

5. The current policy on the use of water is dictated by the historical development of the water resources and by the previous commitments of the government towards the different water use sectors.

In principle the main features of the water policy at present are as follows:

- a) Domestic use has first priority
- b) Established projects whether industrial or agricultural belonging to the private or public sector should not suffer if their supplying sources are totally or partly needed for other uses, including domestic uses.
- c) Water rights should if possible not be violated.
- d) Groundwater should whenever possible be preferable to surface water in domestic use.
- e) Wastewater should be treated and used for irrigation purposes

The present use and the commitments of the government towards the private sector do not allow the ~~per~~ implementation of the above use policy.

Until the early seventies it was not taken into consideration that water use conflicts would arise. But already in

the second half of the seventies water use conflicts started to surface between the FVA and other users; WSC (Water Supply Corporation) AWSA (Amman Water and Sewerage Authority) and WAF.

e.g. :

1. Irrigation in the Jordan Valley (J.V.) was developed under the impression that all surface water flowing to the J.V. could be used there for irrigation. But in 1980 the government planned to take some 45 MCM/yr. of the surface water of the East Ghor Canal (now King Abdulla Canal; KAC) to be used for domestic purposes in Amman (Deir Alla - Amman Project). A major conflict between Agricultural and domestic uses arose (between FVA and WAF). Until now this conflict has not been solved although the water supply of Amman through this project was stopped in May 1987 due to a serious pollution problem in that source.
2. The government leased the Disi - Mudawara area (South Jordan near the Jordan Saudi Border) and its water resources to the private sector to be used for irrigation. All studies; Humphreys 1986, Thames Water Authority 1988, The World Bank 1988 and others (mainly the WRSC⁽¹⁹⁸⁸⁾, please do not mention explicitly) show that the groundwater in that area is fossil, ~~is~~ 30,000 yr. old, it is of top quality for drinking purposes and represents the only strategic reserve of the country.

Nevertheless, the government; knowing all that leased water and land. The private sector convinced the government to use that water to ^{produce} irrigate wheat. Now, after all agreements are signed between the government and the private sector, the government recognised the mistake, But it is now too late, she has to pay compensations, if these agreements are to be cancelled. The compensations are in the order of \$30 billion.

3. Compared to industrial and domestic water supplies irrigation projects in Jordan, especially those of the private sector are faster implemented. Therefore, and before the government allocates a new source the private sector tries to get use of it for irrigation. In most cases these manoeuvres are successful and the government is overrolled by the private sector who sets ~~her~~ ^{it} in front of finished facts (of course; cooperation between the private sector and governmental officials is strong!) [!]

The development of the different industries, especially those large ones need too much time and come normally too late to use the water resources, generally when the water resources are already committed to other uses, mainly irrigations.

In the last case the government has to find a new source, This new source could be far away from the industry and also expensive to develop.

Regulations

The implementation of regulations and statutes was not successful in the last decades. The following regulations can be mentioned:

1. The regulation of areas excluded from any additional drilling by the private sector is not exactly implemented. Private People of political or financial influence still get licences to drill wells and extract water in prohibited areas. This has led in the last 20-25 years to the depletion of many groundwater resources like: Jafr (130^{km} NE Aqaba), Dhuleil (40km NE Amman) and now Azraq (100km E Amman) and Disi-Mudawara
- 2 Although it is stated in the by-laws of the WAF and FWA that only certain amounts of water could be extracted from a certain well or area, this is absolutely not implemented and not just a single ^{private} well is metered. The private sector still extracts as much water as it likes.

3. The regulation concerning the treatment of industrial water before discharge to the environment is not followed. Almost all factories established collection pools for their untreated wastewater. During the night they discharge that water untreated into the sewers or to the nearby wadis although they have treatment plants for their wastewater (they save money).

4. Many farmers in the ^{high-}uplands use domestic water to irrigate their farms. They tap the pipes in an unofficial way in front of their ^{water} meters and take unmetered water (free) to irrigate their farms. Although the government knows that it was very difficult until now to take preventive measures against such illegal actions.

The water resources of Jordan are limited and as now can be recognised all water resources of Jordan, including Wadiah Dam and Disi - Mudawara resources will be used by the year 2005. Therefore jointly owned water resources between Jordan and other countries are of utmost importance to Jordan. The until now undeveloped water resources Wadiah Dam and Disi - Mudawara aquifers are very expensive to develop. According to certain studies (World Bank 1988, Thames Water Authority 1988) they are worldwide the most expensive resources to develop ($\$/m^3$).

The impact of international claims on the water policy can be illustrated by the following examples.

- a. The Jordan River water of which the Johnston Plan (1955) allocated about 100 MCM/yr. to Jordan is not made available to Jordan. Israel uses all that water in pre 1967 Israel.
- b. The Yarmouk River water of which the Johnston Plan (1955) allocated about 275 MCM/yr. contributes only 120 - 140 MCM/yr. to Jordan's water resources. Even after constructing the Wadiah Dam it is doubtful whether Jordan can get the 275 MCM/yr. This is evidenced by the fact that Syria is building dams to use 70 - 100 MCM/yr. of the Yarmouk headwater. Israel is now using some 100 MCM/yr of the Yarmouk water. Hence the

rest which could be used by Jordan will not exceed 200 MCM/yr.

These resources; The Yarmouk and the Jordan formerly, allocated to Jordan (in part) and now used by others have forced Jordan to look for alternatives which are far more expensive ^{both} in capital and in running cost.

- Israel hindered Jordan to construct the Magarix (Mukheiba, Khalid) Dam which was thought to deliver 275 MCM/yr. allocated to Jordan according to the Johnston Plan. This has its strong reflections on the development on the Jordan Valley agricultural activities, and forced Jordan to construct small expensive dams on the other wadis to deliver some 120 MCM/yr of water (King Talal Dam, Ziglab Dam, Wadi Arab Dam, Kafraim Dam and Sherib Dam). This process caused a delay in the development of the Jordan Valley of at least one decade.
- Also prohibiting Jordan from its 100 MCM/yr. share of the Jordan River water postponed the development of the Jordan Valley and forced the government to allocate other sources to the Valley (again the dams mentioned above and restrictions of water use, mainly irrigation in the highlands to save the water to the Jordan Valley farmers).

∴ The site of Magarin, Khaled, Mukheiba and now Wadai Dam was changed so many times to escape Israeli pressure. This caused delay of construction cost increase, ... and since the Yarmouk water was not totally used, others (Syrians and Israelis) found it appropriate to use the water. This caused them to construct water projects (Dams, pipes, pumping stations etc.) to use the water and led them to claim the water for themselves.

- In some years due to water need in Israel or as a political weapon Israel prohibits Jordan from taking the 120-140 MCM/yr. from the Yarmouk River. The Israeli chose also the peak need time & in the Jordan Valley to force political issues by channelling the Yarmouk River as not to enter the Tunnel to the East Ghor Canal, now called King Abdullah Canal (KAC). This channelling severely affects the Jordan Valley irrigation and production.

The policy of water use was until recently managed by foreign consultants (agencies, experts, foreign governmental organizations ... etc) who advised the government about water projects and water use strategy. Until recently Jordanians were not able to formulate the water policy of their own country.

The mismanagement and the projects which failed in the last 5-10 years led the government to doubt the seriousness of the consultant services of the foreign agencies. Therefore, the government formed in the last year committees to formulate a water policy and a water strategy for the country. But again the WAA and the FWA lack the needed highly specialized Jordanians to do the job alone. Hence, there must still be some need to foreign consultants in specific fields.

The water management is now being carried out by the Ministry of Water and Irrigation. The water resources are distributed according to the different needs taking into consideration, water quality and its suitability to the foreseen use, economic feasibility of projects, existing projects using the water source, the importance of that water source to present uses, the socio-economic importance of the present use, the different interests in the water source, whether financial, tribal, regional, interest groups ... etc.

Compromises are found for each ~~project~~ source considering the above mentioned precautions and interests. These compromises are not always the most beneficial and most appropriate for a sound development of the resources. But the importance of water resources and different interests in these resources justified some of the achieved compromises.