



## Country: Malaysian Water & Waste Water

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May 2008

### Summary

The high growth rate has drawn heavily on the natural resource base of Malaysia, both renewable and non-renewable resources. The damaged and deteriorated environment and natural resources condition as a result of rapid economic development have raised the country's awareness and policy makers are taking the demand for improved environmental quality into account. As Malaysia progresses towards becoming a developed country in 2020, consumption will correspondingly increase. Consumption however produces some undesirable impacts on the environment and climate. Hence, the keyword of the Government of Malaysia is *sustainable growth*.

The government of Malaysia has instituted a fairly compressive set of environmental regulations, which are embodied in the Environmental Quality Act of 1974 (EQA), and its subsequent amendments. The Department of Environment (DOE) (<http://www.doe.gov.my/>) under the Ministry of Natural Resources and Environment is the federal agency responsible for implementing and enforcing the EQA. Although the government advocates a vision of sustainable development, it has not equipped the DOE with sufficient power, financial resources, manpower or technical tools to regulate polluters until recently. During the Ninth Malaysian Plan (9MP) from 2006 till 2010, environmental stewardship was promoted to ensure that the balance between development needs and the environment is maintained. Greater focus was placed on preventive measures to mitigate negative environmental effects at source, intensifying conservation efforts and sustainable management of natural resources. Emphasis was given to the fostering of closer cooperation between stakeholders in addressing environmental concerns. Environmental planning tools such as environmental impact assessments (EIA), strategic environmental assessments (SEA), cost-benefit analysis, market-based instruments and environmental auditing was increasingly applied in evaluating and mitigating environmental impacts of development activities. In addition, research and development (R&D) was intensified to further support environmental management and sustainable use of natural resources. These efforts by the Government of Malaysia to improve protection of the environment and conservation of natural resources is in the hope that it will contribute towards enhancing the quality of life for all Malaysians.

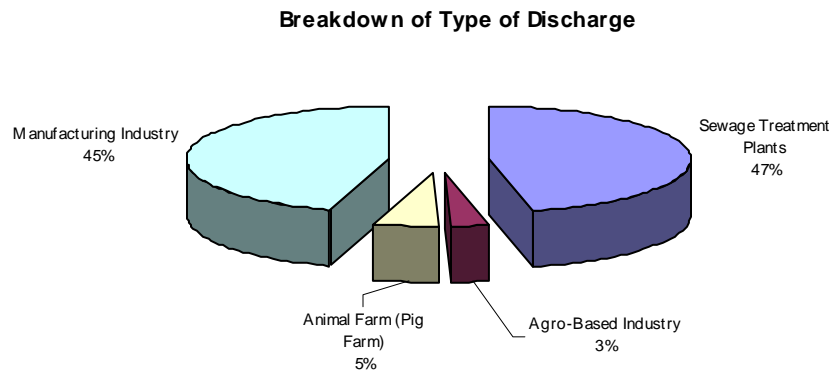
## Introduction

Wastewater treatment plants are mushrooming in Malaysia as a response to the increasing demands for better and more effective sanitation services resulting from the country's remarkable economic growth after the 1997 Asian financial crisis. Solid waste management, however, remains in the backseat. The Indah Water Konsortium (IWK) has been taking charge of Malaysia's sewage management since 1994, and has built for the country an effective sewerage management systems. The system boasts of around 8,000 public sewage treatment plants, 500 network pumping stations, 17,000 kilometers of underground sewerage pipes and half a million household septic tanks connected to the sewers. As the demand for effective sanitation increased, IWK turned to other private companies to build wastewater management systems. Malaysia's 27 million people generate about six million tons of sewage every year, most of which is treated and released into the rivers. Since about 98 percent of our fresh water supply comes from surface water, proper treatment of sewage must be ensured. In February 2006, Malaysia's Ministry of Energy, Water and Communication awarded a US\$113.4 million contract to a consortium of three Japanese companies to build four treatment plants in Kuala Lumpur, Negeri Sembilan and Malacca, with a total capacity of treating over 40,000 cubic meters of wastewater a day using the oxidation ditch treatment processes. All the four treatment plants are expected to be completed and operational by August 2008.

The leap towards effective sanitation began with Wawasan 2020 (or Vision 2020), a brainchild of former Malaysian PM Dr. Mahathir Mohammad. Presented to the Malaysian Business Council in 1996, it called for a united and industrialized Malaysia by the year 2020. Wawasan 2020 embodied a renewed national policy, and advocated privatization as "*an important cornerstone of national development and national efficiency strategy.*" It also called for increased involvement of the country's private sector, while ensuring that the poor have access to basic, high-quality, low-cost services, at the same time, avoiding "*unproductive monopolistic practices*" and ensuring workers' welfare. It was a win-win situation for all. The policy shift created new business for wastewater and sanitation companies, which took on the task of sewage management from local governments. Private sector involvement also brought efficiency into the system.

Until about five decades ago, Malaysia's waste disposal system was no different from what is still found in many developing countries. Night soil carriers emptied household waste into cans and sold them to farmers who then used it as manure. Today, however, the bulk of waste produced by both urban and rural areas is packed in 230 landfills, which are close to overflowing. Malaysia produces only about a kilogram of solid waste per capita per day, but estimates suggest that only 1 to 13 percent of Malaysia's solid waste is recycled. While privatizing solid waste management began in 1996, innovative ways for managing solid waste has taken a slump. Sludge produced by water treatment plants remains difficult to dispose.

Malaysia's record in solid waste management does not match Malaysia's success in sewage treatment. The treated sludge even though is cleaned and can be used in many ways, but is disposed off in landfills because of no takers. The recent Ninth Malaysia Plan, the master plan for year 2006-2010 makes only a passing reference to the neglect of sludge and solid waste management. And the only mention of solid waste states that the government will undertake "research and development on reuse of sludge for industrial, agricultural and landscape purposes." Malaysia's search for more effective solid waste management is still on.



Statistics: Malaysia Water Industry Guide, 2007

## Market Profile

### *Water Service Providers and Regulators*

State Public Works Department, State Water Supply Department, State Water Supply Board and State Water Supply Corporation or Company, and private companies undertake the development, operation and maintenance of water supply in the states. Water supply regulators were formed in states where water supply services are provided by State Water Supply Corporation or Company, and private companies. Sewerage services operation and maintenance is privatized to Indah Water Konsortium (IWK), whilst the Sewerage Services Department oversees the national sewerage sector development and the implementation of the Concession Agreement. The Ministry for Regional and Rural Development, and the Engineering Division of the Ministry of Health provide rural water supply. Whilst the latter is also responsible for the provision of sanitation facilities to rural communities.

### *Funding*

Since water is important for socioeconomic development of the nation, the Federal Government provides soft loans to State Governments for public water supply infrastructure and grant for rural water supply development. To date, the Government has provided RM8.3 billion loan to State Governments for the water supply sector. The Federal Government provides grant for sewerage infrastructure development in the cities and towns, and the provision of sanitation facilities in rural areas. Problems in the water services sector State water supply authorities have problems covering the cost of services and many have deferred maintenance due to capital shortages. This has led to deterioration in the quality of services, such as poor water quality and low pressure. In fact, there are water supply authorities that have not reviewed the water tariff in the last 20 years. Non-revenue water (NRW) in the water supply sector is high, with a national average of 40.6% and a range of 18.0 to 73.9% (2002). Besides incurring revenue losses to the State Governments, high NRW lead to the difficulty of payment by certain State Governments for bulk water purchases from concessionaires that had constructed and operate the water treatment plants.

The presence of numerous small sewerage treatment plants resulted in difficulties of operation and maintenance, besides escalating the cost of operation. There is also a lack of fund to construct regional sewerage treatment plants. The Ninth Malaysia Plan tries to address 3 major challenges i.e.

Challenge 1: To deliver or make available facilities or services of a high quality;

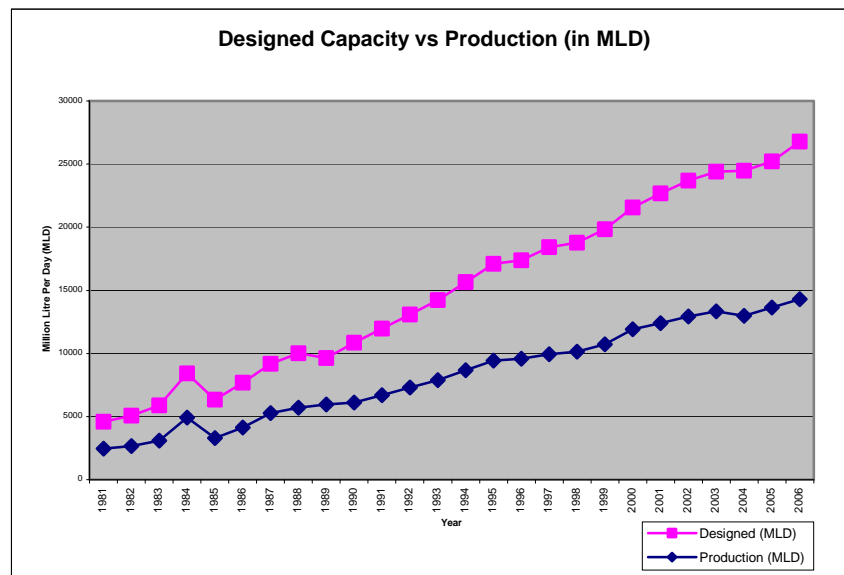
Challenge 2: To ensure an efficient and effective delivery system to meet the rising aspirations of the people; and

Challenge 3: To optimize the use of natural resources as well as protecting the environment in order to improve the quality of life.

Some of the issues that will be and need to be addressed in order to meet the challenges are

### *Water Supply Sector*

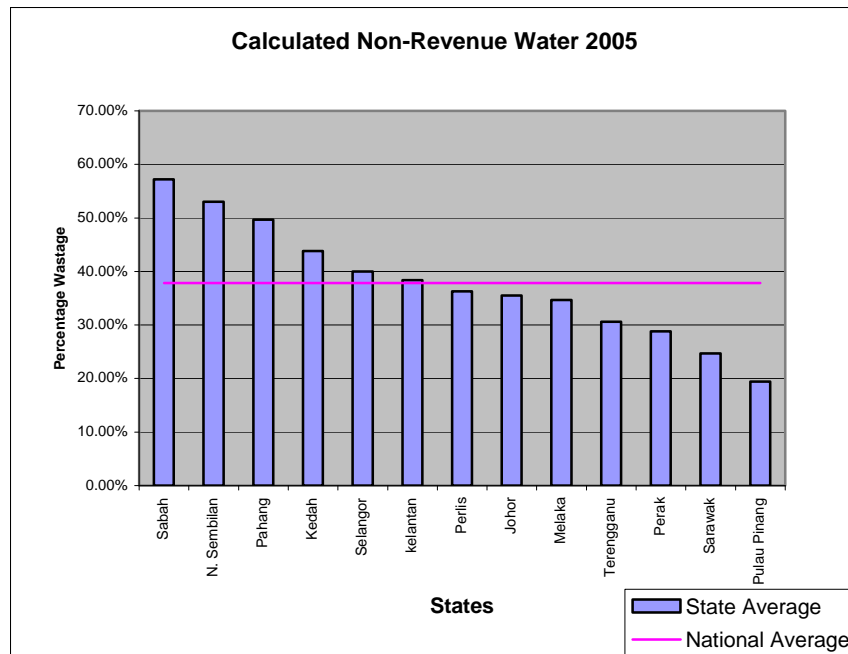
The increased demand for clean water has led to competition in water use among the various water user sectors and the continued economic growth will magnify this even more acutely. The practicable limit of surface water resources development has been reached in regions of high demand, and it has become necessary to consider inter-basin and interstate water transfers. The current approaches towards water supply in cities are supply driven – when there's a “shortage”, new sources are developed. This ‘business as usual’ approach is no longer sustainable because of the ever-increasing water demand. The new approach will be water demand management that focuses on conservation measures to make better use of water. Inter-state raw water transfer The Yen Loan Agreement for funding the Pahang-Selangor Raw Water Transfer Project was signed in March 2005. The construction of the project will commence in the Ninth Plan and will be completed in the Tenth Plan. The project will transfer 2260 million litres of water per day. Kelau Dam, in Pahang, will capture water and the water will be released to Semantan River via Kelau River. The Semantan Intake and Pumping Station will transfer the water via dual pipelines to the tunnel inlet. The tunnel transfers the water across the Main Range to Langat 2 Water Treatment Plant in Selangor.



Statistics: Malaysia Water Industry Guide, 2007

### Non-Revenue Water

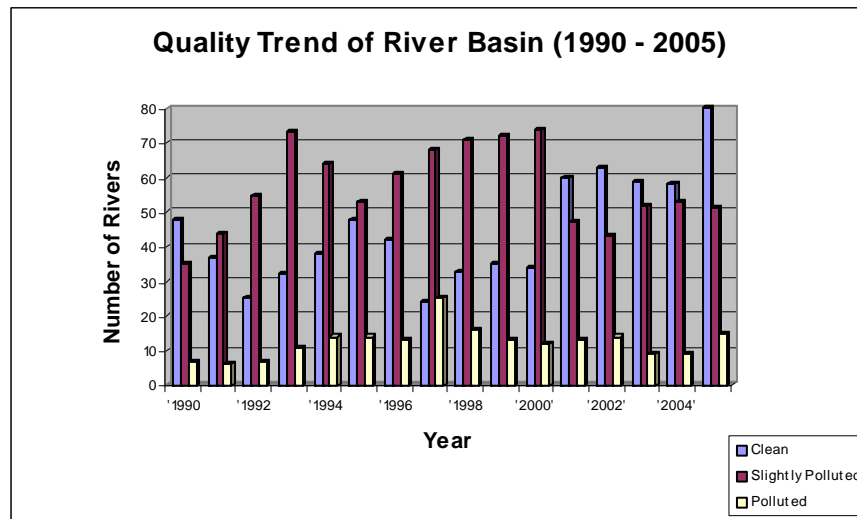
The program of reducing NRW and, rehabilitation of water treatment plants, water mains and distribution pipes is an on-going program in every five-year development plan. The program of NRW reduction and rehabilitation of water supply systems will be emphasized in the Ninth Plan and it is a major component of the water demand management initiatives.



Statistics: Malaysia Water Industry Guide, 2007

### Groundwater Resources

Malaysia has more than 150 river systems that contribute 98% of the total national water use, whilst the remainder is contributed by groundwater. To secure safe yield from surface water sources, 55 single purpose and 17 multipurpose dams were constructed, with a total storage of 30 billion m3. Water supply systems that are too dependent on surface water sources are at the mercy of the weather. To meet the increasing water demand, the development of distant water resources is not always the best option, and groundwater resources offer the possibility of on-site development of water supply. Besides, the need to develop the naturally stored water below ground surface is enhanced by the high environmental costs incurred in the development of surface water storages.



Statistics: Malaysia Water Industry Guide, 2007

### *Storm water Management*

Besides controlling the occurrences of flash floods in urban centers and downstream areas, the application of Storm water Management Manual has the potential of improving the quality of receiving waters and meeting the increasing water demand. Runoff that is stored in detention ponds should be treated before it is released into the existing drainage channels or alternatively, the water can be used for non-potable purposes such as watering parks and golf courses, and cleaning streets.

### *Sewerage Sector*

Sewage is one of the major pollutants of water bodies. Cities and other urban centers are well known for being polluters of the aquatic environment with sewage and municipal wastewater, industrial effluent and polluted runoff. A reliable and efficient sewerage system is a vital contributing factor towards the improvement in environmental health of the nation.

### *National Sewerage Project*

The National Sewerage Project is made up of 13 projects that cover Klang Valley and the major urban centers in the west coast of Peninsular Malaysia – Kangar, Alor Setar, Butterworth, Bukit Mertajam, Seremban, Port Dickson and Melaka. The project components are made up of ten sewerage treatment plants, three centralized sludge treatment facilities and a sewer network with a total length of 117 kilometers. The construction of the National Sewerage Project commenced in the Eighth Plan and will be completed in the Ninth Plan.



### *Rehabilitation and rationalization of sewerage treatment plants*

Rehabilitation and upgrading works of sewerage treatment plants will continued under the Ninth Plan and priority will be given to those plants that operate within the catchments of public water supply intakes. This is to ensure that the effluent discharge into receiving water bodies comply with standards set by the Department of Environment.

The program on rationalization of sewerage systems will result in the closures of small sewerage treatment plants that will take place after the completion of regional sewerage treatment plants within their respective catchments areas. This program optimizes resources with respect to operation and maintenance of sewerage treatment systems.

### Regulated Water Services Industry

An individual problem in the water services sector, such as NRW in the water supply sector or bill collections in the sewerage sector, cannot be solved in isolation. The core problems such as poor governance, low tariffs and lack of funds, need to be resolved first. The solutions may include transparent policies, independent regulatory bodies, a paradigm shift in tariffs, and the involvement of civil society. Following the Constitutional Amendments in January 2005, the Federal Government involvement in the state water supply services are in the areas of regulating the service providers and the provision of fund for the maintenance and expansion of water supply services. The National Water Commission (SPAN) will regulate all water service providers irrespective of government or private ownerships, whilst the management of water resources will remain within the jurisdiction of the State Governments. The issues of water tariffs need to be addressed with respect to social responsibility and cost recovery, together with the funds needed to improve and expand water services, and conservation of fresh water reclamation of degraded water systems. The privatization of water services should result in greater efficiencies in the sector and equitable distribution of water. The planning of water services should take into account future technological innovations and consumption patterns that may reduce the need for water supply infrastructure, and consequently result in lower capital expenditure.

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### *Integrated Water Resources Management*

The effective implementation of Integrated Water Resources Management (IWRM) will contribute to the realization of a sustainable national water sector. Reforms and initiatives are needed towards providing adequate as well as an enabling environment for the effective and efficient implementation of IWRM. IWRM formulates and implements a course of action involving the management of water and related resources to achieve optimum allocation of water resources within a catchments or river basin. The scope of IWRM may be addressed with respect to integration of different components of water, integration of water with related land and environmental resources, and integration of water with social and economic development.

### *Amendment to Federal Constitution*

In the Special sitting of Parliament in January 2005, Parliament had approved the amendments to the Ninth Schedule to transfer WATER SUPPLIES AND SERVICES from State List to Concurrent List (except Sabah and Sarawak) and to amend the Tenth Schedule whereby revenue from water supplies and service is assigned to the Federal (assigned to the States before amendment) – except Sabah and Sarawak. The amendments received Royal Assent on 4 February 2005 and were gazetted on 10 February 2005. The date of enforcement was fixed on 21 March 2005. After the amendments, the Federal Government will only regulate the water services industry in terms of licensing and regulating water operators. The ownership and control of rivers and canals and the water remains with the State, The State also retains power to declare and regulate water resource:

- water catchment areas;
- water source; and
- river basin

The new industry model is intended to cover Peninsular Malaysia and the Federal Territory of Labuan Proposed Two Water Bills. The initial plans of the government were to table the two Bills for first reading in the April session of Parliament, the second and third reading during the June session and royal assent there after.

## Market Demand

### SEWERAGE DEVELOPMENT PLAN (2006 - 2035)

PROJECT DESCRIPTION	QTY	TARGET COMPLETION	COST (US\$ M)
Refurbish/Upgrade of Sewerage Treatment Plants (STP) and Sewers to meet Proposed Effluent Standards			
a. Standard A (in water catchments areas)	884 STPs	2015	250.48
b. Standard B (non-water catchments areas)	3,748 STPs	2020	1,221.90
c. Sewer Rehabilitation	1,300 km	2010	237.46
Sludge Treatment Facility Development	22.5 Mil PE	2015	985.71
Regional Sewerage System Development	17.4 Mil PE	2035	5,939.05
Pour Flush System Conversion		2035	468.25
Re-plumbing for Sullage Collection		2035	91.11
<b>Total</b>			<b>7,484.13</b>

## Main Players

### State Corporatized and Privatized Water Management Companies

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## Market Entry

The normal path to market into the clean water industry is through the appointment of a sole distributor or agent. International tenders are generally open to pre-qualified, registered suppliers and preference is usually given to foreign suppliers with local distributors or agents.

There are opportunities for companies to establish strategic alliances with local companies involved in the water supply industry. For foreign companies wishing to enter the market, it is essential to work with a local partner with relevant industry knowledge and marketing and technical support capabilities. Partnerships often involve some form of technology/skills transfer or a joint venture with equity participation. Transfer of technology by a foreign company to its local partner is considered very important especially when seeking to secure major government projects.

## Market Issues & Obstacles

The government is currently drawing up new standards for water supply products that lack Malaysian or International Standards accreditation. Work by various committees led by the Water Supply Division of the Public Works Department Malaysia, in close cooperation with SIRIM, the various state Water Supply Department, foreign experts and representatives of local manufacturing concerns, has seen the drafting of several new Malaysian Standards (MS) for adoption by the authorities.

The new MS standards contain details on materials to be used and dimensions (including diagrams and performance tests) and will accord with international standards used in Britain, Australia, Germany, USA and Japan to ensure strict controls on quality.

## Trade Events

<http://www.awam2008.com/>  
<http://www.asiawater.org/>  
<http://cisnetwork.com/itex/about/index.php>  
[http://www.faconex.com/lab\\_about.asp](http://www.faconex.com/lab_about.asp)  
[http://www.faconex.com/ica\\_intro.asp](http://www.faconex.com/ica_intro.asp)

## Resources & Contacts

### **For More Information [NOTE: only use this format, do not change it.]**

The U.S. Commercial Service in Kuala Lumpur, Malaysia can be contacted via e-mail at: Randall Liew; Phone: +60 3 2168 4825; Fax: +60 3 2168 8350; or visit our website: [www.BuyUSA.gov/malaysia](http://www.BuyUSA.gov/malaysia)

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