

## **Environmental Problems of Yangon City: Establishment of Industrial Zones**

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### **Introduction**

In Myanmar, after immense political changes in 1988, the State adopted the market oriented economy. Since then changes have occurred in many aspects as the State is prepared to adapt to the new economic policy. One distinct phenomenon is the establishment of industrial zones, especially in Yangon City. Although it is favorable to enhance the economic development of the country, there are also negative effects due to the rapid establishment of industrial zones. For, any development scheme uses to have negative effects on the natural environment and in developing countries, such problems usually reach a more severe stage within a short period and solutions to these problems are usually out of the reach of their coping capacity. Thus, the main aim of this study is to examine the environmental problems related to these industrial zones in Yangon City before they become too severe to solve.

It tries to point out the recent situation of industrial zones in Yangon City in order to highlight the fact that research activities are desperately needed in many aspects for proper development of the industrial zones in Yangon City. This is primarily a descriptive approach assessing the existing environmental problems with the aim to help develop an effective strategy to care for the environment in industrial zone development planning.

### **Development of Industrial Zones in Yangon City**

Before 1988, under the Socialist economic policy, there were no definitely defined industrial zones in Yangon City. With later political changes, the State Law and Order Restoration Council (SLORC) which is now State Peace and Development Committee (SPDC), was created. Under this new government, six New Towns were established around the city to relocate the congested population of downtown Yangon and to ease the traffic congestion of that area.

According to the derivative policy of the State, many New Towns were established within a short period of time around Yangon City and the creation of industrial

zones followed soon after these new towns were established. The Department of Human Settlement and Housing Development (DHSHD) has the responsibilities for the establishment of new towns incorporating the creation of industrial zones.

The objectives for the development of industrial zones by the State are:

- To promote the urban economy by creating employment opportunities and income,
- To develop the State's economy by promoting the participation of private enterprises and cooperatives in the State's industrial sector,
- To relocate the scattered industrial activities within the city into a proper agglomeration under the urban renewal program of Yangon City, and
- To attract direct foreign investments (DHSHD 2002).

The objectives of establishing industrial zones in New Towns of Yangon City were to promote the economy of these New Towns by creating employment opportunities and generating income. As such, three main industrial zones, Shwepyitha, Hlaingthayar, Dagon Myothit and many smaller industrial zones sprung up. Figure 1 shows the total number of industries in various sizes in the main industrial zones of Yangon City. Figure 2 shows the distribution of industrial zones.

Types of industry	Industrial zones					Total
	Hlaingthayar	Dagon <sup>1</sup>	Dagon <sup>2</sup>	Dagon-Seikkan	Shwepyitha	
Construction material	19	2	11	2	0	34
Consumer and household goods	74	16	35	4	22	151
Chemical	12	0	0	1	2	15
Electrical	6	25	63	2	3	99
Food processing and beverages	72	4	13	0	39	128
Garment	83	10	14	6	40	153
Iron, metal and machineries	12	17	175	1	6	211
Paper and related works	7	6	68	2	5	88
Plastic	0	20	98	0	0	118
Rubber and related works	0	7	18	0	0	25
Wood and forest based	27	8	39	10	14	98
Others	104	20	23	4	6	157
Total	416	135	557	32	137	1277

Fig. 1: Types of industries according to industrial zones of Yangon City [Source: Industrial Zone Management Committees (Hlaingthayar, Dagon 1, Dagon 2, Dagon Seikkan, Shwepyitha), 2002]

## Shwepyitha Industrial Zone

It is the earliest zone established and located in Shwepyitha New Town. The construction started in 1990 as an industrial region. Later, it was upgraded as Shwepyitha Industrial City and the area was also extended. The expansion and provision of infrastructure took place phase by phase. At present, it has four parts, and construction of part 4 was started during 2002. The whole industrial zone was scattered within Shwepyitha Township, and the total area of this zone is about 345 hectares (part 1 is 125.5 hectares, part 2 is 78.56 hectares and part 3 is 140.56 hectares) whereas part 4 is still under construction.

In this zone, the land plots for industrial purposes vary from 0.1 hectares to 1.2 hectares. At present, there are totally 474 land plots of various sizes but only 137 plots are occupied. The management fee for land in Shwepyitha Industrial City (in part 2 and 3) is 7500 Kyat per hectare per month for local entrepreneurs and about 50 FEC (Foreign Exchange Currency/ 1 FEC = 1 US\$) for foreign investors. In 2002, there were 4307 male workers and 11525 female workers, making

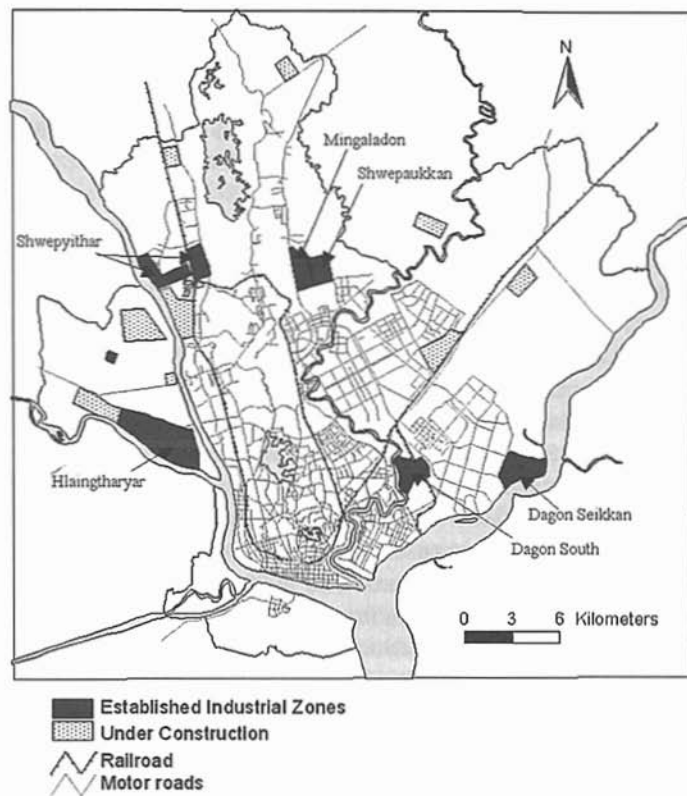


Fig. 2: Industrial zones of Yangon City

a total of 15,832. According to a report on labour, 73% of the total workers were employed in garment factories followed by food processing with 13.2%. The rest were in forest based industries and weaving and wrapping. The total investment of the industrial facilities in this zone until 2002 was Kyat 29,205.4 million and US\$ 2.93 million (Shwepyitha Industrial City Management Office, 2002).

## **Hlaingthayar Industrial Zone**

Although Hlaingthayar New Town was established in 1985 by relocating fire victims, the construction of its industrial zone started in February 1995. It lies near Byintnaung Bridge and is bounded by the Hlaing River, Panhlaing River and Yangon-Pathein road. The whole industrial city is divided into four zones with an additional zone for cottage industries making a total of five. Zones 1 to 4 are grouped together whereas zone 5 is in a separate place, within the inner part of Hlaingthayar new town. The total area planned for the whole industrial city was 526.09 hectares.

At present, this is the most developed zone. Thus, it was profiled as an industrial city in July 1996 and a management committee was formed. A management fee is collected from factory owners, namely Kyat 5000 per hectare per month for local investors and US\$ 50 for foreign investors. The total investment of this zone was Kyat 15,814.33 million and US\$ 105.55 million in 2001.

According to data in 2002 nearly 22% of the total was in garment factories, and 82% of the total labour force was involved in these garment factories. The second largest industry was the production of consumer and household goods with 17.75%, in which 10.7% of the total labour force was involved. The third was food processing and beverage with 15.8% and 8.7% of the total workforce. The factories in Zone-1 to Zone-4 are large scale production facilities. Zone 5 is mainly aimed for small cottage industries for those who cannot afford much. The total area of Zone 5 has 28 hectares with 217 land plots which have already been sold since March 1997. As Zone 5 was aimed for small cottage industries, the size of the land plots was only 334 m<sup>2</sup> in the early developing stage and the land price was Kyat 11.1 million per hectare. Later, the area was extended to 86.32 hectares. The size of the land plots increased to 2023.45 m<sup>2</sup> and the land price also increased up to Kyat 22.2 million per hectare.

## **Dagon Myothit Industrial Zones**

The construction of Dagon Myothit (New Town) was started in March 18, 1989. Now this is within the Yangon City area and it has an area of 331.5 square kilometers. For administrative purposes, this new town was divided into four townships

as Dagon North, Dagon South, Dagon East and Dagon Seikkan (port). Among these four townships, industrial zones are located in Dagon South, Dagon Seikkan and Dagon East townships.

Construction of **Dagon South Industrial Zone** started in February 1992 and the official opening as Zone 1 and 2 was in September 1996. Later, in 1997, Zone 2 was divided into two, and the new zone was defined as Zone 3. Generally, Zone 1 and 2 were for large and medium size factories and Zone 3 was for small industrial activities and shop-houses.

**Zone 1** is located in ward 23 of Dagon South Township. The total area of this zone in 2001 was 192.36 hectares. There were 481 land plots. All were sold to private entrepreneurs. The total investment of factories in this zone was Kyat 6022 million in 2002.

**Zone 2** is located in ward 63 and 64 of Dagon South Township. The total area of this zone was 82.46 hectares. Land plots in this zone were of various sizes, having a total of 1741 land plots. Within Zone 2, a plan had been made for four parks and one sports ground, a market place, three ponds and places for government institutions. Upmarket residential apartments were also included. In this zone, the total length of all roads was 23455 meters, of which 7023 meters were in good condition. This means only 30% of the roads are in good condition and much of it needs urgent improvement. The total investment of the factories was Kyat 5562.7 million in early 2002.

**Zone 3**, which is also located in ward 64, had an area of 14.28 hectares in 2002. Actually, Zone 3 was the earliest one established in this township. The purpose of establishing this zone was to relocate small factories systematically which were scattered within residential areas of Yangon City. Originally, this was a part of Zone 2. Later, according to the nature of its industrial activities and shophouses, YCDC considered to manage it under the Market Department. But in line with the desire of the entrepreneurs and because of its small industry character, it was officially defined as Industrial Zone 3 of Dagon South in February 1998 and a separate management committee was founded with freely selected persons. Later the area increased to 21.57 hectares in 2004 due to an extension.

As it was originally aimed for small workshops, the sizes of the land plots are small. Buildings were constructed by a contract system. There are six types of buildings of various sizes, ranging from 28 m<sup>2</sup> (10×15 feet) to 223 m<sup>2</sup> (40×60 feet). Totally, there were 1401 units of various land plots in 2002. Most of them are constructed as row houses mainly used as shops, houses and workshops for repairing parts. Figure 3 shows the types of industry, investment, energy usage and labour situation of Dagon South Industrial Zone 3.

Types of industry	Total Factories	Investment (Kyat in mil.)	Energy Usage (KW)	Total Workers
Agro-based machinery and spare parts	32	214	282	139
Transport machinery and related parts	28	45.5	138	80
Electrical machinery and spare parts	20	21.5	78	43
Miscellaneous	269	460.6	1407	798
<b>Total</b>	<b>349</b>	<b>741.6</b>	<b>1905</b>	<b>1060</b>

Fig. 3: Type of industrial works in Dagon South Industrial Zone-3 (2001- 2002) (Source: Management Committee, Dagon South Industrial Zone-3, 2002)

In this zone, roads are of various widths, ranging between 5 and 10 meters. The total length of all these roads is 6802 meters, of which 4994 meters were covered with concrete and asphalt in 2002. A total of 92 bridges of various lengths spanning the drains were also constructed. The total cost for the construction of roads, bridges and car parks was more than Kyat 229 million, and the construction was financed by the workshop owners of this zone. Water is provided by three artesian wells and electricity is provided by four 500 KVA transformers which were also constructed on the basis of the self reliance program. The total cost for power supply was Kyat 62 million. Because of the insufficient electricity supply, the zone bought another generator of 750 KVA, which cost Kyat 29 million. But due to the difficulties connected with fuel, the generators cannot operate. There were only 430 telephones in this zone and nearly all the basic infrastructure was provided by a self-help system.

**Dagon Seikkan (Port) Industrial City** was located at the eastern part of Yangon, on the western bank of Bago River (Fig. 2). The reclaiming of land and construction of roads and drains started in 1996. On February 2001, this zone was classified as Industrial City and a management committee was formed with nine selected members. It has two parts with area of 320.8 hectares and 168.4 hectares, making a total of 489 acres. There are 261 plots of land in part 1 and part 2 has 117 plots. A restriction on land plot size was made in this zone that the smallest size should be 0.4 hectare and the largest 6.9 hectares. Usually, the sizes of land plots vary from 0.4 to 1.2 hectares. For transportation, two main concrete roads of 15 meters wide were connected to the main roads to Tharkayta and South Dagon townships. Within the zone, 7.5 meter wide roads, having a total length of 30.3 kilometer were constructed until recently.

For this whole industrial city, altogether 57,438 meters of drains should be constructed. However, only 29,688 meters had been constructed with concrete and bricks with 39 outlets. Thus, only 50% of the drains had been completed. Apart from these drains, a proper embankment and many sluice gates to protect































