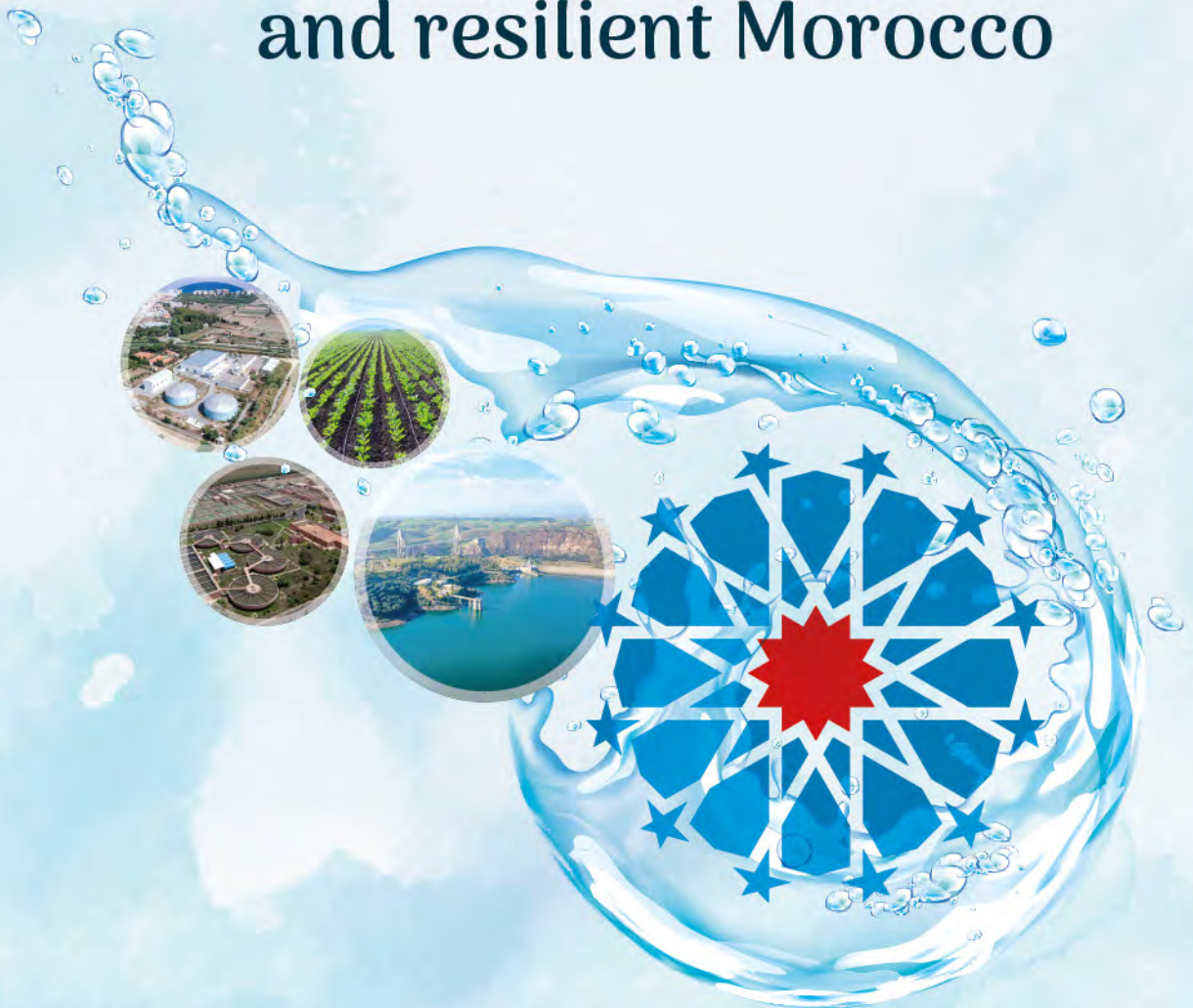


KINGDOM OF MOROCCO



Ministry of Equipment and Water

Water for a prosperous and resilient Morocco





HIS MAJESTY THE KING MOHAMMED VI

«Morocco is not the only country facing the problem of drought and water scarcity. This issue has become a global phenomenon, one that is further compounded by climate change.

The current water resource situation challenges us all: government, institutions and citizens. It requires us to be frank and responsible in dealing with the issue and in addressing whatever inadequacies there may be.

Morocco is now in a situation of chronic water stress, and not all problems can be solved by simply building the water facilities planned, notwithstanding their great importance and of the need for them.

I therefore call for all aspects of the water issue to be addressed seriously, putting, in particular, an end to all forms of squandering and of irrational, irresponsible use of this vital resource.»

Extract from the Royal Speech at the opening of the 1st session of the 2nd legislative year of the 11th legislature, October 14, 2022

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MODERN MOROCCO AT THE PACE OF SUSTAINED DEVELOPMENT

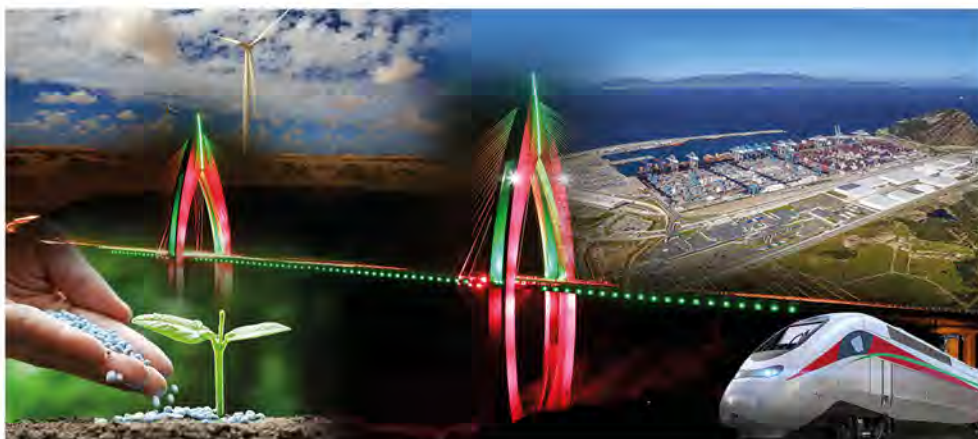
The Kingdom of Morocco, with centuries-old cultures and traditions and a crossroads land, aspires to modernity and openness to the world, with all-out cultural exchanges, around civilizational, social, economic, political, cultural and sporting development, serving an ambitious future-oriented vision.



The country has made significant progress in areas such as industrialization, tourism, agriculture and infrastructure. In agriculture, the country has managed to reach 2 million hectares irrigated thanks to its agricultural development strategy "Green Morocco Plan" and since 2020, "Generation Green": a new strategy aimed at modernizing the sector and establishing solidarity-based, more resilient and eco-efficient agriculture, through doubling water efficiency, conserving agricultural soils and supporting farmers in the transition to renewable energies. Indeed, the pursuit of prosperity in Morocco accelerates infrastructure projects that drive development: water, renewable energy, high-speed trains, ports (ports of Tangier-Med, Nador and Dakhla), airports, telecommunications, sports complexes, etc.

In order to reduce its traditional dependence on agriculture, Morocco seeks to diversify its economy and stimulate its growth through the development of its industrial fabric, by encouraging the development of key industrial sectors such as automobiles (production of 700,000 vehicles per year), aerospace, offshoring, electronics, textiles and the chemical and food industry. This diversification aims to create jobs, increase exports and stimulate economic growth. In addition, Morocco is also banking on the tourism industry by aiming for a target of 26 million tourists by 2030.

The sports industry in Morocco is also experiencing significant growth, marked by sustained preparations to host the 2025 AFCON and the 2030 World Cup, jointly with Spain and Portugal: important sporting events expected to have a significant impact on the national economy.



MOROCCO: VULNERABLE WATER RESOURCES

Part of the African continent, but also the Mediterranean region, two regions considered very vulnerable to climate change impacts. Its water resources are therefore limited, irregular over time and unevenly distributed across the national territory.



Indeed, 70% of these resources are concentrated in three basins in the North which together cover 15% of the national territory, characterized by geographical diversity: mountains, plains and desert areas with oases, palm groves and sand dunes.

The potential of natural water resources is estimated in Morocco at **22 billion m³ per year**, including 4 billion m³ of groundwater. Given demographic growth, the average water resources per inhabitant has fallen to 602 m³/inhabitant per year currently, i.e. below the international water stress threshold (1,000 m³ / inhabitant per year).

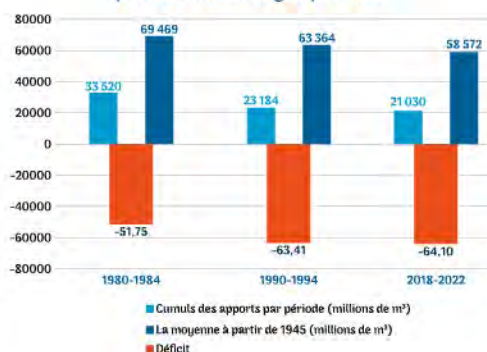
Since 2018, Morocco has experienced significant rainfall deficits, which have led to low flows and a reduction in water supplies to dams and the recharge of groundwater tables.

The drop in groundwater recharge resulting from rainfall drop and combined with the growing pressure on

this resource has led, among other things, to a drop in piezometric levels and spring flow rates.

The 2018-2019/2022-2023 hydrological cycle was characterized by a succession of dry years, with a respective deficit of 54%, 71%, 59%, 85% and 66% compared to the average annual inputs. Thus, comparing it to other drought cycles, this one turns out to be the most severe in the entire history of recorded inputs.

Comparison of the 2018-2023 period with drought periods



2020-2027 National Drinking Water Supply and Irrigation Program



HM the King chairs the signing ceremony of the framework agreement for the 2020-2027 National Drinking Water Supply and Irrigation Program

Since 2018, Morocco has experienced a succession of years of drought which have caused a significant water deficit impacting the stock of large dams and groundwater reserves. In order to secure the supply of drinking water and safeguard the irrigation of large irrigated perimeters, the 2020-2027 National Drinking Water Supply and Irrigation Program was elaborated following the High Royal Guidelines.

The 143-billion-dirham program aims to accelerate investments in the water sector through five components:

- Developing the offer;
- Demand management;
- Water supply development;
- Waste water reuse;
- Communication/awareness.

A governance of this program was established locally, at regional and central levels, making it possible to alleviate the impacts linked to drought, and also to provide drinking water under satisfactory conditions.

RESILIENT SOLUTIONS FOR SHARED PROSPERITY

Diversified mobilization of water resources

Launched in 1967 by late HM Hassan II and continued by HM King Mohammed VI, the dam policy has contributed to meeting the supply of drinking water, industry and irrigation sectors and has made Morocco a model in the mobilization and development of water resources.

The storage of flood water to irrigate hundreds of thousands of hectares and the satisfaction of the drinking water needs of the populations have constituted a mastery in the mobilization of water with the adoption of an approach of anticipation and Integrated water resources management, through the construction of large reservoir dams and water transfer structures.

This policy has made it possible to provide the country with significant water infrastructure with:

- 154 large dams with an overall capacity of 20 billion cm and 141 small and medium dams;
- 15 desalination units with a capacity of 192 million cm per year, increasing to **1.7 billion cm/year by 2030**;
- 17 surface water transfer structures and thousands of boreholes and groundwater wells.

These facilities have also contributed to protecting property and people against floods, producing hydroelectric energy and developing catchment areas for soil conservation and the fight against water erosion.



Idriss 1^{er} dam



A successful technical achievement at the Idriss 1^{er} dam - Sebou river basin

Complex and unprecedented project to supply drinking water to communities, from a large existing dam, initially designed for electricity production and irrigation, by creating a drinking water intake of **2,000 liters/second**, thanks to an impressive technical process. The body of the dam was perforated by a sluice, under full water load: metal pipe DN 1,200 mm connected to a metal structure supporting three levels of intakes in the reservoir. This technique required: in-depth studies, careful coordination and the intervention of professional divers to carry out complex underwater works, all rigorously respecting international safety standards and without interrupting the operation of the dam at almost maximum filling, while preserving its structural integrity and resistance.

This logistical achievement testifies to the expertise and professionalism of the teams involved, with the installation of raw water intake on three levels, making it possible to sustainably meet the needs and stimulate the socio-economic development of the Fez-Meknes region.

Thus, this innovative project, carried out at the Idriss 1^{er} dam, will allow integrated management of groundwater and surface water resources, reflecting better adaptation to climate change in the Fez-Meknes region.



Interconnection of catchment areas

The National Water Strategy recommended reducing the foreseeable deficits in Bouregreg, Oum Er Rbia and Tensift basins, and securing the drinking and industrial water in these regions, by resorting to the transfer of water lost at sea from the surplus northern basins to the deficit southern basins. The strategic imperatives of the transfer project are:

- Enabling flexible interconnected water management across the Kingdom, in the face of climate variations and rainfall imbalances between regions;
- Significantly reducing the water discharged into the sea each year.

Its goals are to strengthen the drinking water supply to the cities of Marrakech, Rabat and Casablanca, improve supplies in the irrigated areas of Doukkala, Haouz, Beni Amir and Beni Moussa and safeguard the Berrechid aquifer.



Urgent phase of water transfer: Sebou-Bouregreg «Transfer of 400 million m³ per year»

To face a long drought 2021-2023, in addition to other structuring projects, it was decided to carry out the urgent phase of the Major Water Transfer Project from the North to the South of Morocco.

In the Bouregreg basin, the drought reduced the reservoir of the Sidi Mohamed Ben Abdellah dam, supported by the Al Massira dam, to a critical level and it was no longer able to fully fulfill its role of supplying drinking water to 12 million inhabitants of the Rabat-Casablanca regions in 2023-2024.

To compensate for a serious water shortage, a water transfer pipeline, from Sebou, a surplus basin, was carried out over a length of 67 km and a flow rate of 15 m³/s. The project was completed in record time (10 months instead of 3 years), thanks to the skills and expertise of internationally renowned Moroccan engineering and companies and national funding.



Without this transfer project, Rabat-Casablanca regions would have suffered an acute deficit of drinking water since November 2023. This situation was avoided thanks to this project.

Participatory management of groundwater resources

Morocco's socio-economic development and the continued growth of its needs for drinking, agricultural and industrial water, puts pressure on groundwater, which constitutes a wealth to be safeguarded and optimally managed.

The current water stress on aquifers where 125% of their renewable resource is withdrawn, i.e. an average annual deficit of one billion m³, is manifested by a drop in their levels and leads to a shift in the management of aquifers.

Safeguard and optimize mechanisms are implemented:

- substitution of groundwater pumping by the transfer of water from dams (Sebou-Sais) or seawater desalination (Chtouka), only to meet additional needs. Another example to cite is that of the city of Rabat, where the use of groundwater for watering green areas was replaced by the use of purified wastewater;
- participatory groundwater management contracts;
- controlling extraction points by reinforced water police;
- establishing safeguarding and prohibition perimeters;
- artificial recharge of aquifers by surface water;
- installation of smart meters to ensure continuous monitoring of groundwater extrcation at the largest irrigated areas.



Seawater desalination



Morocco is implementing an ambitious seawater desalination program, which includes 17 scheduled projects, 3 of which are led by OCP. This program takes into account the needs and water resources in coastal areas, impacted by climate change and with the main objective of preserving groundwater resources and allowing the reallocation of water from dams to the needs of inland cities, rural areas and for already developed irrigation areas.

Morocco adopts a technological innovation approach for these projects with the promotion of renewable energies and public-private partnership.

By 2030, seawater desalination will produce **1.7 billion m³** per year, including 53% for drinking water, 40% for irrigation and 7% for industry. By 2027, the Office Chérifien des Phosphates will ensure the desalination of 410 million m³ per year, including 49% for drinking or industrial water and 51% for irrigation.

Seawater desalination for Casablanca

Works on the Casablanca seawater desalination plant, 40 km southwest of the city, begin in 2024.

The Casablanca desalination plant should be the largest in Africa with an initial capacity of 250 Mm³/year, and will be increased to 300 Mm³/year by 2030 (250 for drinking water and 50 for irrigation). Wind energy will supply 100% of the power needed for this plant, commissioned by the National Office of Electricity and Drinking Water (ONEE), within the framework of a Public-Private Partnership.

The plant is located 40 km southwest of Casablanca near the center of Bir Jdid. It aims to meet the demand for drinking or industrial water, to relieve the Oum Er Rbia basin of water stress and to irrigate 5,000 hectares in the region.



Reuse of treated wastewater

The development of wastewater reuse in Morocco is an important issue to meet water management challenges in the country, particularly due to the scarcity of water resources and the increasing pressure on water demand.

Thus, the country aims to accelerate wastewater reuse projects with the aim of reaching 100 Mm³/year to water green areas and golf courses by the end of 2027. The volume reused so far is estimated at 32 Mm³/year.

The reuse of treated wastewater is seen as an adequate solution for adaptation to climate change.



Water treatment plant, Marrakesh

Urgent actions to face an unprecedented drought

In addition to the structural actions mentioned above and to help the regions most affected by the succession of years of drought, several emergency measures have been undertaken:

- the installation of floating barges at the dams;
- the equipment of new drillings;
- the installation of monobloc desalination and demineralization plants;
- the replacement of irrigation canals with pipes at the lower Moulouya, thus improving the efficiency of water transport;
- the readjustment of dam management methods;
- the construction of new adductions.

In addition, water distribution in these circumstances is subject to rules aimed at optimizing the use of water for different uses, in fact:

- priority is given to meeting drinking water needs with a possible cessation of irrigation in some irrigated areas;
- spatial solidarity in water distribution to meet the demand for drinking water through inter-dam or inter-basin interconnections;
- a rationalization of drinking water consumption via a series of measures decreed by the vigilance committees and aimed at limiting drinking water consumption, especially in washing vehicles, public showers, watering green areas and golf courses, cleaning public roads and squares and filling public swimming pools.

These water distribution regulation mechanisms adopted during periods of drought allow for meeting demand for drinking water under satisfactory conditions, and optimizing the use of water resources for other uses.

In a situation of water scarcity, the Water-Energy-Food Nexus approach is very practical to meet the needs for drinking water first, then for irrigation and hydroelectricity.



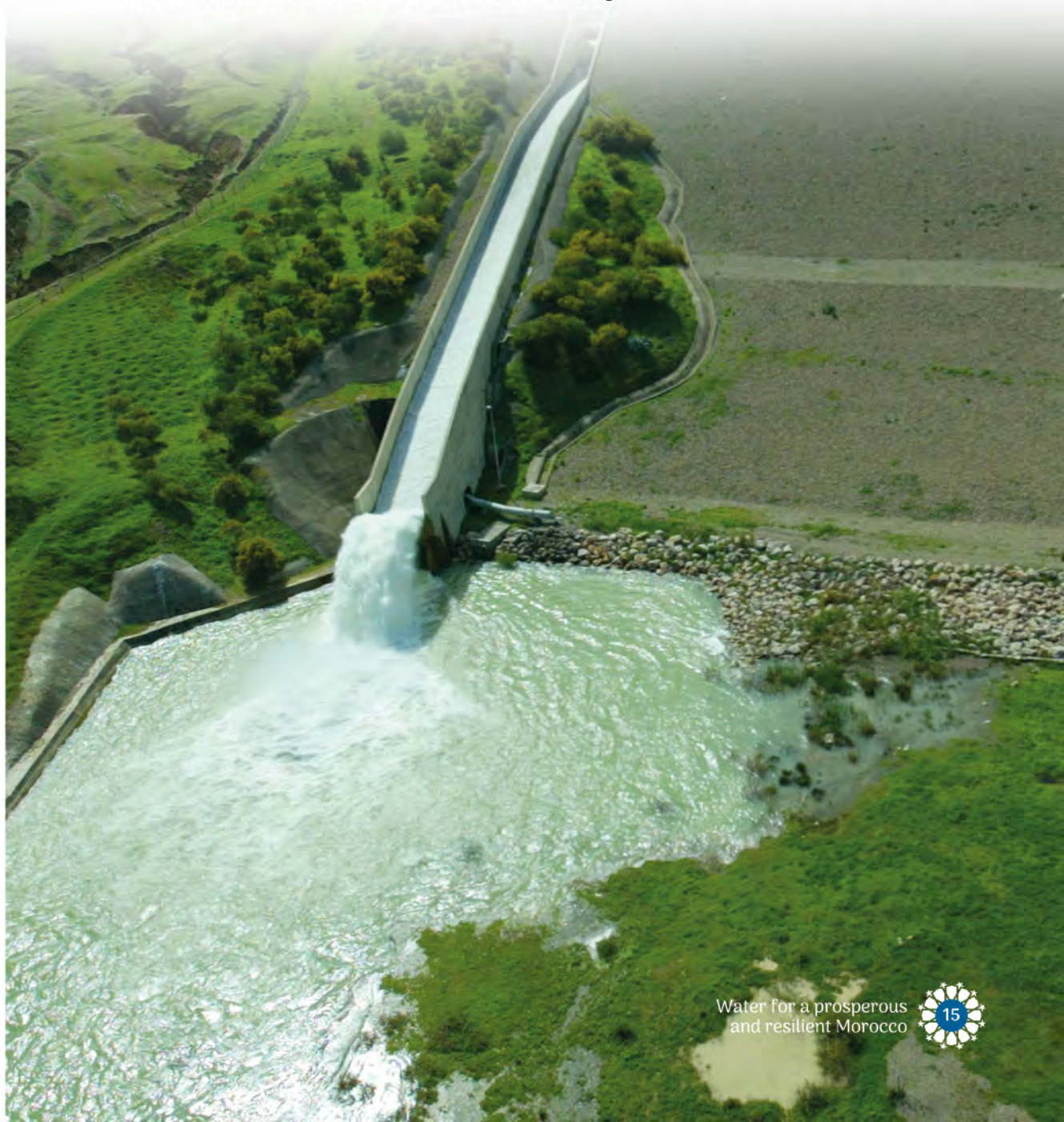
SMBA dam intake tower



Water saving and demand management actions

In terms of water saving and demand management, several actions are being implemented, namely:

- improving the efficiency of drinking water supply distribution networks;
- improving the performance of multi-service channels and pipes;
- water efficiency program for all water uses;
- supporting achievements through awareness-raising and communication actions on the state of water resources and water economy.

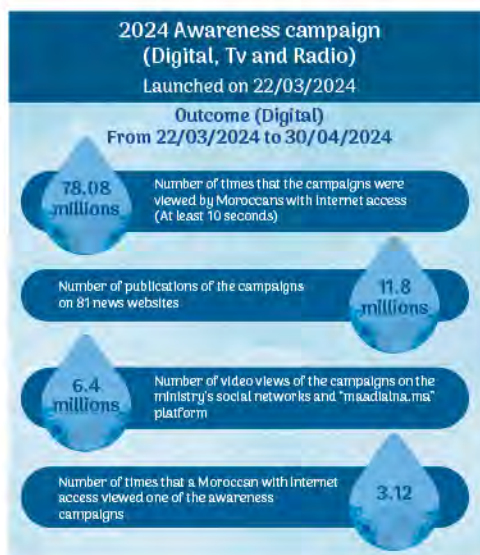
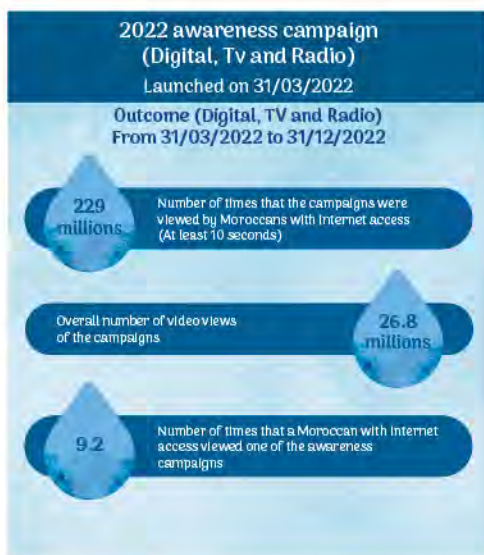


ONGOING COMMUNICATION AND AWARENESS

The increasing effects of climate change impacts the national water situation. Thus, increasing the collective awareness of different water users on the need to preserve national water resources and use them economically and rationally has become, more than ever, a major challenge to be taken up by the Kingdom.

Communication and awareness, as well as media guidance and education of future generations, are key factors in bringing about a gradual but lasting change in citizens' behavior towards water use. Furthermore, it has become imperative to promote among citizens a correct and deep perception of the real value of this increasingly rare and vulnerable vital commodity. To this end, the communication and awareness strategy of the 2020-2027 National Drinking Water Supply and Irrigation Program, was developed in 2021, in a participatory manner and in consultation between the various stakeholders in this program. Thus, numerous programs and actions have been undertaken to raise awareness among the various targets of the critical national water situation and the need to review the daily relationship with water and adopt responsible practices with regard to its use.

In addition to awareness campaigns on water saving carried out at local, regional and national levels, the national media ensure permanent monitoring of the national water situation, in consultation with the main stakeholders in the water sector. This aims to guarantee, in implementation of the Royal Directives, transparent and regular communication towards citizens on water situation developments and implemented emergency measures, while strengthening awareness among the general public on saving water and fighting all forms of waste or irresponsible use.



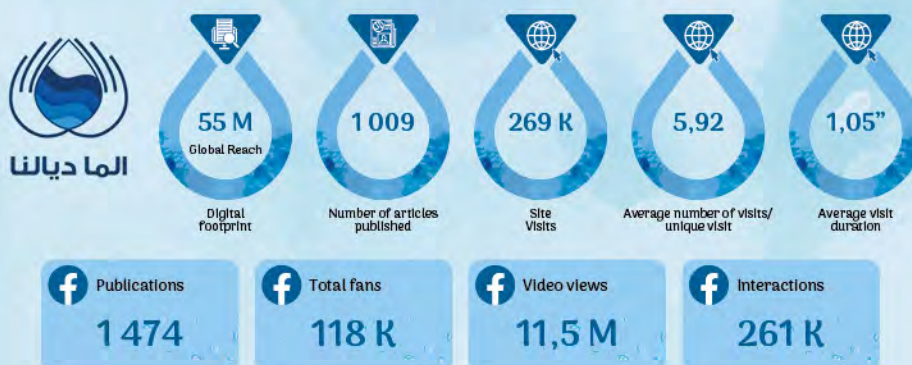
Rabat, March 22, 2024 > Celebration of World Water Day under the theme:
 « Drought management in a context of climate change: Challenges and solutions », with presentation of incentive awards to schoolchildren for their works of art on water preservation.



“Maadialna.ma” citizen information platform on water

A multimedia information platform on water in Morocco, open to all. This reference portal, put online in July 2023, allows citizens to closely follow water news and the evolution of the national water situation. It constitutes an official communication channel on public measures and procedures to manage the water situation. “Maadialna.ma” also aims to raise awareness among Moroccan citizens in favor of a change in behavior regarding water.

Digital impact analysis from July 12, 2023 to April 30, 2024



DIVERSIFIED INTERNATIONAL COOPERATION

Morocco has made international cooperation, under the enlightened leadership of His Majesty King Mohammed VI, a strategic priority, attaching paramount importance to the development of North-South, South-South relations (with its African, Asian and Arab colleagues), and tripartite ties in particular through the consolidation of political relations and the establishment of diversified and fruitful partnerships in priority areas of common interest, such as water and sanitation.

These relations are part of a structured vision built around the notions of sustainable development, solidarity, and strong human dimensions.

Multi-faceted cooperation: several Arab, Gulf, European, Asian, American, Latin American and Oceanian countries support the Kingdom's efforts in implementing projects relating to the Integrated Water Resources Management, improving access to drinking water in rural areas, using unconventional water, governance and regulatory aspects as well as mitigation and adaptation to climate change.

Triangular cooperation is a priority pillar of Morocco's foreign policy, solidarity with African, Asian and Arab countries.

In a momentum of south-south cooperation, the Kingdom has made Moroccan expertise in dams, adaptation to climate change and management of extreme phenomena available to its partners.

Morocco also develops partnerships with its African and Arab regional environment and chairs INBO. Its experts sit on the committees of IME, UNESCO, PHI, WMO, etc.

With Asia, the Kingdom recently obtained the "Sectoral Dialogue Partner Status" with the Association of Southeast Asian Nations (ASEAN) and is promoting stability in Africa and the Arab world. It also advocates for investment and easier access to financing and technology, to encourage scientific research, innovation and the integration of women and youth in water-focused development projects.



King Hassan II Great World Water Prize

Created in 2002, King Hassan II Great World Water Prize is an initiative led by the Kingdom of Morocco and the World Water Council, in memory of late His Majesty King Hassan II for his actions in favor of international cooperation and water conservation.

Awarded to one or more natural or legal persons under public or private law and intended to reward actions promoting the protection and preservation of water resources, the improvement of their management, the reuse of wastewater as well as public awareness on water problems, the prize is awarded every three years on the occasion of the World Water Forum, during a special ceremony organized in the opening plenary session. In Indonesia, the Prize will be awarded for the eighth time during the 10th World Water Forum. The winner of the Prize will receive a check for USD 500,000 and will benefit from international recognition and visibility.



Senegal River Basin Development Authority (OMVS)
Winner of the 7th Hassan II Prize, 2022





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