147	1,922	8,653	2,047	97	13,075	17.0	11.2	1.31	47.4
376	Ophthalmic goods	84	816	5,554	1,675	78	9,714	15.1	14.0	1.57	46.8
377	Watches, clocks, clockwork-operated devices etc.	171	2,413	10,041	2,144	104	14,111	17.0	10.4	1.27	48.5
38	Ordnance/small	257	2,570	650,896	12,160	351	10,000	0.4	0.5	0.03	28.9

CODE	NAME OF INDUSTRY	PERSON (psn)	VALUE OF SHIPMENT (MM\$)	SITE AREA (m <sup>2</sup> )	BUILD. SPACE (m <sup>2</sup> )	REQUIRED WATER (m <sup>3</sup> day)	VALUE OF SHIP. PER PSN (M\$/psn)	EMPLOY RATIO PER AREA (psn/Mm <sup>2</sup> )	WATER RATIO PER AREA (m <sup>3</sup> /d/Mm <sup>2</sup> )	VALUE OF POWER PER AREA (M\$/m <sup>2</sup> )	WATER RATIO PER BUILD. (m <sup>3</sup> /d/Mm <sup>2</sup> )
39	Miscellaneous manufacturing industries	88	1,585	12,316	3,573	242	18,011	7.1	19.6	1.77	67.7
391	Precious metal products	56	1,298	2,394	574	24	23,179	23.4	10.0	1.20	41.8
392	Musical inst- ruments and phonograph records	159	2,588	13,480	4,502	230	16,277	11.8	17.1	1.16	51.1
393	Toys and sports	73	883	6,798	1,988	44	12,096	10.7	6.5	0.79	22.1
394	Pens, lead pencils, paint- ing materials, etc.	102	1,319	7,145	2,242	73	12,931	14.3	10.2	1.20	32.6
395	Costume jewellery, accessories, buttons, etc.	80	823	6,205	1,756	38	10,288	12.9	6.1	1.07	21.6
396	Plastic products	90	1,856	15,447	4,468	363	20,622	5.8	23.5	2.08	81.2
397	Lacquer ware	62	332	3,998	1,413	15	5,355	15.5	3.8	0.52	10.6
398	Other manufacturing (1)	69	799	9,648	2,150	37	11,580	7.2	3.8	0.51	17.2
399	Other manufacturing (2)	89	1,960	10,310	3,114	118	22,022	8.6	11.4	0.90	37.9

EXHIBIT A13-IV OUTLINE OF COMPANY FOR CAVITE EPZ  
(As of February, 1990)

<u>NO. PSIC Code</u>	<u>NAME OF COMPANY</u>	<u>EMPLOYMENT (PSN)</u>	<u>PRODUCTION for EXPORT (US\$1,000)</u>	<u>REQUIRED WATER (m3/month)</u>	<u>REQUIRED POWER (KWH/month)</u>
<b>A. OPERATIONAL STATUS</b>					
<b>I OPERATIONAL COMPANY</b>					
1 383	Antistatic Product Specialist	55	430	135	8,900
2 322	Filkor Business Integrated, Inc.	524	3,046	2,700	44,640
3 390	Iwax Philippines, Inc.	220	2,611	5,450	200,000
4 322	Mayon Garments Manufacturing	49	142	25	1,280
5 384	Unipac International (Phils.)	28	772	500	2,990
6 383	San Tech. Inc.	504	548	1,015	38,800
7 383	Maxson Systems	135	2,256	1,620	77,400
8 322	Ocean Industries	13	2	140	1,520
9 384	Kingsreich Corporation	84	2,080	500	6,480
10 323	Luminary International, Inc.	175	1,045	130	2,200
11 381	Lu Chu Shin Yee Works Co., Ltd.	5	3,000	235	8,200
12 322	Cavite Apparel Corporation	8	21	425	4,940
13 383	Filkor Electronics	156	2,660	1,800	150,000
<b>SUB-TOTAL</b>				<b>14,675</b>	<b>547,350</b>

<b>II UNDER CONSTRUCTION (PROJECTION)</b>					
14 322	Ada International Phils., Inc.	390	89,744 DOZ.	500	5,200
15 390	Mikado Corporation	93	450 TONS	330	104,000
16 390	Nihongarter Phils. Inc.	190	2,132,800 REELS	220	37,500
17 322	Sun Moon Manufacturing Corp.	156	144,000 SETS	250	6,400
18 321	Cavite Manufacturing Corp.	341	535,795 PCS.	425	104,000
19 383	MEC Electronics. Phils.	171	18,807,000 PCS.	810	14,400

NO.	PSIC Code	NAME OF COMPANY	EMPLOYMENT (PSN)	PRODUCTION for EXPORT (Unit)	REQUIRED WATER (m3/month)	REQUIRED POWER (KWH/month)
20	322	Fox Knit Apparel	163	709,800 PCS.	50	3,750
21	383	Clarion Manufacturing Phils. Corp.	514	1,039,000 UNITS	5,000	634,000
SUB-TOTAL			2,018		7,585	909,250

B. PIPELINE COMPANY

I REGISTERED BUT W/O PHYSICAL PRESENCE

22	341	Nihon Growbell (Philis.) Inc.	102	202,176,000 PCS.	500	162,000
23	394	Iwax Motows, Inc.	662	772 UNITS	1,000	11,232
24	322	JMT Enterprises	153	295,680 DECA	185	249,600
25	390	Japan Muffler Inc.	53	300,000 UNITS	300	249,600
26	324	Phillips Exports, Inc.	3,032	4,440,800 PCS.	1,000	436,800
27	390	Alex PKC Corp.	96	1,320 TONS	375	60,320
SUB-TOTAL			4,098		3,360	1,169,792

II APPROVED BUT NOT YET REGISTERED

28	322	Body Wraps, Inc.	246	151,000 DOZ.	250	4,950
29	322	SCK Corporation (Chung Won)	350	30,672 DOZ.	3,000	41,600
30	322	Filkor Garments	123	21,079 DOZ.	470	10,000
31	331	Home and Office Technology	60	20,000 UNITS	200	8,320
32	322	Wilmar Company Phils.	264	285,000 UNITS	470	9,100
33	390	Riverstone Japan Corporation	293	28,500,000 UNITS	500	24,960
34	341	Chang Chun Cotton Paper Mfg.	236	680 MT	110	41,600
35	383	Unix Manila, Inc.	102	10,080,080 UNITS	500	24,000

NO. PSIC Code	NAME OF COMPANY	EMPLOYMENT (PSN)	PRODUCTION for EXPORT (Unit)	REQUIRED WATER (m3/month)	REQUIRED POWER (KWH/month)
36	CG Garments	200	710,000 PCS.	1,000	4,430
37	Mouaward Gem Lapidary	158	926 PCS.	520	18,300
38	Sky castles Manufacturing, Inc.	236	10,000,000 PCS.	70	5,000
39	Sansei Electric Corporation	320	37,585,000 UNITS	200	50,000
40	Japan Inc. (C.Itoh-Ishii)	114	30,000 SQ.M	250	19,200
41	International Fiberglass Corp.	174	53,200 SHEETS	200	35,000
42	Pacific Rare Metals, Inc.	103	2,744 MT	235	8,200
43	Hop Chung Garments, Inc.	212	44,500 DOZ.	470	10,000
SUB-TOTAL		3,191		8,445	314,600

### III UNDER EVALUATION

44	Toei Corporation	192	540,000 PCS.	425	5,000
45	Hayakawa Electric Wire Co.	239			40,000
46	Jenco Instruments Phils., Inc.	102	103,242 UNITS	300	3,000
SUB-TOTAL		533		725	48,000

### IV WITH OFFICIAL RESERVATION/LETTER OF INTENT

47	Heraues Limited				
48	Nakagawa & Co., Ltd.				
49	Ho Hung Works Co., Ltd.				
50	Takahata Auto Electric				
51	H. Moribe				
52	Showa Kako				
53	Kawachi/Alex PKC				
54	Philippine Just Corp.				
55	Niigata Seiki				
56	Nagata				

Source: EPZA



