



An Example of the Application of the Monitoring Procedure: Azraq Oasis, Jordan (March 1990)

26 November 1996

[Note: The Monitoring Procedure was later renamed the Management Guidance Procedure; as of the San José Conference of the Parties, 1999, it was again renamed and is now called the Ramsar Advisory Mission.]

Azraq Oasis lies 80 km east-south-east of the Jordanian capital of Amman, at the heart of a large drainage basin covering some 12,710 km². Abstraction of water from Azraq increased enormously between 1960-1990 and following fears about the consequences of over-exploitation of the water supply, and a report by the Jordanian Department of Environment which stressed the necessity of limiting the quantities of water that could be used, the Jordanian Government introduced a "safe yield" of 20 mcm (million cubic metres) per year: a maximum of 14 mcm/year as water supply for the cities of Amman and Zarqa; a maximum of 3.5 mcm/year for irrigation; and a spring discharge of at least 2.5 mcm/year to supply the wetland reserve.

In addition to a number of prohibitions, such as restrictions on new plantings and no new wells, the Jordanian authorities invited the Ramsar Bureau to apply the Monitoring Procedure. The mission took place from 21-23 March 1990. It concluded that Azraq's ecological character had deteriorated since designation as a Ramsar site but that it remained a wetland of international importance. It was also clear that unlimited exploitation of its basin water would lead to the ultimate destruction of the resource. The following recommendations were made:

1. If the ecological character of the oasis is to be restored, the present level of water exploitation must be reduced considerably;
2. The total annual exploitation must not exceed the "safe yield";
3. Further studies should be made to confirm the validity of the value of the "safe yield" (20 mcm);
4. Extraction from private wells should be strictly controlled;
5. The volume of water consumed by the military base should be evaluated;
6. The instructions issued by the Ministry of Agriculture should be implemented and rigorously enforced;
7. Flow from the Shishan springs should not be allowed to decline any further and should be increased;
8. The possibility of using small quantities of water from the middle aquifer to supplement spring flow into the wetland should be pursued;
9. Detailed hydrological and geological research should continue in order to understand the aquifer system underlying Azraq;
10. Water distribution should be as efficient as possible;
11. A management plan for Azraq Wetland Reserve should be drawn up and implemented as soon as possible;
12. Regular ecological monitoring should be undertaken within the Ramsar site;
13. A full report should be presented to the 1990 Conference of the Parties at Montreux by the Government of Jordan.

As a consequence of the report given at Montreux, Recommendation C.4.9.3 (Azraq Oasis, Jordan) urged the Government of Jordan to implement, as a matter of urgency, the recommendations contained in the Monitoring Procedure Report and recommends in particular that:

- the total annual exploitation of Azraq's water should not exceed the "safe yield" of 20 mcm identified by the Jordanian Government;
- extraction from private wells be strictly controlled;
- wells should be drilled in the B2/A7 aquifer for the purpose of providing a modest supplement to spring flow to the wetland, which has been diminished by over-exploitation of the separate basalt/B4 aquifer; and
- steps should be taken to construct storage reservoirs to aid groundwater recharge; and

further recommends that full environmental impact studies be undertaken prior to any implementation of points (c) and (d) above, and that the Jordanian authorities remain in close contact with the Convention Bureau with a view to seeking technical assistance funds.

Subsequent to the Monitoring Procedure and the Montreux Conference recommendation, the Jordanian Department of Environment hired a consultant to undertake a study on groundwater management; and missions from the World Bank and the United Nations Development Programme (UNDP) have assisted by identifying projects suitable for funding through the Global Environment Fund (GEF). The latter resulted in an allocation of US \$3.3 million from GEF to cover five sub-projects over a three-year period. Nevertheless, the ecological condition of Azraq Oasis has deteriorated further since 1990 and it is still too early to determine the results of the GEF investment.

-- quoted from *The Ramsar Manual*, pages 55-57.

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