Chap III: Water Resources Management in Algeria

3.1 Hydraulic sector in Algeria: The hydraulic sector in Algeria is a state financed market that aim to fix a chronic water scarcity, driven by rapid population growth and climate change. With over 900 billion dinars (approx. USD 6.7 billion) allocated to hydraulic/water infrastructure over five years (From 2019 To 2024). Recently Algeria is heavily investing in desalination, dam construction, and, more recently, the digitalization of water management. Algeria ranks first in Africa and second in the Arab world for desalinated water production capacity favoured by a low cost of energy and relying on a sustainable water resource. In the other hands there are a lot of challenges facing the water resource management in the country like the aging water distribution networks that records about 15% leaks (Fuites des eaux) and an overexploitation of the groundwater where the levels are in real decline in some regions like Metidja and Mascara.

3.2 Regulatory Authorities of Water in Algeria: Algeria is giving the water/hydraulic sector a great importance and a strategic vision by encouraging the reuse of treated wastewater for irrigation and industry and defining many other policies to improve water use and facing the water stress and scarcity which we are living. In 2026 2026 finance bill proposes a further 19% increase in the sector's budget compared to the previous year

Chap III: Water Resources Management in Algeria

The regulation of water sector in Algeria is structured around a central entity which is the Ministry of Water resources (Fr. MRE) and several specialized agencies, each with distinct functions. The sector is overseen by this Ministry, and the main regulatory authorities are as follows:

Regulatory Authority	Acronym	Primary Function / Duties
Ministry of water resource	MRE (Fr.)	Formulates and implements the government's national water policy; prepares laws and regulations; coordinates major infrastructure development programs and work on its finance.
Algerian water	ADE (Fr.)	Main functions are manages the production, transport, treatment, storage, and distribution of drinking water for domestic and industrial use.
National Dams and Transfers Agency	ANBT (Fr.)	Build dams and large water transfers structures, it operates and maintains this infrastructures.

Chap III: Water Resources Management in Algeria

Regulatory Authority	Acronym	Primary Function / Duties
National Agency for Water Resources	ANRH(Fr.)	Conducts hydrological and hydrogeological studies; creates and maintains an inventory of water resources; provides data,and expertise.
National Agency for Seawater Desalination	ANDE(Fr.)	Implements the national strategy for desalination; responsible for the realization, operation, and maintenance of seawater desalination plants. It is the owner of these plants.
National Office for Sanitation	ONA(Fr.)	Manages and operates wastewater treatment and sanitation networks; oversees the construction of sanitation infrastructure.
NationalOffice for Irrigation and Drainage	ONID (Fr.)	Designs and implements irrigation and drainage infrastructure; assists in the management of irrigated perimeters.
National Agency for Integrated Water Resources Management	AGIRE(Fr.)	Oversees integrated water management at the national level. Its territorial branches, the 5 River Basin Agencies (ABHs), manage water at the basin level, collect usage fees, issue technical opinions for concessions, and manage water information systems

Chap III: Water Resources Management in Algeria

3.3 Major policies on water resource in Algeria: Algeria's water sector policies are structured around a legislation text , the **Water Law (Law No. 05-12)** , and are driven by the overarching national strategy to achieve **water security** in the face of climate change and increasing domestic, industrial and agriculture demand for a population in continuous growth.

The national water security strategy is based on preserving fresh water resources by improving reuse and treatment of wastewater specifically for industrial and irrigation use which consume about 70% of mobilized water. The water Law defines the principles for the use, management, and **sustainable development** of water resources.

The priorities for the water sector are integrated in the Plan National de l'Eau (PNE: National Water Plan) and the Plans directeur d'aménagement des ressources en eau at river basin level (PDARE: Master plans for the development of water resources developed for each basin authority), created by the Water Law and updated by executive decree in 2010 for a 20-year period. (EMWIS, 2024)

Chap III: Water Resources Management in Algeria

3.3.1 Water Law 05-12: This law outlines regulations to promote sustainable use, management and development of water resources in Algeria. It was published on August 25th 2005 and entered into force (mise en application) on the same date. Its latest version is dated 2009 it contains 10 chapters and 183 articles.

- Chapter I: General Provisions (Dispositions générales)
- Chapter II: Management and Planning of Water Resources (Gestion et planification des ressources en eau)
- Chapter III: Uses of Water and Public Domain (Usages de l'eau et domaine public hydraulique)
- Chapter IV: Protection and Preservation of Water Resources (Protection et préservation des ressources en eau)
- Chapter V: Sanitation and Treatment of Wastewater (Assainissement et épuration des eaux usées)

Chap III: Water Resources Management in Algeria

- Chapter VI: Protection Against Water-Related Hazards (Protection contre les risques liés à l'eau)
- Chapter VII: Public Utility and Access to Water (Utilité publique et accès à l'eau)
- Chapter VIII: Management of Infrastructures (Gestion des infrastructures)
- Chapter IX: Financial and Economic Provisions (Dispositions financières et économiques)
- Chapter X: Penalties and Final Provisions (Dispositions pénales et finales)

This law said that the aquatic ecosystems shall be protected against all forms of pollution likely to damage the quality of waters. Any dumping of effluents, of materials that do not show a risk of toxicity or nuisance are subject to an authorization.

Important: The authorization is refused when the effluents or materials may be harmful to the use of water, public health, the protection of aquatic ecosystems, the normal flow of water.

Chap III: Water Resources Management in Algeria

You can concluded, that the water law 05-12 establishes the institutional framework for an integrated water resources management that guaranty access to water resource, preserve it and promote its sustainable use including the wastewater management too.

3.4 The Algerian National Water Plan: The law also introduces the National Water Plan (PNE: Plan National de l'Eau) to set national objectives and priorities for resource mobilization. The PNE establishes national objectives for water resource mobilisation, integrated management, transfer and distribution. It also sets the economic, financial, legal and organisational framework for achieving such goals.

It prioritizes securing water for the population through massive investment in unconventional resources, specifically increasing seawater desalination. capacity to 3.75 million m^3/day by 2027.

3.4.1 Top Priorities of the National Water Plan:

a) Water desalination: The top priority is to shift coastal cities to desalinated water, with an objectif to reach 3.75 million m3/day capacity by 2027. This is already achieved as per today by operating 19 desalination plants over the country. It represents for roughly **42%** of the country's potable water needs. This rapid expanding in desalination technology is aiming to reach **60%** of country's potable water needs by **2030** which is a total capacity of **5.6 to 5.8 million m^3/day**.

Chap III: Water Resources Management in Algeria

b) Infrastructure Development & Transfers: Constructing new, medium-sized dams and connecting existing ones (81 operational and 5 under commissioning , targeting 139 by 2030). The largest dam is Beni-Haroun with a capacity of 960 million m^3 that is transferred to 6 other wilaya. The total capacity of the Algerian dams is nearly 9 billion cubic meters but it is facing a major problem which is siltation (Fr. Envasement) that reduces their capacity of storage.

c) Wastewater reuse: Building new treatment plants to reach capacity of 1.2 billion m^3/year focusing on using purified water for agriculture and industry. One of the operational scope for this strategy is the focus on maintaining and repairing aging infrastructure (Fr. STEP Rehabilitation).

d) Water supply security: Increasing overall water availability to meet growing demand and prioritizing the reduction in the drinking and industrial distribution networks losses and modernization of irrigation methods.

e) Institutional & Technical Upgrades: Modernizing management, strengthening monitoring capacities, and allows for public-private partnership in construction and management of public drinking water, sanitation and irrigation systems. All these improving water pricing policies for sustainability.

Chap III: Water Resources Management in Algeria

3.5 The Master plans for the development of water resources: In French is known as the *''Plans directeur d'aménagement des ressources en eau PDARE''* . it is developped at watershed level (Fr. basin hydrographique) by the *National Agency for Integrated Water Management* (Fr. AGIRE) which includes regional agencies (Fr. ABH). This master plan is the long term integrated planning tool created executive decree (10-01) in 2010 for a period of 20 years .

It consist of the assessment of the mobilizable water resources, water needs defined by the development objectives for short, medium, and long term with a real conjunction to the investment cost.

A rational and efficient management of the water resources demande go through:

- The widespread adoption of water production metering (généralisé le compte de la production de l'eau).
- Enhancing the water networks leaks management.
- The application of the water withdrawal fee from the public domain to all users (state or private)

Chap III: Water Resources Management in Algeria

- Applying real invoicing system on water consumption and prohibit lump sum invoices.
- Encouraging the use of the new techniques in irrigation to reduce consumption.

Example on how The Chellif-Zahrez basin water resources cost per cubic meter as per 2012.

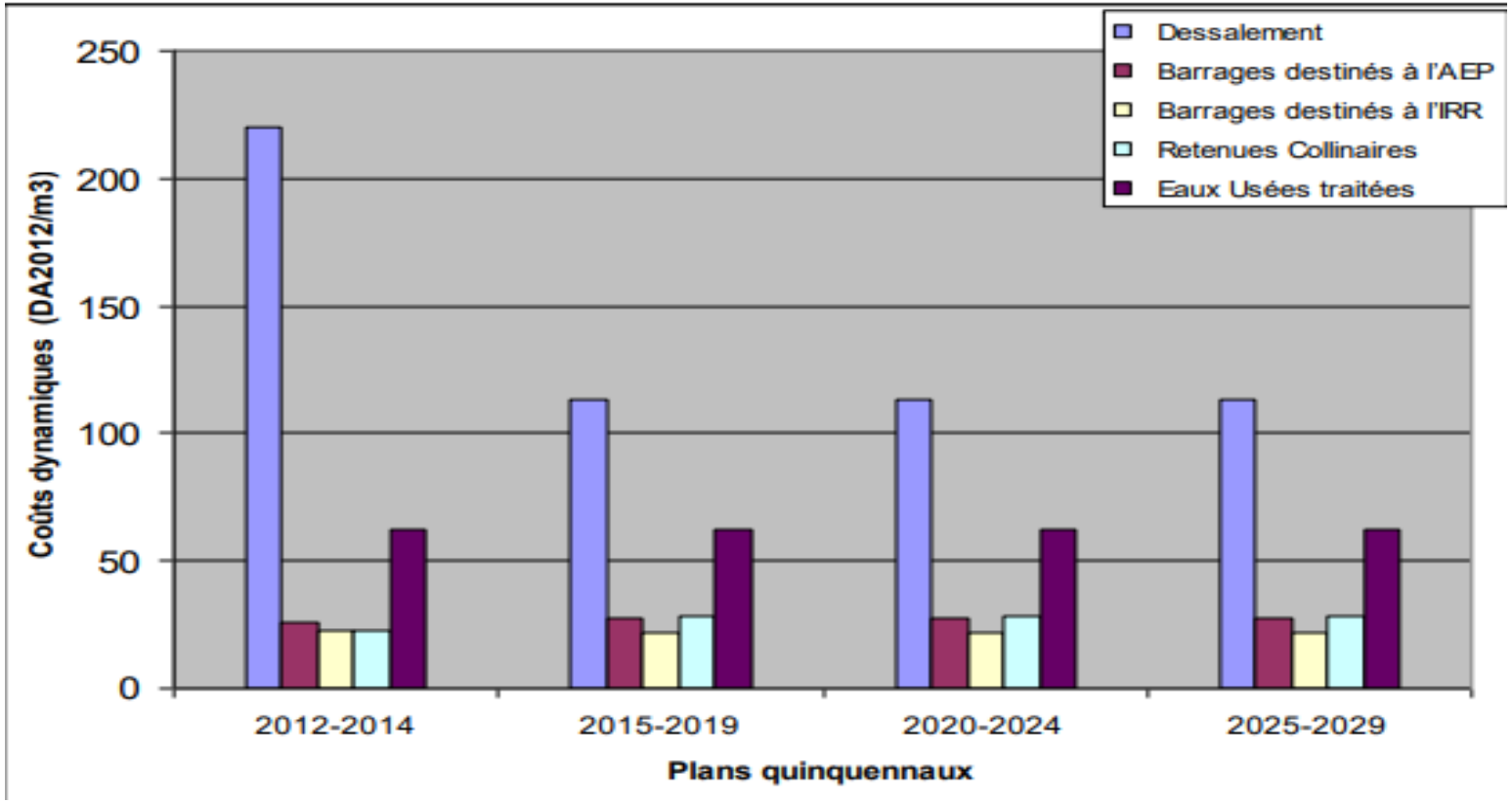

Fig 6: Dynamique weighted cost per cubic meter for different water resources at five-years plan (Source: AGIRE)

Chap III: Water Resources Management in Algeria

3.6 Challenges of water resources management in Algeria:

Algeria is facing with high water resource exploitation and pollution. The current state of the water treatment infrastructure is unable to keep up with the levels of wastewater the water losses from supply network is still high. Its estimates indicating that more than 30% to 40% of potable water . Some specific studies and regional reports have even cited losses reaching up to 50% in certain regions (Cherifa Abdelbaki et al ; 2014).

The water transfer policy has demonstrated the existing of unbalance between resource supply and demand from region to another.

Rising urbanisation and coastal overexploitation have resulted in high contamination and salination levels of groundwater.

This is why the integrated water resources management policy is more compulsory to optimize ensure the water supply for every citizen and satisfy the industrial and irrigation needs in reasonable cost.