Chapter 7

The "Water Crisis" in Selangor

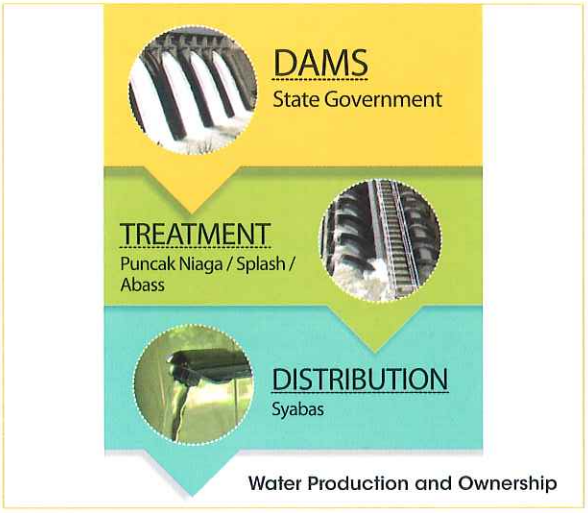
1.0 Background

The following is the sequence of events that led to the "Water Crisis" in Selangor in 2012 as reported by Bernama:

- 15 July – Syabas proposes rationing, claims reserve of portable water at 2%,
- 16 July – Selangor state government accuses Syabas of manufacturing the crisis and wants to take over the company,
- 18 July – Selangor state government announces the establishment of a water panel and a reshuffle of Syabas' top management,
- 19 July – Federal government forms a special cabinet committee on the water issue,
- 23 July – Special cabinet committee blocks Syabas takeover by the Selangor state government. The cabinet committee also declares water rationing not yet necessary.

The declaration by the federal government that water rationing was not necessary as yet meant that there was sufficient treated or portable water for residential and industrial customers of Syabas.

Despite no water rationing, the chairman of Gerakan Prihatin Rakyat Selangor (GPRS) said that the applications of more than 1,000 industry players to set up factories in Selangor were rejected or deferred by Syabas on account of the anticipated severe shortage of treated water (Mysinchew, 2 November 2012).



Water Production and Ownership

2.0 Water Infrastructure in Selangor

The chart above shows the water infrastructure in Selangor.

The dams in Selangor are owned by the state government. Three companies, Puncak Niaga, Splash and Abass, manage the treatment of raw water. The distribution of treated water is managed by Syabas alone.

2.1 Is there Sufficient Raw Water for Treatment?

Table 1 below shows that the 7 dams in Selangor have a total gross storage of 526.68 million M^3 and

Table 1: Capacity Selangor Dams, 2012

River Basin	River	Dam	Type	Height (m)	Catchment Area (sq km)	Gross Storage (MCM)	Active Storage (MCM)
Sg. Langat	Sg. Langat	Langat	Earthfill	61.0	41.45	37.48	36.77
	Sg. Semenyih	Semenyih	Earthfill	49.0	56.70	62.60	60.40
Sg. Klang	Sg. Klang	Klang Gates	Concrete	37.0	77.16	32.00	22.60
	Sg. Batu	Batu	Earthfill	44.0	50.00	33.60	27.50
Sg. Buloh	Sg. Subang	Subang	Earthfill	9.1	10.28	3.50	3.45
Sg. Selangor	Sg. Tinggi	Tinggi	Earthfill	42.5	40.00	122.50	114.50
	Sg. Selangor	Selangor	Rockfill	110.0	197.00	235.00	230.00

Note: MCM – million cubic meters

Source: Volume 14: Selangor, FT of Kuala Lumpur and Putrajaya, Review of the National Water Resources Study (2000 – 2050) and Formulation of National Water Resource Policy, Final Report, August 2011, Ministry of Natural Resources & Environment Malaysia and Drainage and Irrigation Department.

an active storage of 495.22 million M^3 or 495.22 billion litres of raw water.

Meanwhile, according to the Malaysian Meteorological Department (JMM), dams in Selangor have been receiving North East monsoon rainfall beginning November and rainy weather is expected to continue until March 2013. According to the Director of the Selangor Water Management Institute, the water level at the Sungai Selangor dam has risen and based on long-term rainfall data trends the dams are expected to be at their full capacity by April 2013 (8 November 2012, ABN News). The Sungai Selangor Dam supplies 60% of the water demand in Selangor.

The above data show that there is sufficient supply of raw water from the dams for all the water treatment plants in Selangor.

2.2 Is there Sufficient Supply of Treated Water?

Water treatment in Selangor is managed by three companies: Konsortium Abass Sdn. Bhd. (Abass), Syarikat Pengeluar Air Selangor Sdn. Bhd. (Splash) and Puncak Niaga Sdn. Bhd.

According to a report by the Selangor state newly formed water oversight committee, Selangor has 35 water treatment plants with a capacity to produce treated or portable water at 4,960 million litres per day (MLD).

Puncak Niaga has 29 water treatment plants with a capacity to treat 1,909 MLD of treated water supplying 48.56% of 5 million customers in Selangor, Kuala Lumpur and Putrajaya.

Splash has 3 water treatment plants with raw water coming from Sungai Selangor. The company has a capacity to produce 2,000 MLD of treated water.

Abass is estimated to have 3 water treatment plants with an estimated capacity of 951 MLD of treated water.

2.3 Is Sufficient Treated Water Distributed to meet Requirements of Consumers?

The distribution of treated water in Selangor is managed by Syarikat Bekalan Air Selangor Sdn Bhd (Syabas), in which a 70% stake is owned by Puncak Niaga and the remaining 30% is owned by the Selangor state government.

According to the figure provided by the Selangor Menteri Besar's office, Syabas distributes 4,333 MLD of treated water currently. However, only 2,944 MLD of treated water is consumed by users, the remainder 1,389 MLD or 32% is unaccounted for and considered to be non-revenue water (NRW).

Given that the capacity of treated water is 4,690 MLD and only 4,333 MLD is distributed, there is a surplus of treated water currently.

3.0 Demand for Portable Water

The updated National Water Resource Study (2000 – 2050) carried out by the Ministry of Natural Resources and the Drainage Department shows that actual water consumption (inclusive of portable water, ground and river water extraction) grew by an annual compounded growth rate (acgr) of 5.6% from 2,858 MLD in 2000 to 3,741 MLD in 2005. The actual water consumption increased to 4,001 MLD in 2009, increasing at a rate of 1.7% per annum since 2005.

Given that 75 MLD of water consumption came from ground and river water extraction, the actual demand for portable water in 2009 was 3,926 MLD. **The projected demand for portable water is 4,130 MLD in 2012. This figure is quite consistent with Syabas's current distribution of portable water at 4,333 MLD.**

4.0 Is there a Shortage of Portable Water?

The current output capacity of the 35 water treatment plants is 4,960 MLD of portable water, demand is 4,333 MLD, there is a surplus in supply of 487 MLD. **If demand is projected to grow at a rate of 1.7% per year, there is sufficient supply of portable water for another 4 years, or up to 2016.**

5.0 Remedial Measures to Increase Supply of Raw and Treated Water

5.1 Federal Government

The federal government wants to implement the RM6.22 billion **Langat 2** project this year for completion by 2015 to supply 1,130 MLD to 8 million users by 2025. The Selangor state government claims that the same amount of water could be treated using Canadian membrane technology costing only RM800 million.

The Association for Water and Energy Research (AWER), an environmental non-governmental organisation, claimed that the Langat 2 water

treatment plant and **Pahang-Selangor Raw Water Transfer Tunnel projects might cost consumers up to 12 sen more per cubic metre on the water tariff.** AWER said that the construction of these two mega projects, with the price tags of RM3.7 billion and RM2.5 billion respectively, would see the cost eventually passed on to consumers (The Sun Daily, 1 November 2012).

The Energy, Water and Green Technology, Minister Datuk Seri Peter Chin Fah Kui, in August 2012, said the construction of Langat 2 would not burden consumers as "the government can get the lowest interest rate around in the financing capital market, so there is nothing that says we will charge a higher tariff because of Langat 2" (The Sun Daily, 1 November 2012). **The Minister stated that water tariff could not be increased arbitrarily – it had to be a tripartite agreement among the concessionary, the federal and state government.**

5.2 State Government

According to the Selangor state government, "given the indisputable fact that Selangor has more than enough raw water, there is no need whatsoever to transfer more of the same all the way from Pahang. To increase water supply, we should instead prioritise the more practical and economical solution of building water treatment plants near existing dams" (Quotation from the Selangor Menteri Besar's Office).

The Selangor state government is already implementing mitigation projects that should be completed by March 2013. This will increase the reserve margin to 851 MLD. According to the state government, this would ensure sufficient supply of portable water for the next decade, i.e. up to 2022. The Selangor state government announced on 2 November 2012 (Mysinchew) its plan to restore the defunct Bukit Jelutong water treatment plant where the proposed membrane technology would be installed to boost treated water production by an extra 100 MLD.

According to Koon Yew Yin, a Malaysia Insider contributor, on 6 August 2012:

- An alternative proposal is to take water from Sungei Bernam, the river that forms the state boundary between Selangor and Perak. A dam could be constructed at the upper reach of the river to accumulate water to increase water supply and treated at the lower end of Sungei Bernam, at Sungei Besar, to pipe water to nearby Kuala Selangor and Klang.
- Another alternative source of water is the mouth of Sungei Perak, at Teluk Intan, which is very much closer to the main demand areas in Selangor than the Langat project. Since the level of these coastal regions is about the same it would be much cheaper to take additional water from Sungei Perak than from Sungei Semantan in Pahang through a highly expensive tunnel that has to be cut in the mountainous Main Range. Sungei Perak at the point of its mouth is several hundred metres wide and there is ample water to meet Selangor's need for the long-term future.

5.3 Optimising Treatment and Distribution of Portable Water

As reported by the Menteri Besar's Office of Selangor, **a study conducted by Enrico found that none of the 29 water treatment plants managed by Puncak Niaga were operating at optimum level with 18 of them requiring repairs and upgrading.**

The World Bank has estimated the total cost of NRW to utilities worldwide at US$14 billion per year. Reducing by half the current levels of losses in developing countries, where relative losses are highest, could generate an estimated US$ 2.9 billion in cash and serve an additional 90 million people.

Some examples as compiled by Wikipedia (except Malaysia):

- Singapore 5%;
- Denmark 6%;
- Netherlands 6%;
- Germany 7% (2005);
- Japan 7% (2007);
- Eastern Manila, Philippines 16% (2009), down from 63% in 1997;
- Tunisia 18% (2004);
- England and Wales 19% (2005);
- France 26% (2005);
- Dhaka, Bangladesh 29% (2010);
- **Malaysia 32% (2012).**

Syabas should reduce NRW from the present 32% by 5% each year to about 10% by 2016 a reduction of 22 percentage points in 4 years. This would increase the supply of portable water by 1,091 MLD (22% of 4,960 MLD). This remedial action alone would make the construction of Langat 2 superfluous.

5.4 Optimize the Quality of Raw Water Upstream of Water Intake Points

The New Straits Times on 8 November 2012 reported that the pollution in the main rivers in Selangor, particularly the Semenyih and Langat rivers, had reduced the amount of raw water available for treatment.

The report said that up to April 2012, there had been at least 13 incidents where treatment plants had to be shut down for several hours due to high levels of contaminants in the water.

According to a report released by the National Water Services Commission (Span) during the Selangor Water Forum in August 2012, **the contaminants in the rivers were mainly effluents from industrial activities, poultry farm waste, oil spills and sand mining.**

It is not surprising that Selangor rivers are classified as Level 3 or above, with Level 1 being the cleanest and Level 5 the dirtiest.

The Selangor River alone supplies 61 per cent of the total treated water for the whole of Klang Valley, while the Semenyih River supplies 15 per cent and Langat River 12 per cent.

6.0 Summary

The salient points from the above show that:

- The dams in Selangor have sufficient raw water for all the 35 water treatment plants,
- The 35 water treatment plants in Selangor have sufficient capacity to produce portable water for consumers until 2016,
- Syabas' water distribution operation suffers a 32% loss in the form of non-revenue water; i.e. 1/3 of the treated water is wasted. Selangor, Kuala Lumpur and Putrajaya would have sufficient water for the next decade if NRW could be reduced to a manageable level of 10%,
- The Langat 2 project is not necessary in the short to medium term, up to 2025. Long term supply of treated water may require its implementation,
- Immediate remedial measures should be taken to:
    - o Ensure all water treatment plants are operating at optimal level by carrying out the necessary maintenance,
    - o Ensure delivery of treated water is at the optimal level by reducing NRW to a manageable level of 10% in the next 4 to 5 years and at the same time ensure timely maintenance of water pipes and plugging of loss of treated water through theft or corruption,
    - o Prevent pollution of river by strictly enforcing the law. The Ministry of Natural Resources and Environment and its enforcement agency, the Drainage and Irrigation Department need to act,
    - o Relocate polluting industries to more suitable locations. The state government needs to act.
- In addition, the state government should have a master-plan to increase the supply of treated water by building more water treatment plants to supply water in the medium to long term.