

Summary

As the country grows so does the problem of providing sufficient clean water to the population and until about five decades ago, Malaysia's waste disposal system was no different from what is still found in many developing countries. Malaysia's 27 million people generate about six million tons of sewage every



Discharge of sullage directly into drainage system

year, most of which is treated and released into the rivers. Proper treatment of sewerage is paramount as about 98% of Malaysia's fresh water supply comes from surface water. Raw surface water becomes contaminated as a result of excessive and indiscriminate discharge of wastewater directly from households or factories to drains and into rivers with minimal or no treatment. This impairment of water quality greatly reduces the usability of the water for ordinary purposes or in a worst case scenario creates a hazard to public health through poisoning or the spread of diseases. To combat this, 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. In response to the increasing demand for a better and effective sanitation services, private companies were encouraged by the government to build wastewater management systems.

As an important component for the development of the country, high emphasis has been placed on the conservation and preservation of water. The enactment and enforcement of the SPAN Act in 2007 was to address all previous deficiencies and to provide a holistic approach to the planning and development, operation and maintenance, provision of water supply, the management, ownership and control of rivers and raw water sources, the provision, operation and maintenance of sewerage services, planning and development of new utility infrastructures for rural and urban areas, the coordination and integration of all such related services, regulating and licensing of water services operator and providers.

The water and wastewater sector offers companies with innovative and revolutionary technologies a very good prospect, as the new watchword of the ruling government is "*A Caring Government*" and in line with this, the 2009 Budget focused on the provision of clean water and good sanitation for all Malaysian. The government has budgeted to spend US\$85.0¹ Million for the fiscal year of 2009 to upgrade and supply clean water to rural areas.

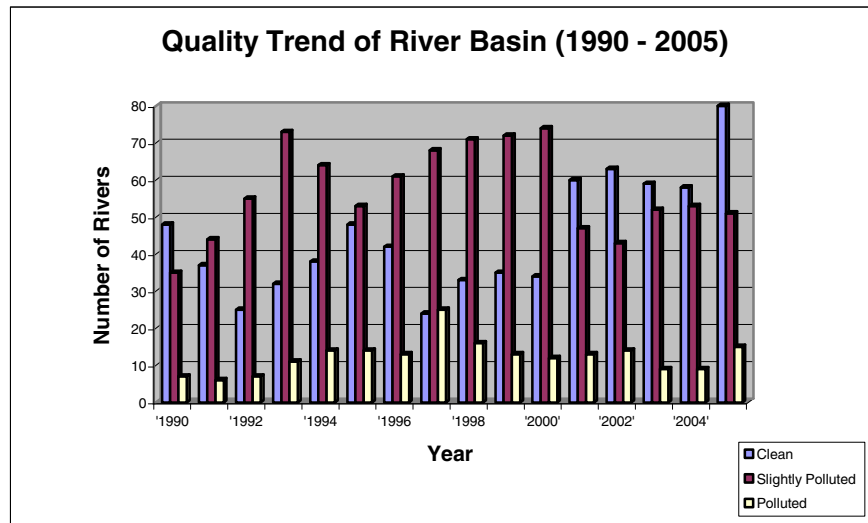
Market Demand and Data

Malaysia receives an average annual rainfall of about 3,000 mm, with a total surface runoff of approximately 566 km³, and about 64 km³ contributing to groundwater recharge. The total internal water resource of Malaysia was estimated at 580 km³/year. The World Resources Institute had estimated that in 2007 the annual renewable water supply of Malaysia to be approximately 22,100 m³/person/year, a fall of about 2% from 22,484 m³/person/year in 2006. But by 2025 it is projected that this would fall to

¹ Source: Malaysian Budget 2009

approximately 10,000 m³/person/year², having said that Malaysia is still very much “rich” in water resources but all these will come to naught if this precious resource is not conserved and preserved.

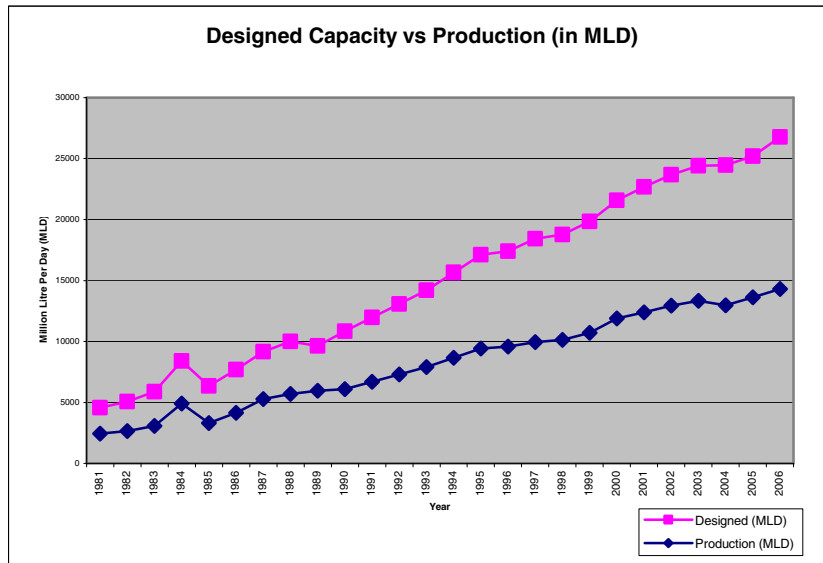
Water is harvested from the 150 river basins systems around the country that contribute 98% of the total national water use. However this type of water supply system is always subjected to climatic conditions; as would be the case of declining supply during the hot and dry seasons when demand peaks, and the environment. The quality of raw water has declined over the past decade due largely to the lackadaisical attitude of people towards the preservation of its surrounding environment. Indiscriminate disposal of waste and toxic material, construction and development in and around water catchments areas greatly contributed to the degradation of these riverine systems. To harvest safe yield from surface water sources, the government had to-date constructed 55 single purpose and 17 multipurpose dams, with a total storage of 30 billion m³.



Statistics: Malaysia Water Industry Guide, 2007

As an important component for the socioeconomic development of any nation, the government of Malaysia has placed a high priority for water and sewerage infrastructure development in cities and towns, and the provision of sanitation facilities in rural areas. 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 other options. The approaches of “get water from somewhere” in water shortage crisis can no longer be applicable nor sustainable.

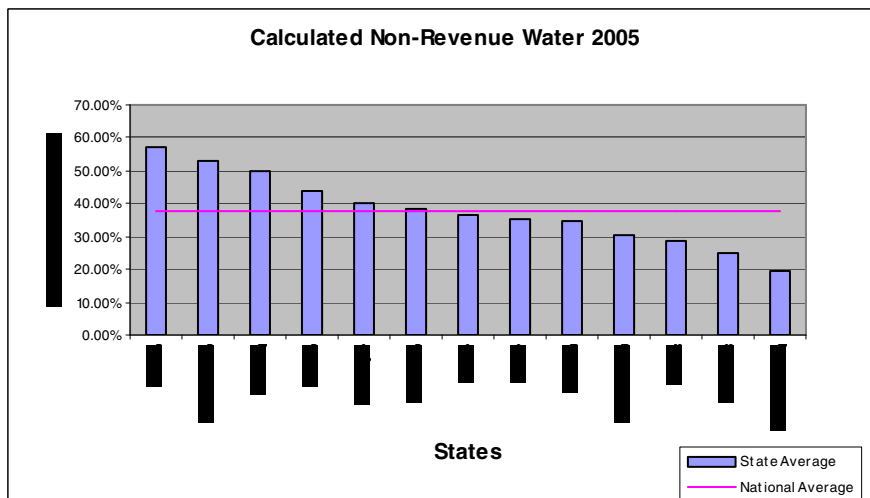
² Earth Trend: Water Resources and Freshwater Ecosystems — Actual Renewable Water Resources: Per capita



Statistics: Malaysia Water Industry Guide, 2007

A proposed 45 km pipeline, estimated at US\$3.0 Billion³, to transport raw water from Pahang to Selangor, to address water shortage and uneven distribution of water resources in Selangor, Kuala Lumpur and Putrajaya is expected to begin construction some time end 2008 after the completion and approval of the Environmental Impact Assessment.

The effort to reduce the Non-Revenue Water (NRW) from a national average of 38% to 30% is an on-going task for the government and water providers on the rehabilitation of water treatment plants, water mains and distribution pipes to prevent further losses of an important commodity.



Statistics: Malaysia Water Industry Guide, 2007

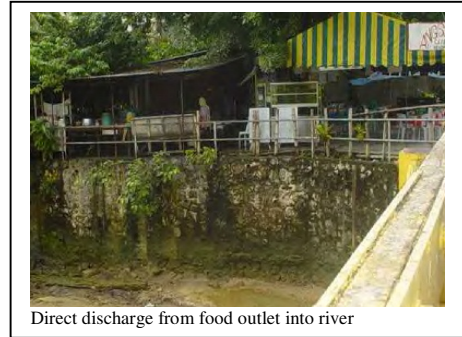
The possibilities of harvesting of storm water has been debated by both government and NGO, that beside controlling the occurrences of flash floods in urban centers and downstream areas, the application of storm-water management has the potential of improving the quality of receiving waters and meeting the increasing water demand. Runoff that is stored in detention ponds could be treated before it is

³ Source: Ninth Malaysia Plan

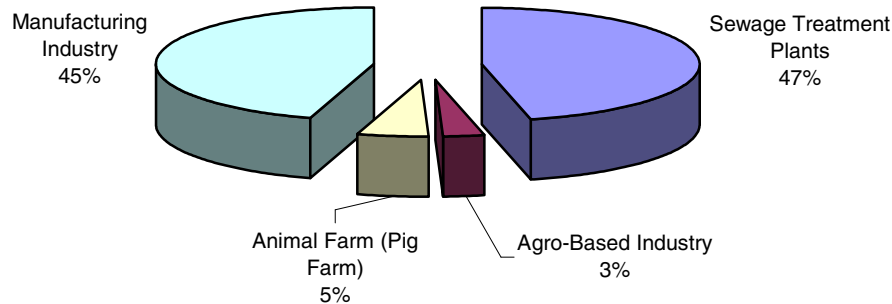
released into the existing drainage channels or alternatively, the water can also be used for non-potable purposes such as watering parks and golf courses, and cleaning streets.

In the Ninth Malaysia Plan from 2006-2010, groundwater exploration and development program was looked into as yet another source of water supply to water shortage areas and for irrigation.

Wastewater is a mixture of water and dissolved or suspended solids or waste that is discharged from homes, businesses, and industries and this 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, agro and animal husbandry effluents and polluted runoff. In areas of high degree of industrializations, some rivers are declared as Class V under the Water Quality Index (WQI) as the river water is no longer suitable for water supply, recreation, irrigation, fisheries or any other use. A reliable and efficient sewerage system is a vital contributing factor towards the improvement in environmental health of the nation.



Breakdown of Type of Discharge



Statistics: Malaysia Water Industry Guide, 2007

WATER SEWAGE 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
Total			9,193.96

Statistics: Malaysia Water Industry Guide, 2007

As can be seen from the proposed Sewerage Development Plan (2006-2035) above, sewerage services will continue to be expanded to ensure that the quality of effluent discharged into receiving water bodies comply with environmental standards to safeguard public health. Upgrading, rehabilitation and refurbishment of existing sewerage treatment systems will continue to receive priority from the regulating government bodies. The program on rationalization of sewerage systems with smaller and scattered treatment plants being decommissioned after the construction of a centralized treatment plant within their catchments areas to reduce the high cost of operation and maintenance.

Best Prospects

The replacement market is a growing market, as there is a constant requirement for replacement parts and services. The continuous maintenance, up-gradation and expansion of existing water supply systems to improve treatment efficiency is a major factor in the growth of the Malaysian water and wastewater equipment market. Regulations pertaining to water treatment are likely to translate into more stringent and efficient plant monitoring for performance-related aspects, thus driving the need for retrofits and equipment upgrades. In the past two years, water treatment companies across Malaysia have obtained a sizeable income from spare parts and replacement of water treatment equipment. The government is expected to spend in 2009 an estimated US\$85.0⁴ Million to upgrade and supply clean water to rural areas.

Overall from 2001 to 2010 the planned expenditure for the following utilities is:

**DEVELOPMENT EXPENDITURE AND ALLOCATION FOR
INFRASTRUCTURE AND UTILITIES, 2001-2010
(US\$ million)**

Utilities Sector	2001-2005	2006-2010
Water Supply	1,176.64	2,485.94
Sewerage	408.45	949.33
Rural Water	222.39	365.61
Total	1,807.48	3,800.88

Source: Economic Planning Unit

Another source of demand for water is from the semi-conductor sector. The need for ultra clean water required for processing activities translate into demand for the water treatment equipment such as membrane purification, ultra filtration and reverse osmosis systems. Other technologies mentioned are biological contactors, extended aeration, sequenced batch reactor and trickling filters.

One of the most interesting thing that no one seem to be concentrating on is the recycling of sludge and solid waste, a by-product of wastewater treatment.

⁴ Source: Malaysian Budget 2009

Key Suppliers

Until recently, foreign original equipment manufacturers (OEMs) were the major suppliers of water and wastewater treatment equipment in Malaysia. Of late, the effective transfer and assimilation of technology as well as the strengthening of infrastructure is helping to promote local manufacturing. Nevertheless this sector still offers an opportunity for growth. While the demand for water treatment equipment is fueled by the growing need for potable water as a result of the increasing population and urbanization, the government's inclination toward central sewage plants is offering better opportunities for suppliers of wastewater treatment equipment. Disinfection and secondary wastewater treatment and sludge-dewatering equipment not only offer good growth opportunities but also gaining in popularity.

To encourage local participation, local distributors, suppliers, contractors and locally produced equipment and technologies for the wastewater treatment are given preferential advantages by the local government. The Malaysian water and wastewater equipment and services market is price driven and import intensive, with a high degree of price sensitivity impacting profit margins. Product quality versus pricing is therefore an important challenge in this market.

The small size of the Malaysian firms restricts their ability to invest in Research and Development (R&D) and develop a large marketing network. Being relatively new firms, they are at a disadvantage in competing with mature multinationals or in winning contracts for large projects. However local manufacturers can offer equipment at a lower price thanks to drastic cuts in terms of overheads such as insurance, shipping costs, and overseas handling fee. The deployment of innovative strategies such as fast product delivery, onsite maintenance, inventory management and most critically the ability to provide fast on-site trouble shooting and problem solving to their clients.

Prospective Buyers

State Corporatized and Privatized Water Management Companies

<p>SAJ Holdings Sdn. Bhd. SAJ Headquarters Jalan Garuda, Larkin P.O. Box 262 80350 Johor Bahru Johor Malaysia Tel: +60(7) 2244040 Fax: +60(7) 2240033 Website: http://www.saj.com.my</p>	<p>Laku Management Sdn. Bhd. Level 6, Menara Soon Hup Lot 907, Jalan Merbau 98000 Miri Sarawak Malaysia Tel: +60(85) 442020 Fax: +60(85) 442005 E-mail: wtk@lakumyy.po.my Website: http://www.lakumanagement.com.my</p>
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Market Entry Strategies

The normal path to market into the water and wastewater 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 or 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.

Malaysia practice an open economy market policies however there is a proviso set by the **Malaysian Foreign Investment Committee** which states that for “*companies which activities involve national interests such as water and energy supply, broadcasting, defense and security and any activities which is of national interest as determined by the Government from time to time, the participation of foreign interest is limited to 30%. In certain circumstances, the Government may also impose other conditions such as the issuance of the “golden share”⁵*; this allows foreign equity participation of up to 30% while Malaysian owns remaining balance of 70% of which 30% must be allocated to Bumiputeras⁶. This includes services in the environmental impact assessment consultancy, scheduled waste management services, energy services, but exemptions from foreign equity restrictions are allowed in certain strategic services like recovery of wastes through recycling. New project investments or expansion in water supply is still limited to 30% foreign equity participation (WTO, 2005). Exemptions are only allowed in an

⁵ FIC Guidelines on the Acquisition of Interest, Mergers and Take-overs by Local and Foreign Interest Section VI Sub-section 11.3

⁶ Bumiputra which translate literally to mean “son of the soil” is a Malay political term widely used in Malaysia, embracing ethnic Malays, Javanese, Bugis, Minang and occasionally other indigenous ethnic groups such as the Orang Asli in Peninsular Malaysia and the tribal peoples in Sabah and Sarawak

“acquisition of interest in a manufacturing company licensed by the Ministry of International Trade and Industry as well as manufacturing company which are exempted from obtaining manufacturing license”⁷

Market Access 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.

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SIRIM Customer Service Centre

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e-mail: web@sirim.my

Trade Events

<p>AWAM 2010 (ASIA WASTE MANAGEMENT EXPO & FORUM) AMB Exhibitions Sdn Bhd 1701, 17th Floor, Plaza Permata (IGB), 6, Jalan Kampar, Off Jalan Tun Razak, 50400 Kuala Lumpur Malaysia Tel: +60(3) 4045 4993 Fax: +60(3) 4045 4989</p>	<p>ITEX 2009 (INVENTION, INNOVATION AND TECHNOLOGY EXHIBITION 2009) C.I.S Network Sdn Bhd 9-2-3 Jalan 3/109F Danau Business Centre, Danau Desa, Off Jalan Kelang Lama, 58100 Kuala Lumpur, Malaysia. Tel: +60(3) 7982 4668 Fax: +60(3) 7982 1648 Email: info@itex.com.my Website: http://cisnetwork.com/itex/about/index.php</p>
<p>ASIAWATER 2010 (ASIA WATER AND WASTEWATER EVENT) AMB Exhibitions Sdn Bhd 1701, 17th Floor, Plaza Permata (IGB), 6, Jalan Kampar, Off Jalan Tun Razak, 50400 Kuala Lumpur Malaysia Tel: +60(3) 4045 4993</p>	<p>ICA 2009 (INSTRUMENTATION, CONTROL & AUTOMATION TECHNOLOGY EXHIBITION) Facon Exhibitions Sdn Bhd 10B, Jalan Desa Jaya, Taman Desa, 58100 Kuala Lumpur, Malaysia. Tel: +60(3) 7981 8766 Fax: +60(3) 7981 8771</p>

⁷ FIC Guidelines on the Acquisition of Interest, Mergers and Take-overs by Local and Foreign Interest Section VI Sub-section 8.4

Fax: +60(3) 4045 4989 Website http://www.asiawater.org/	Email: sales@faconex.com Website: http://www.faconex.com/ica_intro.asp
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Resources & Key Contacts

Non-Government Organizations

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<p>Association of Consulting Engineers Malaysia (ACEM) No. 63-2 & 65-2, Medan Setia 1, Damansara Heights, 50490 Kuala Lumpur Malaysia Tel: +60(3) 2095 0031 Fax: +60(3) 2095 3499 E-mail: sec@acem.com.my</p>	<p>National Hydraulic Research Institute of Malaysia (NAHRIM) Lot 5377 Nn Putra Permai, Seri Kembangan, Selangor Malaysia Tel: +60(3) 8948 3033 Fax: +60(3) 8948 3034 Email: salmah@nahrin.gov.my Website: www.nahrin.gov.my</p>
<p>Institute for Environment and Development (LESTARI) Universiti Kebangsaan Malaysia, Bangi, Selangor, Malaysia Email: faizul@pkrisc.cc.ukm.my Tel: +60(3) 89214149 Fax: +60(3) 892 55104 Website: www.lestari.ukm.my</p>	

Government Entities

<p>Ministry of Energy, Water and Communications, Block E4/5 Parcel E, Federal Government Administrative Centre, 62668 Putrajaya Malaysia Tel: +60(3) 8883 6000 Fax: +60(3) 8889 3712 e-mail : webmaster@ktak.gov.my</p>	<p>Suruhanjaya Perkhidmatan Air Negara (SPAN) National Water Services Commission Ground & 1st Floor Prima Avenue, Block 3510 Jalan Teknokrat 6 63000 Cyberjaya Selangor Darul Ehsan Malaysia Tel: +60(3) 8317 9360 Fax: +60(3) 8317 9339 Email: leow@span.gov.my</p>
<p>Jabatan Bekalan Air Water Works Department Kementerian Tenaga, Air dan Komunikasi Malaysia Aras 1, Blok E4/5, Kompleks E</p>	

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For More Information

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