

SANITATION COUNTRY PROFILE

INDONESIA

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Decision-Making: Since 1970s, attempts to develop the water supply and environmental sanitation (WSES) sector in Indonesia were made primarily by the government, with the support of various groups such as the community, non-governmental organizations (NGOs), and various international agencies. In 1999, with the enactment of the law on decentralization, the Government of Indonesia introduced a new policy to provide a larger responsibility and role for local governments to, among others, provide urban services that include provision of water supply and sanitation services. On the other hand, the law stipulates that role of the Central Government in provision of urban services shall therefore be limited to preparation of guidelines and manuals, as well as assisting the local governments in human resources development and management to enable them to undertake their current roles and responsibilities.

A derivative of decentralization laws (that is Government Regulation number 25/2000) states that local government has the authority to conduct planning, implementation and monitoring, as well as evaluating all governance and development aspects. This new policy on decentralization increases the responsibility of local governments in matters relating to regional environment. Local governments have the authority to give permits for certain activities. This means they have the responsibility of controlling the environmental impacts of those activities and to sanction any violators of environmental regulations. To practice this new responsibility, some local governments have enacted new regional regulations. Some of them have prepared their own Local Agenda 21.

Law no. 24/1996 on Spatial Planning regulates spatial plan in local, regional and national levels, including spatial plan on sanitary landfill and hazardous waste disposal sites especially those that have substantial effects on communities. In addition, Law 23/1999 and Government Regulation no. 18/1999 stipulate regulations on the management of hazardous waste and standard of effluents. Ministry of Environment has the responsibility to set policies, strategies and monitor hazardous waste management at National level, while at local level, the responsibility is in the hand of BAPEDALDA.

Through WASPOLA (Water Supply and Sanitation Policy and Action Planning), was established in 1999, a working group of water and sanitation which consists of representatives from Ministry of Health (MoH), Ministry of Settlement and Regional Infrastructure (MSRI), Ministry of Finance (MoF), Ministry of Home Affairs (MoH) and the National Development Planning Agency (Bappenas) as coordinating agency was established. During the course of this project, this working group has constantly expanded their membership to include representatives from other agencies and institutions other than the original ones, such as representatives from Ministry of Environment and water resource management sector. Through a series of trainings and workshops, this group intensively discusses and interacts with other agencies and institutions, such as the water user groups at the village levels, local governments, local water and sanitation authorities, non government organizations, and universities. This has facilitated the need for a multi-stakeholders decision making process and a well coordinated execution of the water and sanitation provisions for rural areas throughout Indonesia.

At present, several ministries are responsible for sanitation provisions, including:

National Development Planning Agency; its roles consist of development of national policy, strategy, and programs on provisions of sanitation facilities.

Ministry of Finance; with the main responsibilities in administering budgets for development of sanitation facilities

Ministry of Settlement and Regional Infrastructure; with the main responsibility in providing technical guidance, promoting pilot projects, and supervising large-scale off-site sanitation systems

Ministry of Environment; which is mainly responsible for policy developments, regulation formulations, and coordinating efforts in pollution control and other environmental issues

Ministry of Home Affairs; with the main responsibility in assisting local institutional development and capacity building in supporting development of sanitation facilities.

Ministry of Health; with the main responsibility in promoting healthy habits.

A. Basic Sanitation: At present, Indonesia adopts a policy to integrate the provision of water and basic sanitation infrastructure emphasizing sustainability. To support this concept, some of principles adopted are: informed choice as the basis for demand responsive approach, environmental-friendly development, hygiene education, poverty focus, women's role in decision making, accountability of the planning process, government's role as facilitator for empowerment, active community participation, improved monitoring and evaluation program. Implementation of these principles requires development of a legal framework at the local level that enforces active community participation, increase investment in the user community's human resource capacity, application of cost recovery principle, and improvement of community's overall capacities.

In order to achieve MDGs, Indonesia has prepared a National Action Plan in water supply and sanitation. The Action Plan emphasizes actions on coordination with related sectors, improvement of sewage water treatment infrastructure capacities, improvement of environmental sanitation management, development of technology, human resource development and institutional and software development.

B. Solid Waste: At present, coordination in solid waste program and projects is at Bappenas with the Ministry of Settlement and Regional Infrastructure (MSRI) and local governments as the prominent players in the sector. The role of central government is as a regulator rather than as a provider. During the economic crisis (since 1998), SWM conditions in many cities have been deteriorated. However, the minimum service standard and technical guidelines are provided by Ministry of Kimpraswil to minimally protect the environmental pollution. The draft of Law on SWM is still in preparation. This process involves all other relevant stakeholders such as government ministries, representatives of the local governments, non government organizations, and universities.

In year 2003, the national action plan (NAP) and policy/strategy of SWM were established to achieve the MDGs. Indonesia has also set development goals in solid waste for short, medium (2010) and long term (2015) technical, institutional, financial, legal and public-private partnership goals. To achieve these goals a national action plan has been prepared. The actions include those in human resource development, improvement of solid waste management capacities, improvement of operational aspect, development of alternative financial sources, improvement of legal aspects of solid waste, institutional development and promotion of community participation.

C. Hazardous Wastes: Indonesia has ratified the Basel Convention on the management of hazardous waste and other wastes by issuing Presidential Decree No.61/1993. Government Regulation (PP) No. 19/1994 and No. 12/1995, revised further by Government Regulation No. 18/1999 and Government Regulation No. 85/1999. These legal instruments act as the basis for the management of hazardous wastes, including reduction, storage, collection, transportation, utilization (recovery, reuse, recycle) and disposal of hazardous wastes. Every generator of hazardous waste is responsible of treating its waste using the best available technology. If the technology is not available domestically, the waste may be exported to countries with better technology. PP no. 18/1999 also regulates trans-boundary movement of hazardous waste including the case of illegally imported non-hazardous waste which has been contaminated by hazardous waste. According to the regulation, importing hazardous waste is prohibited. At the Third Conference of the Parties of the Basel Convention, Indonesia was elected as the Basel Convention Research Center to undertake research, training, and education for the implementation of the Convention in the Asia-Pacific region.

D. Radioactive Wastes: The Nuclear Safety Technology Development Centre (P2TKN) and the National Nuclear Power Agency (BATAN) carry out the task of coordinating the culture of safety development in Indonesia, by referring to IAEA Safety Series Document No. 75/1991. At the regional level, BATAN is a

member of the Forum for Nuclear Cooperation in Asia (FNCA), which holds annual meeting on the development of nuclear safety culture. Law no. 10/1997 on nuclear power became the basic policy in the management of radioactive waste. Wastes produced by radiation sources should be used and managed properly to reduce the risks to human health and the environment. The management of radioactive waste adopts the Radioactive Waste Safety Standards (RADWASS) of the International Atomic Energy Association (IAEA). Government Regulation 63/2000 regulates radioactive waste in more detail. It requires frequent monitoring and assessment of the safety of radiation workers and the environment in the area of every Nuclear Technology Research Centre in Indonesia.

Programmes and Projects:

A. Basic Sanitation: Since the 1980s, the Government of Indonesia has taken serious measures to provide wastewater as well as other sanitation infrastructure as a whole through, among others, an integrated urban infrastructure development (IUIDP). The programs are implemented in 27 provinces and are financed through development banks, such as IBRD and ADB, as well as other bilateral assistance, during which a number of off-site sanitation systems or sewerage systems were built in cities such as Balikpapan, Banjarmasin, Bandung, Cirebon, Jakarta, Medan, Surakarta, Tangerang, Yogyakarta, and Denpasar.

During the period, on-site sanitation systems such as toilets with family or communal septic tanks or leaching pits, public bath-toilet-washing facilities and sludge treatment plants were also constructed and financed by the government and by the community themselves through grants, revolving funds and community self-helps. To cater the need to treat increasing volume of septic sludge and to prevent water pollution, a number of sludge treatment plants were also built in many cities.

At present, as part of the effort to promote an integrated approach in providing water and sanitation infrastructure, most of basic sanitation projects are a part of water projects. Some of the programs and projects in basic sanitation are: Water Supply and Sanitation for Low Income Communities (WSSLIC), Community Water Service and Health (CWSH) and Rural Water Supply and Sanitation (ProAir) Projects - focusing on improving water and sanitation services in rural areas- and SANIMAS (Sanitation for Community) that focuses on improving sanitation status in urban areas. SANIMAS is already implemented in the provinces of Bali and East Java, and will be replicated in another cities/provinces in Indonesia.

B. Solid Waste: The “Adipura” programme initiated by Ministry of Environment, in which Cities that have successfully managed their own solid wastes are given an award called “Adipura,” has been the central government’s programme to encourage city governments to manage their solid waste. This has had a positive impact all over Indonesia as it brought about a positive sense of competitiveness among cities. The programme ended and was replaced by a new “Clean City” programme. In the new programme, other environmental criteria as well as solid waste management will be included, including “Bangunpraja” (good governance), where the system is currently on a voluntary basis. The first trial programme was launched in 2002.

To solve solid waste management problems and achieve MDGs, which is to improve service coverage, priorities are given on reducing waste generation, improving public awareness, and promoting public-private and local government partnerships.

Some of previous solid waste management projects were included in Sumatra UDSP, Metro-Botabek UDSP, Sulawesi UDP, Kalimantan UDP, BUIP. They were all part of the IUIDP. At present, a number of solid waste management projects are executed under Western Java Environmental Management Project (WJEMP). Some of the sub-projects under WJEMP are: Greater Bandung Waste Management Corporation (GBWMC), Greater Jakarta Waste Management Corporation (JWMC) and Solid Waste Management Action Plan for the city of Jakarta.

WJEMP was launched in January 1998 based on the result of Java Urban Development Project (JUDP) implementation stage II in 1996. Its preparation was done in participative by district and province government, and community. WJEMP priorities are: (1) Capability improvement of local government and community in the environmental management; (2) Promote a framework on the improvement of environmental quality; (3) The improvement of community empowerment to restore environment condition in the urban areas.

C. Hazardous Wastes: BATAN has planned to develop sustainable waste disposal to prepare for future developments in nuclear power. In 1994, BATAN suggested a project to construct shallow land burial/near surface disposal as an experiment facility for low to medium levels of radioactive waste. However, due to insufficient funding, the construction has been postponed and the project activity is confined to carrying out studies.

Efforts to manage hazardous substances have been attempted, albeit sporadically by various institutions, either governmental or private. The Ministry of Environment has been monitoring the persistent organic pollutants (POPs) chemicals.

D. Radioactive Wastes: Many industries have applied for a permit to manage hazardous waste in order to comply with ISO 14000 standard. However, some industries face difficulties in treating their wastes. BAPEDAL, therefore, introduced the “Waste Exchange Programme” acknowledging that waste from one industry may be used by another industry. “Kendali Programme” is a partnership programme by the industry, central and regional governments. The programme works as follows. First the government will persuade the industries to abide with the existing regulations. Then, an agreement to comply with the existing regulation will be signed by the industry and the government. Within 6 months, law enforcement will be applied if the industry fails to comply with the regulation. The Ministry of Environment in cooperation with private companies, built a central treatment of hazardous waste in Cileungsi, West Java. Currently, the Ministry of Environment is planning to build more of these facilities in East Java, Sumatra, and East Kalimantan.

Concerning international traffic in hazardous waste, a pilot project for the Monitoring and Control of Trans-boundary Movements of Hazardous Waste in the Asian Region was launched, involving Australia, China, Indonesia, Japan, Malaysia, The Netherlands, Singapore, Sri Lanka and Thailand.

Status: Socio-economic aspects: Indonesia’s population was 210 million in 2000 of which 109 million live in urban areas. The increased urban activities combined with population growth resulted in 100% expansion of urban areas between 1980 and 1995. Ongoing urbanization will increase Indonesia’s urban population to 132.5 million (i.e. 50% of total population) by 2020 (National Agenda 21) with an unequal regional development. The 2000 Population Census suggested that Java, which makes up 7% of the country’s land area, is inhabited by 60% of the population. On the other hand, Maluku and Papua which make up 25% of the area are only inhabited by 2% of the population (BPS, 2001a). These problems affect human services and broader social and environmental factors in a variety of complex and recursive ways.

A. Basic Sanitation: In 2000, the proportion of urban and rural population with access to basic sanitation facilities is 75 and 65 per cent accordingly, with a national average of about 70 per cent. Several reasons have been identified as the major causes of this low service coverage, including the very limited financial capacity of local governments to build the required infrastructure, the low level of participation from the private sector, and the low awareness of the communities in realizing the importance of sanitation and hygiene for health. Furthermore, only 40 per cent of urban and 20 per cent of rural populations of those with access to any sanitation facilities have septic tanks to treat their waste water. This was exacerbated

by the fact that the septic tanks are usually of low quality. However, constant efforts have been carried out by both NGOs and the local governments to improve this sanitation situation.

B. Solid Waste: In 2000, solid waste management service coverage, in term of waste collection, for urban areas was 40 per cent. 1.6 per cent of generated solid waste was treated by composting. For rural areas, only 1.02 per cent of waste was collected, of which 5 per cent was treated by composting and more than 50 per cent was treated by on-site burning.

Solid wastes have become a major problem especially in big cities such as Jakarta. Jakarta generates 7 million tons of solid wastes annually, or 20,000 tons daily. Jakarta has currently adopted a solid waste management programme involving collecting, transporting and disposal with level of service coverage at 80 per cent. Poor operation of the sanitary landfill, currently operated as an open dump site, has resulted in infiltration of leachate to the surrounding areas. This case, worsened by limited availability of land for landfills, is a potential problem facing many large and metropolitan cities in Indonesia such as Surabaya, Bandung and Medan. Better approaches to solid waste management, such as 3R (reuse, reduce and recycling) and composting should be seriously considered and promoted.

Moreover, the limited financial capacity of local governments as the operators of final disposal plants, low technical and managerial capacities are also evident. With financial disabilities of local governments, however, participation of communities and private sectors in this area is still limited. Promotion of waste reduction through 3R's has been carried out, but it needs improvement on building properly community awareness.

The Government of Indonesia has released regulations on pollution prevention, waste minimization, cleaner production, and increased production efficiency to encourage more responsible business and industrial activities. In 1995, the government of Indonesia officially committed to a waste minimization program through the implementation of cleaner production principles.

C. Hazardous Wastes: The Ministry of Environment, issued 292 permits to manage hazardous waste and 67 recommendations. One of the approved facilities to treat hazardous waste is the Centre of Industrial Waste Treatment (PPLI). PPLI is privately-owned and treats 26,000 tons of waste annually.

D. Radioactive Wastes: In Indonesia, the utilization of radioactive substances is limited to medical and research purposes only. In the 1990s, Indonesia planned to build a nuclear power station in Jepara to anticipate future energy crisis. BATAN, in corporation with NEWJEC carried out a feasibility study on the area. However, the plan was heavily opposed by the community as well as by NGOs. This and the fact that the plan would be very expensive to carry out, forced the government to postpone it.

Capacity-Building, Education, Training and Awareness-Raising: The Government of Indonesia has undertaken a number of capacity building and good governance programs. Among such efforts is the Capacity Building in Urban Infrastructure Management (CBUIM) program designed to improve the living and environmental conditions of urban settlements throughout Indonesia, by enhancing the capability of Indonesian Local Governments to provide urban services in a market-responsive and sustainable way. The program was implemented between 1998 and 2003 aiming at (i) improving the management capability of local and provincial governments to provide urban services, (ii) strengthening the participation of non-government institutions in the delivery of urban infrastructure services, and (iii) improving the ability of the national agencies and institutions to transfer urban infrastructure management and training to local governments, in a sustainable way. The main outputs of the program to date include (i) a recommendation of a progressive and open career mapping system to be adopted as a part of the national civil service reform, (ii) development and implementation of a strategy for enhanced urban infrastructure management training for about 8,000 participants from both government and non-

government organizations, as well as education and training institutions, (iii) provision of in-country and overseas postgraduate education to over 800 sector managers, and undergraduate education for about 2,000 local government staff, (iv) institutional support to local governments, leading to outputs such as training institutionalization, standard operating procedures and financial mechanisms, (v) provincial and central governments' institutional support aimed at developing capacities in assisting/advising local governments, and in providing them with adequate and sustainable training and education, (vi) updating of the existing national urban development strategies, and (vii) development of local governance self-assessment tools.

A. Basic Sanitation: Training programs in sanitation provisions have been conducted by the sectoral ministries with assistances from donor countries. Trainings for local governments staff were conducted in several training centers managed by the sectoral ministries, i.e. Bekasi Training Centre under MSRI. During 1998 – 2003, the government received ADB assistance through Capacity Building loan consisting of mainly trainings and seminars in sanitation provisions and management.

B. Solid Wastes: Indonesia had jointly held training to monitor international traffic of solid waste with other countries in the Asia Pacific region. Training programmes and a comparative study on solid waste management have also been undertaken in collaboration with several donor countries.

C. Hazardous Wastes: In collaboration with the Chulabhorn Research Institute (Thailand) and UNDP, Ministry of Environment held training for the development of toxicology technology. Indonesia has already integrated hazardous waste treatment facilities and is therefore capable of hosting such a training session. The Netherlands has supported training for relevant government officials dealing with hazardous waste management in Asian countries. The Ministry of Environment organized training on hazardous management for government officials and industry.

D. Radioactive Wastes: To anticipate development in the management of radioactive wastes for present or future needs (nuclear power stations), BATAN has established collaboration with the International Atomic Energy Agency (IAEA), France, Canada, India and Japan. This collaboration takes the form of training, scientific visits, seminars and technical assistance from international experts. Various seminars and training have been held by BATAN supported by the French Government (1984-1986) and NEWJEC (1990-1999) to educate the public about nuclear power.

Information: Information on decision-making with regard to sanitation is available through the web sites of ministries and agencies, such as: the State Ministry of Environment (www.menlh.go.id); the National Development Planning Agency (www.BAPPENAS.go.id); the Central Bureau of Statistics (www.bps.go.id); the Ministry of Health (www.depkes.go.id); the Ministry of Transportation (www.dephub.go.id); the Ministry of Health (www.depkes.go.id); the Ministry of Settlement and Regional Facilities (www.kimpraswil.go.id); and the Ministry of Research and Technology (www.ristek.go.id); etc.

The Government of Indonesia has initiated Green GDP, a sustainable development indicator taking environmental loss into account. This indicator is currently being developed at national level. All the studies on natural resource accounting (NRA) that had ever been conducted have been compiled. After that, based on best practice, a guideline on the calculation of NRA was written.

A. Basic Sanitation: A coordinated database system on water and sanitation is being established aiming at standardizing data structure and formats, coordinating data gathering efforts, and develop a data center accessible to all interested parties. When implemented, institutionalizing this national water and sanitation database will require efforts of high magnitude that can only be achievable with full cooperation of all stakeholders, including funding from non-government sources.

B. Solid Wastes: The government of Indonesia, through Ministry of Environment, has initiated the inventory of solid waste generators, including data on the amount and characteristics of the wastes. Moreover, Ministry of Environment also keeps data on the facilities that further use solid wastes for reuse and recovery as well as facilities to treat solid waste.

C. Hazardous Wastes: Very comprehensive data and information on hazardous wastes is available from large-scale industries only. Most of the medium and small-scale industries have not followed the rules of hazardous waste management because of limited knowledge and resources. Therefore they do not provide information on the hazardous wastes they generate. Moreover, Ministry of Environment has limited funds to monitor all the generators of hazardous waste. Information exchange on hazardous waste treatment technology and its monitoring system has been initiated.

A computer network for a database on hazardous substance has been set up. Identification study and inventory of hazardous substance was started in the Greater Jakarta region (Jabotabek).

D. Radioactive Wastes: Being the only national agency dealing with radioactive substances, BATAN possesses all the data and information concerning the use of nuclear power. In 2001, it established a unit on radioecology and marine environment to anticipate marine safety issues. The data and information collection on those two topics was conducted in 1999 for the preparation of the future site of a nuclear power station in Muria Cape, Jepara.

Research and Technologies: Each sectoral ministry above conducts research in environmentally sound technologies, mainly aiming at reducing and recycling of solid wastes. Through its Center of Research and Development in Human Settlements, MSRI has carried out a number of researches and developments on water supply and sanitation facilities and technology, and it has also issued Standard Nasional Indonesia (SNI, or National Standard for Indonesia) documents.

A. Basic Sanitation: Under MSRI, research and technology are the responsibility of the Center for Research and Development of Settlements (Puslitbang Permukiman). Several National Standards has been issued, such as Guidance for Septic Tank Planning, Guidelines for Communal Bathing Facilities (MCK) etc. However, publication and dissemination of these standards should be done more intensively to local governments and communities. Indonesia is a large country with so many characteristics. Proper sanitation facilities for specific areas such as swampy areas, or areas with peat soil, or high groundwater need to be further developed (svt).

B. Solid Wastes: To give inputs to the formulation of regulations, the Ministry of Environment works together with various research centres to carry out research on solid waste management. With the Bandung Institute of Technology (ITB), a comprehensive study on solid waste management in general has been completed. Researches on the reuse and recycling of solid wastes as well as on waste identification were conducted with the Bogor Institute of Agriculture (IPB). Furthermore, Indonesia has been exchanging information on the latest solid waste utilization and treatment technologies with other countries.

As a guideline, Kimpraswil already issued several National Standards (SNI), such as Guidance for Final Disposal Site Location Selection, Guidance for Composting, Guidance for Final Disposal Site Planning and many others. However, some efforts need to be done to improve the effectiveness of these standards, such regulation and effective publication and better information system. (svt)

To improve the SWM condition related to technologies, the Institute of Human Settlement Research and Development under MSRI has many research areas, among others:

- Small scale of fluidized bed incinerator (250 kg/hour)
- Composting method by EM-4
- Waste recycling for building material
- Small scale landfill gas extraction

Additionally, the Ministry of Environment, in collaboration with the MSRI and WCMEP, plans to carry out research on composting involving 60 pilot projects all over Indonesia. BPPT has researched solid waste management and its treatment technologies for about 20 years and has come up with an integrated solid waste management system. The approach combines various solid waste utilization, treatment and disposal technologies while keeping in mind that wastes can also be useful resources. Some technologies under consideration are composting (for organic waste), plastic crusher, recycling (for paper) and incinerator. The programme also considers other non-technical aspects such as how to promote active participation from public, cooperatives, and private institutions.

C. Hazardous Wastes: Studies to prepare the formulation of hospital waste management policies have been initiated. Impacts of pollution from used batteries on health were conducted by the Ministry of Environment. Also, there was a research on bioessay to determine the characteristics of toxic waste. Other research has been carried out by industries, such as the impacts of sludge oil, fly ash, paper, etc.

D. Radioactive Wastes: There are four nuclear technology research centres in Indonesia: in Serpong, Pasar Jum'at (Jakarta), Bandung and Yogyakarta.

Financing:

A. Basic Sanitation: From 1988 - 2004, through IUIDP Program by the Ministry of Settlements and Regional Infrastructure, most of towns has received sanitation program, financed by ADB, IBRD Loan, JICA, JBIC and KFW. During the Fifth Five Year Development Program (Pelita V) it is indicated that sanitation investment was about US \$ 300 million, with 20.2 million beneficiaries. While during the Sixth Five Year Development Program (Pelita VI) sanitation investment was about US\$590 million, with 22.5 million beneficiaries. These amounts were used to develop on-site and off-site sanitation. (Source: NAP for Wastewater Analysis) To maintain sustainability, a tariff system in wastewater management shall be introduced, according to 'polluter pays principle'.

B. Solid Wastes: Financing from the state budget have been supported by international institutions, such as GTZ, JICA, the World Bank, UNESCO, etc. From 1988 - 2004, most of towns/cities have received solid waste programs, financed by the state budget and some financial assistances from ADB Loan, IBRD Loan, JICA and JBIC. The investment were mainly used to finance the construction of Final Disposal Site, Temporary Disposal Site and equipments. The supporting budget for improvement of SWM from central government as a grant is focusing on the technical assistance and stimulant project for regional system as stated in programs and projects.

After decentralization the sustainability of these systems needs to be maintained or even improved. According to the financial aspect on SWM in many cities in Indonesia, the budget allocation for implementation (only for operation and maintenance) is still low, more and less 2 % of the total local budget. Also, the collection rate of the retribution accounts for only 40 - 50 % of the revenue. An improved tariff system based on cost recovery principles is necessary to guarantee the improvements and sustainability of the current solid waste management systems.

Economic incentives or disincentives in favour of the environment are also being implemented. It is hoped that consumption patterns will be improved for a wiser utilization of environmental resources. For example, waste treatment devices are being subsidized by the government.

C. Hazardous Wastes: Hazardous waste management requires a lot of funds, for example for the research on sophisticated hazardous waste treatment facilities as well as for the monitoring of industries that generate hazardous wastes. Besides relying on the state budget, supports from international donor agencies are of importance to successfully undertake hazardous waste handling program.

D. Radioactive Wastes: No information available.

Cooperation: Indonesia intends to continue working with international organizations such as UNEP, UNFPA, FAO, World Bank and UNDP to assess how variations in demography, environment, development and economic influences changing consumption and production patterns. Within the Indonesia-Australia Ministerial Forum (IMF), the Joint Working Group on Environment (JWGE) has been established chaired by officers from both countries' environment ministry. JWGE aims to promote cooperation on the environmental dimension of economics and trade

A. Basic Sanitation: To conduct transfer of knowledge in wastewater management, MSRI has been cooperating with JICA both through overseas trainings as well as assignment of long term or short term JICA experts in wastewater management. Another agency involved such as USAEP, Government of Singapore and AUSAID.

B. Solid Wastes: Indonesia has undertaken collaborative efforts with the Governments of Japan, Singapore, Australia, the United States, Canada, and Germany. Recently, there was also collaboration with the USAEP and the Government of Singapore. Indonesia has enhanced cooperation with other members of the Basel Convention to monitor the international traffic of solid waste.

C. Hazardous Wastes: Indonesia has ratified the Basel Convention on the management of hazardous waste and other wastes. To perform its task in hazardous waste management as well as to prevent international traffic in hazardous waste, Ministry of Environment has to coordinate with other technical agencies such as the Ministry of Transportation, the Ministry of Energy and Mineral Resources, the Ministry of Trade and Industry, the Customs Office, and the police. In addition, Indonesia has enhanced its cooperation with other members of the Basel Convention to monitor the international traffic of hazardous waste. Among others, international cooperation has been forged with the Government of Singapore, the Netherlands, UNDP, USAEP, Australia, Canada, etc.

D. Radioactive Wastes: BATAN has established collaboration with IAEA, France, Canada, India, and Japan.

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