

**Name of Country: Malaysia**

### **1. Nature of Water Crisis / Status of Water delivery**

Malaysia is situated in south East Asia. It consists of two regions: peninsular Malaysia in the west lying between Thailand and Singapore, and the states of Sabah and Sarawak located in the east on the island of Borneo. The two regions are separated by the South China Sea. The total land area of the country is 328 550 km<sup>2</sup>.

The mean annual rainfall is 3000 mm. Peninsular Malaysia is drained by a dense network of rivers and streams (there are about 150 major river basins). The total surface runoff is 566 km<sup>3</sup>, and about 64 km<sup>3</sup> contribute to groundwater recharge. The total internal water resources of Malaysia are estimated at 580 km<sup>3</sup>/year. The annual internal renewable water resources are estimated at 630 km<sup>3</sup>. As surface water is readily available throughout the year, it is abstracted mainly for irrigation and domestic uses. The groundwater potential is limited to some pockets of the coastal region and is generally exploited by rural people to supplement their piped water supply. Surface water represents 97 percent of the total water use, while groundwater represents 3 percent. Irrigation currently accounts for about 9.7 km<sup>3</sup> or about 76 percent of the total water consumption. However, irrigation demand is expected to taper off as no further expansion in irrigated paddy cultivation is envisaged.

*Source "AQUASTAT Country Profiles"*

In the early 19th century, water supply systems started to be implemented in the Federated Malay States and in the Straits Settlements. The first formal arrangement for a water supply system in this country began in Penang in 1804 when the population then was about 10,000 people. Clear stream water from the hills was brought along a brickwork channel to the town, where earthen pipes were laid through the streets and tin pipes conducted water to the houses. In Sarawak, Kuching had its first water supply in 1887 serving then about 8,000 people. However modern rapid gravity filtration plants were only introduced in this country in the 1930's.

Treatment plants were built to serve large towns; the oldest plants being those in Penang and Kuala Lumpur. The Waterfall Supply in Penang and the Ampang Impounding in Kuala Lumpur which are still in service are some of the earliest public water supply systems constructed. During the early days, there were no major problems in water supply as the demand was low and the

Before the Second World War all the major towns had treated water supplies. During the Japanese Occupation between 1941 and 1945, there was no expansion in the water supply systems and most of the existing water supply installations deteriorated in conditions because little attention was given to the water supply systems. There was also an increase in urban population. In some towns there was as much as a 100% increase in population. Immediately after the war, the development of water supply continued and these installations were rehabilitated and new schemes were implemented to meet the demand.

By 1950 the country had 100 treatment plants producing 195 million litres per day (Mld) supplying a population of 1.15 million.

Major developments, however, took an upturn during the era after the nation gained independence from the British in 1957. The first major scheme was the Klang Gates Dam and the Bukit Nanas treatment plant completed in 1959 and supplying the capital city of Kuala Lumpur. This was followed rapidly by the National Five Year Development Plans (1966-1970, 1971-1975, 1976-1980, 1981-1985, 1986-1990) during which the Government laid particular emphasis on the development of various sectors such as Water Supply, Roads, Education and Health, all of which are essential for national development.

Rural water supply, however, was somewhat neglected until sometime during the Third Malaysia Plan. Before the Third Malaysia Plan (1976-1980), water supply development was largely dictated by the consideration of economic viability. Hence only the more viable water supply projects in urban areas with a heavy concentration of population met this criterion. This arose principally from our policy of obtaining as much low interest loans as possible from the IBRD (International Bank for Reconstruction and Development) and the ADB (Asian Development Bank) and the over-riding criterion of these agencies at that time was economic viability.

As rural water supply projects were uneconomical and the States could not afford them, very few rural water supply schemes were implemented. As compared to the great strides made during the Second Malaysia Plan on rural roads, rural health and education, only 36% of the rural population had piped water. Rural supplies were mainly confined to areas fringing urban water supply systems and the newly formed land settlement schemes developed by the Government. Intensive efforts and emphasis given to rural water supply in the subsequent development plans have brought more and more piped water to the traditional rural areas. As the population of Malaysia increased, larger schemes have been undertaken. In this country, as of May, 1998 there are more than 478 treatment plants producing about 9,870 Mld serving a population of about 19.8 million people

*Source Public Works Department*

## **2. Form of Public Management**

Historically, water falls under the respective state jurisdiction under the Malaysia's Federal Constitution. Under this setting, the treatment and distribution of water is undertaken by state agencies. These can be either:

- State Public Works Department (PWD);
- State Water Supply Department (WSD); or
- State Water Supply Board (WSB).

Since the early 1990s, more states have opted to establish water supply companies via corporatization (via establishment of limited liability firms wholly-owned by the state). In some cases such companies are privatized via partial or full divestiture of equity in these companies. The following table summarizes the current situation of water institutions in Malaysia.

| <b>Public Works Dept</b>  |   |
|---------------------------|---|
| Kedah                     | (1) Production and distribution by PWD<br>(2) Privatized production and distribution by Taliworks Consortium at Langkawi Island<br>(3) Privatization of 5 treatment plants - Syarikat Air Utara                             |
| Sarawak                   | (1) Production and distribution by PWD<br>(2) Privatized production and distribution for Miri, Bintulu and Limbang – LAKU Management Sdn Bhd  |
| Labuan                    | (1) Distribution by PWD<br>(2) Management contract of production by Encorp Utility Sdn Bhd  |
| Perlis                    | Production and distribution by PWD  |
| <b>Water Supply Dept</b>  |   |
| Pahang                    | Production and distribution by WSD  |
| N.Sembilan                | (1) Distribution by WSD<br>(2) Privatization of 2 water treatment plants – Taliworks Consortium, 10 year concessions  |
| Sabah                     | (1) Distribution by WSD<br>(2) Privatization of 3 water treatment plants – Jetama Sdn Bhd, Timatch Sdn Bhd, Lahad datu Water Supply - 10 year concessions   |
| <b>Water Supply Board</b> |   |
| Perak                     | (1) Distribution by WSB<br>(2) Privatization of 3 water treatment plants - 20 year concessions  |
| Melaka                    | Production and distribution by WSB (Perbadanan Air Melaka)  |
| <b>Water Supply Co</b>    |   |
| Pulau Pinang              | Privatized in 2001:<br>Production and distribution by PBA Holdings Berhad (state government share 55%)  |
| Terengganu                | Corporatized in 1999:<br>Production and distribution by Syarikat Air Terengganu Sdn Bhd (state government share 100%)   |
| Selangor                  | Privatized:<br>(1) Monopoly distribution by Perbadanan Urus Air Selangor (state government share 30%) since 2002<br>(2) 7 water treatment plants (4 existing, 3 BOT) operated by 5 firms with concession period 10-30 years |
| Johor                     | Privatized in 2001:<br>Production and distribution by SAJ Holdings Sdn Bhd (state government share 0%), Concession period 30 years  |
| Kelantan                  | Privatized in 1996:<br>Production and distribution by Air Kelantan Sdn Bhd (state government share 70%)   |

Source: MWA (2004)

Some states have fully privatized the provision of water services. These include the more developed states (in terms of GDP per capita) such as Selangor, Pulau Pinang and Johor. In some cases, the state government continues to hold equity in the privatized water entities. A few states (Labuan, N.Sembilan and Sabah) have chosen a dual structure water system – whereby distribution is undertaken by state agencies and water treatment is privatized via concessions. Some of the smaller states (Melaka and Perlis) and less-developed states (Kedah, Sarawak and Pahang) have generally chosen to maintain a public water provision system.

*Source: Water Tariff and Development: The Case of Malaysia*

### 3. Policies relating to Financial and Tariffing issues.

Water tariffs are set by the respective states/bodies as per the following table. Generally, domestic water tariff is cross-subsidized by industry tariff in Malaysia. Hence, industry rates are higher than domestic rates. Most of the developed states (such as Selangor and Johor) have relatively higher industry water tariff.

(RM / m<sup>3</sup>)

| State/Area   | Domestic Rate | Industry Rate |
|--------------|---------------|---------------|
| Kelantan     | 0.31          | 0.70          |
| Pulau Pinang | 0.31          | 0.94          |
| Terengganu   | 0.52          | 1.15          |
| Kedah        | 0.53          | 1.20          |
| Sarawak      | 0.56          | 1.19          |
| Perlis       | 0.57          | 1.30          |
| Pahang       | 0.57          | 1.40          |
| Melaka       | 0.59          | 1.40          |
| Bintulu      | 0.61          | 1.21          |
| Kuching      | 0.62          | 1.06          |
| Sibu         | 0.62          | 1.06          |
| Sri Aman     | 0.62          | 1.06          |
| Limbang      | 0.62          | 1.06          |
| Sarikei      | 0.62          | 1.06          |
| Kapit        | 0.62          | 1.06          |
| Perak        | 0.67          | 1.45          |
| N. Sembilan  | 0.68          | 1.59          |
| Selangor     | 0.72          | 1.91          |
| Labuan       | 0.90          | 0.90          |
| Sabah        | 0.90          | 0.90          |
| Johor        | 0.90          | 2.93          |

Source: MWA (2004)

The general principles underlying the present water tariffs in Malaysia include the following:

1. Higher rated for higher consumption to discourage wastage.

2. Cross-subsidy for domestic consumers by industrial consumers.
3. A very low 'lifeline' rate to meet the 'ability to pay' criterion of the lower-income group to cover basic everyday need for domestic purposes.

The incentives for efficient use of water are applied through the use of volumetric charges (based on measured water use) under an increasing block structure (where block price rises with use rise). This approach is used for the water tariffs for residential homes (with the exception of Sabah which uses a flat rate). There are significant differences in the structure of residential water tariffs between the different states as per the table above.

*Source: Water Tariff and Development: The Case of Malaysia*

#### **4. Law relating to water as part of the Commons.**

Since 1957, the jurisdiction and legislative powers in all aspects of water are distributed between the Federal Government and the State Governments in accordance with the Legislative Lists of the Federal Constitution.

- Federal List involves Hydropower, Navigation, Maritime Fisheries, Estuarine Fisheries (in the Concurrent List in the case of Sabah and Sarawak), Federal Works and Power including water supplies, rivers and canals except those wholly within one state or regulated by an agreement between States concerned.
- State List involves Rivers, Public Nuisances, Rivering Fisheries and Water (including water supplies, rivers and canals if they are wholly within one state or regulated by an agreement among the States concerned), control of silt and riparian rights.
- Concurrent List involves certain items that are within the jurisdiction of both the Federal Government and the State Governments. The Items are Drainage and Irrigation, Town and Country Planning (except in the Federal capital), Public Health and Sanitation (excluding sanitation in the Federal capital) and the rehabilitation of land which has suffered soil erosion.

This setting is however poised to change in the future. On 18 January 2005, the Malaysian Parliament amended the Constitution to affect the transfer of the jurisdiction of water supply management from the respective states to the Federal government. With this change, the Federal Government now has full control over water supply management in the country. At present, the government is planning to enact two legislations to further transform the industry, namely the Water Services Industry Act (WSI) and National Water Service Commission Act (NWSC). Both legislations will pave the way for the establishment of a government-owned Water Asset Holding Company (WAHCO) and an industry regulator, namely the National Water Service Commission.

#### **5. History of water conflicts**

## Water and Traditional Practices

### **HISTORY OF WATER STRUGGLE**

**<http://news.google.com/archivesearch?hl=en&resnum=0&q=water+struggle+of+malaysia&um=1&ie=UTF-8&scoring=t&sa=X&oi=archive&ct=title>**

### **CONFLICT BETWEEN SINGAPORE AND MALAYSIA OVER WATER**

**<http://www.american.edu/ted/ice/singapore.htm>**

Singapore and Malaysia have a long standing conflicts over water supply. In 1961, Singapore signed a water agreement with the Federation of Malaya. The agreement was that water would be sold at the price of 3 cents per 1000 gallons to Singapore. The agreement was to be valid for 100 years, meaning it would expire in 2061.

Most of Singapore's water comes from Malaysia.

The Malaysian government has stated that the agreement was signed during a different time and that the price should increase. They cite the example of water sold from China to Hong Kong in the past, which was approximately \$8 per 1000 gallons.

Singapore introduced NEWater and desalination plants so it does not need to depend on Malaysia for water. It rains a lot in Singapore, so there are many reservoirs to collect rain and use it as water.

### **Water conflict in Malaysia**

**<http://www.fao.org/docrep/004/AB776E/ab776e02.htm>**

Malaysia receives an average annual rainfall of 3 000 mm. Water resources development has been a catalyst for the socio-economic development of the country during the past decades. Dams and kilometres of pipelines and canals divert water from rivers to sustain domestic, industrial and agricultural needs. Lately, the water situation for the country has changed from one of relative abundance to one of scarcity. Population growth, urbanization, industrialization and the expansion of irrigated agriculture are imposing rapidly growing demands and pressures on the water resources, besides contributing to the rising water pollution. Water management is becoming increasingly comprehensive and complicated due to large concentrations of population, commercial activities and industries around the cities and towns, increasing water consumption, increasing water pollution, increasing land use conflicts and climate changes. At the same time, any new development of water resources to meet the ever-increasing demand faces rigorous scrutiny from environmentalists and conservationists.

The way forward to a prosperous and sustainable future is by keeping development to a level that is within the carrying capacity of the river basins while protecting and restoring the environment.

## **Water conflicts between Malaysia and Singapore**

### **From Wikipedia, the free encyclopaedia**

Jump to: [navigation](#), [search](#)

Singapore and Malaysia have long standing conflicts over water supply. In 1961, Singapore signed a water agreement with the Federation of Malaya. The agreement was that water would be sold at the price of 3 cents per 1000 gallons to Singapore. The agreement was to be valid for 100 years, meaning it would expire in 2061.

Most of Singapore's water comes from Malaysia.

The Malaysian government has stated that the agreement was signed during a different time and that the price should increase. They cite the example of water sold from China to Hong Kong in the past, which was approximately \$8 per 1000 gallons.

Singapore introduced NEWater and desalination plants so it does not need to depend on Malaysia for water. It rains a lot in Singapore, so there are many reservoirs to collect rain and use it as water.

Water crisis in Malaysia a newspaper report on April 13 2008

- Sold water to Singapore for long... wettest in the region
- For a month now as on April 13, Malaysia has been facing a water crisis so serious that central Selangor state and the capital Kuala Lumpur have been rationing water to more than 600,000 residents
- Lorry tankers are supplying water to residents waiting impatiently with buckets and other containers.
- Ten mobile water treatment units from France are treating 4.4 million liters of water a day, a drop compared to the demand.
- Desperate, people have prised open fire hydrants, while a government polyclinic is collecting water dripping from its air conditioners for use in cleaning.
- In several states, water levels at dams have reached almost critical levels. Experts say the heavy rains predicted for April may not come and the drought in Kuala Lumpur, Selangor and other west coast states could stretch until October
- The situation is blamed on the effects of the El Nino weather phenomenon, which is expected to last until June. But El Nino is not the sole culprit. ``Our priorities have been on the wrong things," said activist Jubal Lourdes. ``We have the Twin Towers and all these sophisticated projects, but we haven't made any contingency plans to deal with a shortage of water, which is a basic necessity.'
- Environmentalists say 10 years of bulldozing forests and chopping trees has taken its toll. Hills are stripped bare for housing projects, forests logged, and jungles cleared for projects like golf courses. ``The cutting of trees has affected water catchment areas," said Lourdes.

- In Kelantan on the east coast of the peninsula, the ruling Islamic Party said the water shortage would not have caused so much trouble if the government had approved 70 million US dollars in loans for a dam.
- National water resources study in 1982 revealed that only 10 per cent of Malaysia's annual rainfall of 990 billion cubic meters is available for use. It warned that large areas of the peninsula's west coast have high water stress.
- Weather, deforestation, industry and high population densities had affected water quality and quantity.
- Poor maintenance of pipes has led to high water losses. Urban consumers waste more water than their rural counterparts, and their consumption of 200 liters daily is about four times more.