

BeWater

Making society an active participant in
water adaptation to global change

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Qualitative descriptions of river basins

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# Descriptions of the river basin

Rmel

The watershed of Oued Rmel is located on the eastern coast of Tunisia, about 80 miles south of Tunis. It covers an area of 87,000 ha with a population of 135,438 inhabitants. It is bounded on the west by the Jebel Zaghouan east by the Mediterranean Sea. The basin is part of the average semi-arid bioclimatic stage with only the West Zone in the highest semi-arid. The limits in the South West are located in the subhumid. The average rainfall is between 350mm and 600mm.

The watershed of Oued Rmel covers administratively four governorates: Zaghouan (70 ℅), Sousse (19 ℅), Nabeul (8 ℅) and Benarous (3 ℅); four delegations of Zaghouan (Zriba, Zaghouan Saouaf and Bir Mchergua), two delegations of Sousse (Bouficha and Enfidha), a delegation of Nabeul (Hammamet) and one of Ben Arous (Mornag).

A historic feature of Zaghouan Governorate, which is the most important part of the basin under study, is the roman monument "The temple of water" behind the city Zaghouan and right under the mountain of Jebel Zaghouan. It was built near the water source known since antiquity. In addition to the water temple, there is an aqueduct connecting Zaghouan to Carthage, allowing the water supply to the Terms of Antoninus and a source for the temple.

Rmel basin is crossed by a dam, located 9 km from the city of Bouficha, with initial capacity of 22 million m3 and the coast of normal restraint is 43 NGA. This work was carried out on the river Rmel in 1998 and is intended mainly for irrigation of 5900 ha of irrigated perimeters of Bouficha and about 500 ha in Zaghouan.

At the site of the dam of oued Rmel and its depression zone, the vegetation cover of the area is generally dominated by herbaceous crops, grazing areas, tree crops and forest plantations. The predominant vegetation in this zone is generally formed by Formation of Olea europea and Pistacia lentiscus, Eucalyptus spp, Tetraclinis articulata, Pinnus halepensis, Quercus ilex. Regarding animal communities, they are usually dominated by waterbird species.

The distribution of the population in the basin is related to water resources. Indeed, the surface water sources (wadis (valleys) and small lakes) and groundwater (aquifers and springs) are among the factors encouraging sedentary populations in the basin.

As far as economic activities are concerned, they are primarily based on traditional self- subsistence agriculture mainly (annual crops of cereals and vegetables) and a diversified extensive livestock dominated by goats and sheeps. The herds are mainly supplied from rangeland and scrub forests, fallows and stubbles... Forage resources are insufficient and do not cover the needs of the herds (cattle).

An important part of the rural population is constantly looking for a casual off-farm employment opportunities or emigration to the neighboring governorates of the capital. However, the study conducted by the Department of farmland conservation and management at Sbaihia sub-basin; a, hill lake in the watershed Rmel, shows that 40% of agricultural land in the basin belong to large farmers or non-resident owners who are often absent only practice cereal agriculture. And only 30% of land belongs to the families who belong to the area that is heavy inhabited by the majority of the population living on low-yielding cereal crops, extensive production and especially off-farm income (migration, construction sites ...). The plains and piedmonts are under heavy human pressure. They are systematically cultured ; mainly cereals, with inappropriate farming techniques, which speeds up the process of land degradation and consequently the phenomenon of erosion.

There are many factors that should be taken into consideration; population growth, improving the standard of living, agricultural and industrial economic development at the level of the watershed Rmel and increasing demand for drinking water for the issues of water scarcity and degradation of natural resources (land uses, soils, ecology...). All these factors that continue to increase because of climate change highlight the need for a comprehensive program of mobilization and management of resources while considering the different sectors in the basin.

# Overview of the basin

3.2 Rmel

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| **MAIN USES**: What are the main uses in terms of water consumption, water quality in the basin? (e.g. wood plantation, industry uses). |
| List these uses | These uses are relevant in terms of  | Type of information existing on these uses | Reference/source of information |
| -Irrigation-Drinkable water-Industry | [ ] Water Quality [ ] Water Quantity[x] Both | -Surface water stored at Rmel reservoir and its water quality.-Discharge and salinity of boreholes and their uses. | Reports and minutes from regional water resources department at Zaghouan. |
| **COMPETING USES**: What are the main competing uses in terms of water consumption, water quality in the basin? (e.g. agriculture irrigation vs. summer tourism). |
| List of these competing uses (possibly per pairs) | Type of information related to competing uses (e.g. irrigation data) | Reference/source of information |
| No competition between sectors in terms of water consumption. Arbitration is insured by the Ministry of Agriculture periodically. It is based on the available water.   | Agriculture sector can face water shortage during summer time. In fact, the surface water at the Rmel dam is limited and can’t supply all downstream irrigated perimeters. | Regional extension Department  |
| **CONFLICTS AMONG THE DIFFERENT USERS**: What are the main conflicts among the institutions/actors in the river basin due to water related issues? What are the reasons? (e.g. water quality, water quantity, water scarcity downstream/upstream…).  |
| Conflict description (brief) | Actors involved | Existing agreements | Initiatives in conflict solving (if any) |
| * The subscription rates to the professional groups are low, and farmers are reluctant to pay their consumption of water.
* The existence of the professional groups is somehow formal.
* water price
* Complicated relations between farmers and formal structures.
* Irrigation perimeters are created only for downstream part. problems of equity between upstream and downstream farmers.
 | -The administration (water resources departments, regional and central departments of the ministry of agriculture).-Farmers-Water associations managing the irrigated perimeters (professional groups). | - Ministry of Agriculture is the supervisory authority that organizes the various structures that are responsible for water management and the development of public irrigated perimeters (PIP).-Tunisian “Water code”-All forms of conflict or tension are somehow solved by the administration and the water associations in the catchment. The latter associations are the local organizations representing farmers - Nowadays, there are a number of laws governing the field of collective organization of water users. | - The state is taking partly the costs of operation and maintenance of the water system and the wages of professional groups-Reduction of pollution and preservation of quality.- Decrease of water consumption by introducing new irrigation techniques that save water.  -Encourage farmers upstream to reduce sedimentation of the dam.-Maintenance of infrastructure and equipment for irrigation systems.-Explain to farmers the most adaptable types of agriculture to their irrigated perimeters. |
| **BEST PRACTICES IN WATER MANAGEMENT:** Are there any initiatives ongoing in the basin that represent an example of sustainable management of the water resources in the basin? |
| Brief description of the initiative | Actors involved | References/sources of information |
| * Pilot projects on integrated water resources management of the catchment.
* The state, did efforts in mobilizing resources, minimizing water losses, introduce irrigation techniques saving water, minimize water pollution ...
 | Different Departments of the Ministry of agriculture at central and regional level | Reports and studies conducted by the Ministry of Agriculture |
| **LEGISLATION AND POLICIES AFFECTING MANAGEMENT PLANNING IN THE CSRB[[1]](#footnote-1):** what are the policy instruments that affect directly or indirectly water management in the basin? Are there policies in place to mitigate the impact of climate change in the basin? This list includes policy instruments implemented by the governments (top-down) and bottom-up initiatives (such an NGOs signing agreements with landowners to conduct certain practices). |
| Name of the policy instrument Describe it in terms of the problem it addresses and the objective(s) it tries to fulfill.  | Type of policy instrument:\* Economic (e.g. tax, subsidy)\* Informational (e.g. campaign)\* Legal (e.g. laws, norms) | Scale of application |
| The government set a 5 year development strategy, including water.I’s a top-down approach | -The Tunisian government intervenes in the legislative field in1975 with the “Water Code”, This code is the legal baseline organizing the ownership and exploitation of water in Tunisia. Nowadays, it is being revised. -Management, is based primarily on a system of financial incentives for the promotion of facilities and water-saving technologies. It suggests a system of incentive tariff for the rationalization of water use in agriculture, the decentralization of the state and the participation of users in water management.-The authorities display an interest in the conservation and water policy domain; authorizations or concessions affecting water, water resources, drinking and Agricultural water, fight against water pollution.-As an economic policy instrument the government is offering a subsidy for farmers. | [ ] Basin[ ] Regional[x] National[ ] SupranationalCurrently the government is overwhelmed with all water issues …. |
| **WATER MANAGEMENT PLANS**: Is there already a water management plan in place for the RB? Have some efforts been made to develop a plan? Was such a plan implemented following the WFD (For the European RBs)? If no plan is nowadays in place, is it foreseen to implement one? |
| Description of available data | Format of the data | Reference/source of information |
| Every five years a strategy for managing the water resource is published and covers all sectors. | reports | Regional water resources department at Zaghouan. |

1. A table with examples on different water-related policy instruments is shown at the end of this document [↑](#footnote-ref-1)