

CHAPTER FOUR

WATER IN SELANGOR DARUL EHSAN

This chapter discusses the demand for and supply of water in Selangor Darul Ehsan. The chapter provides a brief summary of the bulk purchase of water supply from a private firm.

4.1 Objective of Water Supply in Malaysia

The thrust of the country's water policy (1996-2000) is to provide adequate and safe water to all as soon as possible (Seventh Malaysia Plan, 1996 - 2000). Emphasis will be given to the protection and conservation of potential sources of fresh water to improve water quality as well as to upgrade and rehabilitate the existing water supply systems and facilities.

The development of water supply has been given high priority in all the Five-Year Plans since 1976 to meet the growing demand from the domestic and industrial sectors. Consistent with this goal, the allocated federal expenditure for the development of water resources has increased over the years. (See Table 4.1)

Table 4.1 Water Supply Expenditure Under the 5-year Malaysia Plans

5-Year Plan	Period (Year)	Water Supply Expenditure (RM'000)
Third Malaysia Plan	1976-1980	538
Fourth Malaysia Plan	1981-1985	2,085
Fifth Malaysia Plan	1986-1990	2,348
Sixth Malaysia Plan	1991-1995	2,089
Seventh Malaysia Plan	1996-2000	2,907*

*Note: Budget allocation

Source: Malaysia Water Industry Report, 95/96, p.30.

Selangor was allocated a total of RM98 million to finance its water resource development projects.

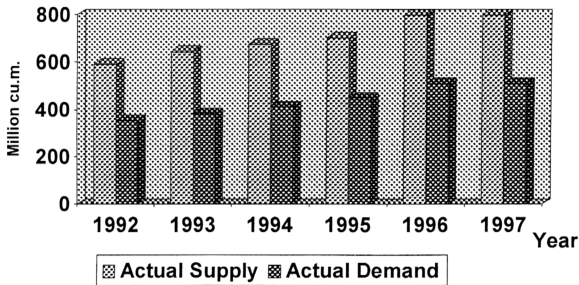
4.2 Demand and Supply of Water

Main sources of water in Selangor can be described briefly as follows:

- Rainfall - Selangor Darul Ehsan receives high percentage of rainfall from the Southwest monsoon, which brings rain from the Straits of Malacca during May to October, and the Northeast monsoon (The Star, June 11th 1998).
- Surface Water - Total average runoff per year of about 7% of the average total annual rainfall of 2,400mm. Surface water is land water found permanently or temporarily on the earth's surface. Thus surface water includes water in rivers, temporary streams and lakes (reservoirs) (Keizrul Abdullah, 1996).
- Groundwater - There is potential in this type of water but it is yet to be developed in Selangor Darul Ehsan (Mohd. Ali Hasan, 1996, p.146).

The actual Total Annual Treatment Plant Production in Selangor has been increasing from 592,302,241 m³ in 1992 to 798,060,455 m³ in 1997 (JKR, KL, 1998). For the same period the Total Annual Consumption has also been increasing from 354,585,505 m³ to 511,878,238 m³. The graph below shows the actual supply and demand of water.

Figure 4.1 Actual Water Supply and Demand in Selangor 1992 - 1997

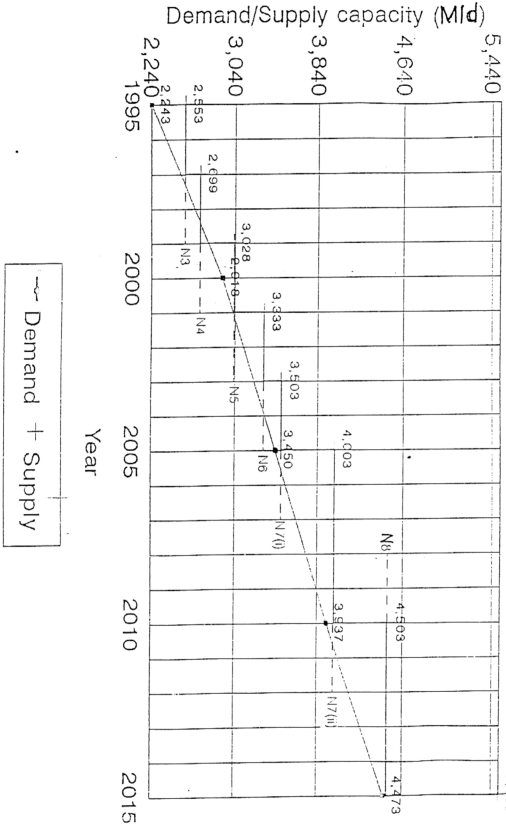


Source: JKR, KL, 1998 (Unpublished).

Throughout the period, the supply of water has been able to meet the demand for water. However, the supply of water has been increasing at a rate of 35% whereas the demand for water increased by 44%. Since the growth rate for water is higher, there is a need to increase the production of water.

The projected water supply capacity and demand is shown in Figure 4.2. in order to meet the increasing demand for water, the supply capacity has also been increased by some projects (See Appendix A).

Figure 4.2 Projected Water Supply Capacity and Demand for Selangor



Source: JKR, KL, 1998 (Unpublished).

4.3. Nature of Water Supply

Currently, water is treated and sold to JBAS by three private firms namely; Puncak Niaga Holdings Berhad (PNHB), Taliworks Consortium Sdn Bhd (TCSB) and Peransang Water Management Sdn Bhd (PWSB). The JBAS is responsible for the distribution of water to the end users.

PNHB was awarded two concessions by the Selangor State Government under the Privatisation cum Concession Agreement for a period of 26 years. The concession period starts from one month beginning in 1 December 1994 and ends on 31 December 2020. The activities of operating, maintaining, rehabilitating and refurbishing 27 water treatment plants are currently handled by PNHB.

Similarly under the Privatisation cum Concession Agreement, TCSB is running one water treatment plant. The concession period is for 10 years beginning from 1991 to 2001. PWSB is also running one water treatment plant. The concession period is for 10 years beginning in 1993 and ending in 2003.

The quantity of water supplied in Selangor Darul Ehsan is based on the minimum water purchase by JBAS under the agreement with PNHB and the other two firms. Only the designated quantity for the concession period for PNHB is available (Prospectus of PNHB). They are as follow:

<u>Year Ending 31 December</u>	<u>Designated Quantity (Million cubic metres per month)</u>
1995	21.84
1996	25.98
1997	26.04
1998	26.19
1999-2001	26.28
2002-2020	26.28

The supply is made possible through the existing and future Water Treatment Plants (See Appendix B).

Based on the above, it can be concluded that the supply has always been able to meet the quantity demanded for water. This is true if non revenue water is not taken into consideration. However water used for system maintenance and fire fighting, which form part of the NRW is drawn from the same supply.

Assuming that SS is the amount of water supplied, DD is the amount of water required by the consumers and is constant. In the absence of other factors, there will be no water crisis if the amount of water supplied is greater or equal to the amount demanded for.

$$SS \geq DD.....(1)$$

However, in Selangor, the NRW is part of the water system averaging 38% for the past 5 years. Hence, in order to be free from crisis, equation number 1 should be:

$$SS \geq DD + NRW.....(2)$$

In March to July 1998, the supply of water was reduced by 40% at Sg. Langat, 20% at Cheras, and 13% at Ampang Intake treatment plants (The Star July 23rd 1998). With the DD remained constant and no change in NRW but the SS fell short, then there will be water shortage.

$$SS < DD + NRW.....(3)$$

Equation 3 can be brought back to equilibrium, if the NRW is reduced to the level where $SS = DD + NRW$ because the water supply is dependent on many factors (Ithnin, 1997, p.143). Rainfall is the most important factor in determining the availability of water resources (Ithnin, 1997, p.143).

According to statistics compiled by the Meteorological Services Department, total rainfall in Petaling Jaya in January 1998 was 342.4mm, which was nearly twice the monthly average of 178mm of the past 28 years from 1971 to 1998. The reading for February 1998 in Petaling Jaya was also twice that of the past average which was 404.2 mm compared to 200.1mm (The Star, 1 May 1998 p.7). However, the water level at the Sg. Langat and Semenyih dams, (See Figures 2.1 (p.8) and 2.2 (p.9)) did not increase when there is rainfall.

According to the water authority, the rainfall did not fall in the catchment area (Subramaniam, 1998). Also, in the state of Selangor, the Sg. Selangor catchment area is the only major catchment area left. With limited catchment areas, it affects the interception of falling rains and infiltration of surface runoffs into the soil. This would mean in times of rainless periods, the drainage system would not be replenished by the subsurface water storage. Thus the water resources availability of the catchment area is threatened (Ithnin, 1997, p.142).

Since rainfall is uncontrollable, the water authority has to tackle the NRW in order to achieve at least Equation 2.