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ASIAN APPROACH ON RESOURCE CONSERVATION AND ENVIRONMENT PROTECTION

Saburo Matsui
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This paper is an overview of the current approach of resource conservation and environment protection in 16 Asian countries such as Bangladesh, Fiji, India, Indonesia, Iran, Japan, Korea, Mongolia, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Taiwan, Thailand and Vietnam. Hong Kong is not included. However, the Hong Kong Government made great efforts for the last decade to improve urban sanitation, urban air pollution, industrial pollution and solid waste management. After the return of Hong Kong to China, the new Government keeps efforts. Many other countries of Asia are not included such as China. Resource conservation and environmental protection approaches are different among them according to the stage of development.

Cet article est une synthèse de l'approche actuelle de la conservation des ressources et de la protection de l'environnement des seize pays d'Asie, tels que le Bangladesh, le Fidji, l'Inde, l'Indonésie, l'Iran, le Japon, la Corée, la Mongolie, le Népal, le Pakistan, les Philippines, Singapour, Le Sri Lanka, Taiwan, la Thaïlande et le Vietnam. Hong Kong n'est pas inclus. Cependant, depuis 10 ans, le Gouvernement de Hong Kong a fait des efforts importants pour améliorer les conditions sanitaires urbaines, la pollution de l'air urbaine, la pollution industrielle et la gestion de déchets solides.

Depuis le retour de Hong Kong à la Chine, le nouveau gouvernement maintient ces efforts. Beaucoup d'autres pays d'Asie, ne sont pas inclus, tel que la Chine. La politique de conservation des ressources et de la protection de l'environnement est différente parmi ces pays selon leurs niveaux de développement.

DEVELOPMENT STAGE OF ECONOMY AND INDUSTRIALIZATION

It is not necessary to say that economic development and industrialization should go together and that is the only solution for any country to give prosperity and happiness to its people. Industrialization brought not only the opportunity of increasing in income with the people, but also many environmental problems together. Among 16 Asian countries, Japan, Korea, Taiwan, and Singapore are highly industrialized

with high GDP/capita values. Table -I shows an Asian statistics of life, economy, food and the environment. This table could describe some important picture of the environment among 16 Asian countries with the comparison of France. Thailand and Malaysia have been making strong efforts for industrialization, resulted in increase in GDP/capita. Indonesia and Iran also developed industrialization with rich natural resources. Bangladesh, Mongolia, Nepal, Pakistan, Sri Lanka, and Vietnam are basically agricultural countries. India is a very special country where agricultural sector is strong while industrialization made a rapid progress during 1990s with the open economic policy. Fiji is an international tour country, resulted in high GDP/capita.

INDUSTRIALIZED COUNTRIES - JAPAN, KOREA, TAIWAN AND SINGAPORE

Japan had severe experiences of industrial pollution in 1960s and '70s. She successfully overcame urgent industrial pollution. Following the urgent situation oil crisis enforced her introduction of energy saving technology, resulted in creating energy efficient and cleaner production with Japanese manufacturing. The success in air pollution measures against SO_x and NO_x became later useful for acid rain measures in the other parts of the world. Japan is introducing new stringent regulations of promoting resources recycle and reuse in order to save new landfill sites that are most critical for the society. Solid waste incineration brought high contamination of PCDDs and PCDFs with soils and food, which led serious societal problems that happened during '70s in Japan. ISO 14000s approach is very popular among industries, business societies and municipalities. Both industrial and municipal solid waste management is one of the most important political and social agenda of Japan for the coming decade. Korea started industrialization in 1970s and faced severe industrial pollution in 1980s. The Government of Korea introduced stringent regulations on environmental control in late '80s. Air, noise, water and solid waste problems are political issues. The comprehensive waste treatment plan was set and run from 1993 to 2001. The government introduced the deposit-refund system for waste disposal encouraging the recycling of containers for

waste reduction. Another important approach was volume-based collection fee system for domestic waste implemented in 1995, which cover 99% of domestic waste discharge by officially designated plastic trash bags.

Landfill is the basic practice of municipal waste disposal. The future policy includes control of toxic chemicals and hazardous wastes. Taiwan started industrialization in the middle of 1970s. The government introduced many programs of improving the environmental performance of industrial sector.

Ministry of Economic Affairs and Environmental Protection Agency formulated Joint Waste Reduction Task Force (JWRTF) that functioned implementation of industrial waste minimization activities (IWM) and cleaner production (CP). JWRTF was successful to promote reduction of solid waste, wastewater, energy consumption and increase in product. The economy incentive approach was welcomed by the industrial people rather than the end-of-pipe technology approach. ISO 14000s approach is accepted by many industries.

Singapore has made rapid urbanization with industrialization for the last 30 years. Stringent land use control was successful to avoid pollution problems with air, water, noise, etc, in the Singapore context. The government provided by 1980s basic infrastructure to meet solid waste management, wastewater treatment, storm water management. Industrial and commercial waste constituted 55% of the total output of the waste in 1997. The government anticipates an increase in the waste amount to 70% in the year 2030. Resource conservation with recycling materials became an important approach for Singapore. The Economic Development Board provides

tax incentives to encourage entrepreneurs and companies to venture into waste recycling business.

Solid waste disposal sites are so limited that the government introduced incineration plants of municipal solid waste. The government is taking consideration of measures against global warming, because the energy consumption per capita is even doubled than that of Japan.

CONTINUING INDUSTRIALIZATION COUNTRIES - THAILAND, MALAYSIA, INDONESIA AND IRAN

Thailand made rapid industrialization and urbanization for the last 30 years. The government introduced many regulations on pollution control, which cover the most of important problems of air, water, noise, solid waste, hazardous waste and toxic substances, etc. Deforestation, water shortages, and coastal ecosystem destruction, etc, are preeminence problems with Thailand. Many efforts were made by the government and NGOs to improve the environment, but the achievement is limited. Municipal solid waste is landfilled in a sanitary way only in the Bangkok metropolitan area. Most of the solid disposal is just open dumping with so called scavengers who collect valuable things. Strong government actions are the key to improve situations. Malaysia has been industrializing in the fields of electronics and automobile. Tin and other mining activity is high, leaving the problem of proper disposal of tailings. Palm oil production is rapidly increasing so that solid and liquid waste became an important issue for the management. Sanitary landfill practice has been introduced in limited cities.

Table 1: Asian statistics of life, economy, food and environment Statistics are for 1994 except food consumption that is for 1992

Country/ index	Life expectancy			GDP/capita Cereals product livestock				Food consumption kcal/capita/day	Motor vehicles in use x10 ³	Energy consumption capita kg coal/day	Wood land per cent	N°.of threatened wild species
	Male years	Female years	US\$	tons x10 ³ /y	cattle x10 ³	sheep x10 ³	pigs x10 ³					
Bangladesh 55,6	55,6	234	28741	24130	1070	0	2019	106,1	88	8	61	
Fiji	69,5	73,7	2369	32	84,5	473	47	22				
India	60,3	60,4	309	212482	192980	44809	11780	2395	5601,7	374	22	155
Indonesia	61,1	64,5	792	52862	11595	6411	8720	2753	3793,9	466	64	301
Iran	67,1	68,1	1151	17522	7100	45400	0	2860	21445,9	1879	1	37
Japan	76,4	82,5	36782	15787	4989	25	10621	2904	63595,1	4980	66	146
Korea	67,3	74,9	8519	7588	1330	396	3368	3285	7375,4	3776	64	25
Malaysia	68,7	73,1	3582	2080	686	336	3098	2889	2755,1	2292	54	81
Mongolia	62,3	65,1	290	443	27779	14392	49	1899	?	1551	6	25
Nepal	54,1	53,1	158	5929	6546	914	612	1957	?	34	37	56
Pakistan	60,6	62,6	434	22256	18146	28975	0	2316	1314,6	332	3	40
Philippines	64,5	68,2	965	15550	1825	30	8227	2257	1555,2	426	27	166
Singapore	72,4	77,4	23556	?	?	?	150	?	477,4	9823	7	13
Sri Lanka	69,7	74,2	649	2620	1600	19	90	22-74	385,4	160	29	47
Taiwan	?	?	?	?	?	?	?	?	?	?	?	?
Thailand	66,3	71,8	2454	22576	7593	98	4931	2434	4182,9	1075	26	93
Vietnam	62,9	67,3	213	23455	3438	0	15043	2250	?	159	30	84
France	73,1	80,8	24608	53641	20112	10452	13383	3636	28927,1	5152	24	109

Indonesia has rich natural resources for own industrialization. The country faces all types of pollution and provision for infrastructure to meet environmental issues is very behind. There is no sanitary landfill practice in the country. Industrial solid waste is disposed in the manner of open dumping. Among many types of industries, the leather industry discharge chromium waste water without proper treatment, which became a serious pollution issue. Iran has industrial pollution and urban pollution problems as any other countries. Sanitary landfill practice just started in Tehran.

AGRICULTURAL COUNTRIES - BANGLADESH, MONGOLIA, NEPAL, PAKISTAN, SRI LANKA, AND VIETNAM

Those countries are basically agriculture countries where the most of population locates in rural areas where solid waste is disposed in traditional ways. Sanitation of villages is the most important issue that is not easily solved unless proper collection and treatment of human wastes is introduced. Urban areas of the countries face the same types of pollution as any country. Rapid urbanization of the developing countries is making more and more serious pressure on the urban environment. Vietnam practices sanitary landfill with Hanoi Capital City and Ho Chi Minh City. Other countries do not practice sanitary landfill yet. As was mentioned in the case of Indonesia and Iran, countries that raise large amount of livestock face the problem of waste water and solid waste with the leather industry.

INDIA -AGRICULTURAL AND INDUSTRIAL COUNTRY

India holds large population that will exceed that of China in

the next decade. Both agricultural and industrial activities are strong. After the introduction of the open economy policy, industrialization made a rapid progress. The central government and state governments face now both urban pollution and industrial pollution problems. It is still weak to introduce measures against those problems. However, the concept of cleaner production, green productivity and ISO 14000s is gradually accepted by industry people who face international markets and competition. There is no practice of sanitary landfill in India. Industrial solid waste is not properly disposed yet.

The society of India is very conservative to new environmental business and industry. The solutions of environmental problems may be brought with together the change of the society into more democratic stage.

CONCLUSION

The approach of resources conservation and the protection of the environment is now gradually accepted by Asian countries. It needs more effort to educate political leaders, administrative people, industrial people, farmers and citizens who do not have realistic information on difficulties of protection of the environment.

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