

WATER SECURITY IN MALDIVES

22ND MARCH: WATER DAY

WATER AND SUSTAINABLE DEVELOPMENT

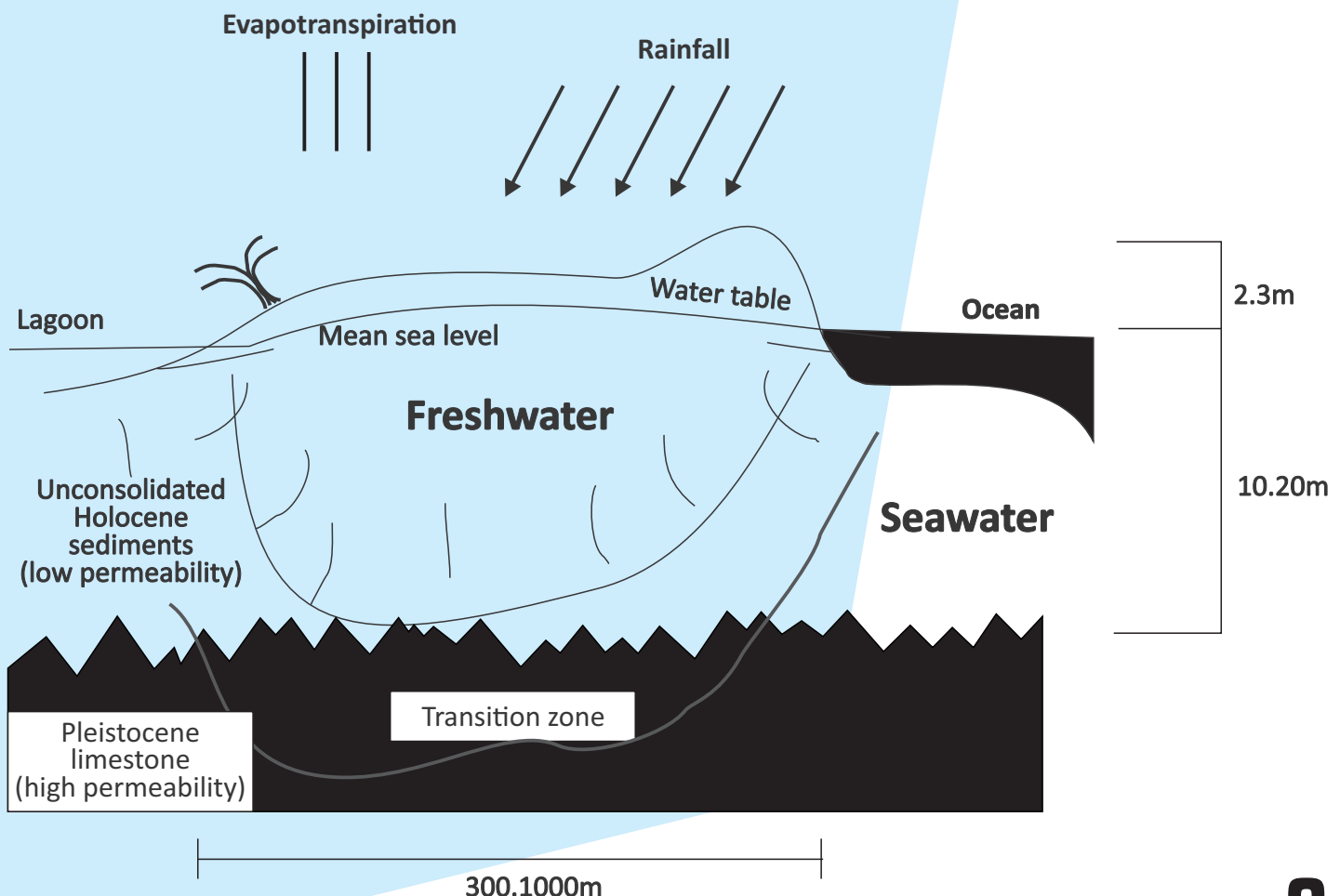
2015
THEME

Maldives consist of small, low-lying, flat, coral islands spread over more than 90,000 sq. km. The islands rise to an average of 1.5 m above sea level. Being a small island nation, the country is limited in terms of land area and fresh water resources. However, the demand for water resources is continuously increasing. This increase is being driven not only by population but also by the aspirations of that population for an ever increasing standard of living. At the same time, the capacity to meet this demand is in decline due to, amongst others, over harvesting, inappropriate agricultural practices and pollution.

The only conventional water resources available on islands in Maldives are confined to shallow ground water aquifers and rainwater. The non-conventional water resources include desalinated water and bottled water from both imported and local production.

Freshwater is scarce in the Maldives due to the typical hydrogeology of the small islands surrounded by seawater. Surface freshwater is generally lacking throughout the country. The freshwater aquifer lying beneath the islands is a shallow lens, 1 to 1.5m below the ground surface and not more than a few meters thick, susceptible to pollution and contamination. The freshwater aquifer is dependent on rainfall recharge which is becoming more variable in a changing global climate. The key issues to be addressed are then related to the management of saline groundwater and variable rainfall patterns.

The groundwater aquifers on many of the islands are severely contaminated with untreated domestic wastewater discharged into ground due to absence of appropriate wastewater treatment and disposal system.

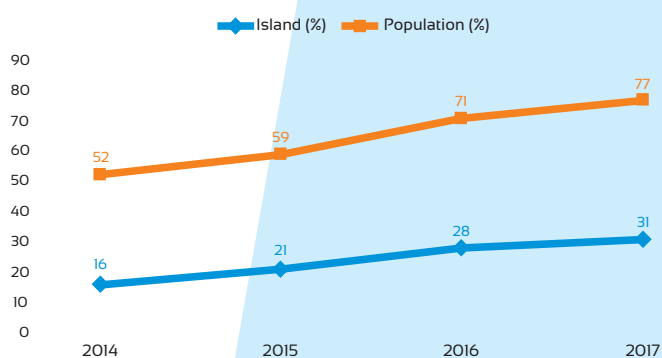


Furthermore, the freshwater aquifers having limited storage potential are already stressed from over-extraction and face the risk of partial or total depletion. This already precarious hydrological system is further aggravated by climate change-induced effects of sea level rise, inundation and flooding during extreme weather events, which increases saltwater intrusion into the freshwater lens. The increasing salinization of fresh groundwater lens is affecting the quality of life in the islands, and also affecting soil and vegetation, causing adverse impacts on agriculture and terrestrial ecosystems.

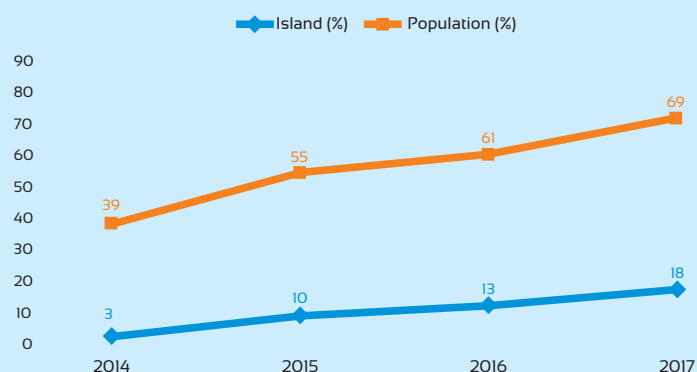
The Indian Ocean Tsunami of December 2004 aggravated the situation further by salt water intrusion into the groundwater lens and contamination of the groundwater from prevailing onsite sewerage disposal systems in the islands to an unusable extent. Proper sanitation services are required to protect public health and the environment, particularly the groundwater resources in the islands. Increased groundwater pollution and demand by the community for higher levels of services, along with socioeconomic development, has underlined the need for immediate action to improve sanitation services in the atolls through provision of appropriate sewerage treatment and disposal systems.

Government initiated provision of sewerage and water supply facilities for the tsunami affected islands through external assistance received by means of loans and grants. Individual household water storage capacity had been enhanced by provision of 2500 liter capacity storage tanks (HDPE tanks) to all the islands across the country with installation of 50 desalination plants for emergency use in the affected islands. These small RO plants are installed as a supplementary water supply source and are mainly used during emergencies in the dry period. However, due to lack of technical and financial capacity in the islands, most of the plants are currently not in a functional status. Currently, 31 islands have improved sewerage systems and 06 islands have desalinated piped water supply systems with household connections.

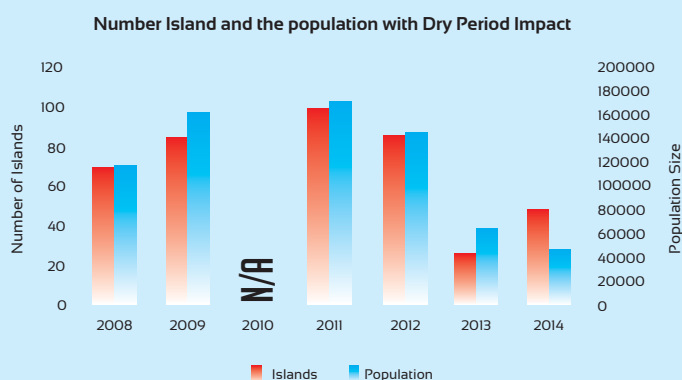
DEVELOPMENT IN PERCENTAGE OF
SEWERAGE SYSTEM



DEVELOPMENT IN PERCENTAGE OF
WATER SUPPLY SYSTEM



The demand for desalinated water increases throughout the country during the dry period. Transporting desalinated water to the dispersed populations has been a challenge over the years as more islands face problems of water scarcity each year. Over 50% of the islands report acute water shortages due to the prolonged dry period every year and the National Disaster Management Center (NDMC) has transported desalinated water to these islands at high costs. The water shortage problem has exacerbated as the changes in precipitation have impacted the rainwater harvested across all the atolls. Drinking water shortages during dry periods is a significant challenge for the atoll population



The key national policy on water and sanitation has always been to provide access to safe drinking water and improved sanitation to all Maldivians. Provision of safe drinking water and adequate sewerage systems to all Maldivians has been enshrined as a constitutional right. The Government of Maldives is also committed to the goals of the International Decade for Action and the Millennium Development Goals, including goal 7, Target 10: "Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation" and is exerting every effort to increase the number of people with access to safe drinking water and improved sanitation..

In order to reduce the barriers to effective climate change adaptation in the water management sector, it is essential to reinforce the perspective of Integrated Water Resource Management (IWRM). This will ensure that measures responding to climate change related risks are addressed in concert with basic development problems such as insufficient sewage and wastewater treatment and lack of environmental awareness. The IWRM projects that have been initiated in the country will be developed through integration and pooling of available water resources, both conventional and non-conventional, including rainwater and desalinated water along with strengthening of the institutional capacity, water management and water governance.

The current desalinated water supply and sewerage treatment systems in place require high energy to operate the systems. Given that the Maldives is dependent on imported fuel, the high operational costs arising from this have hampered the provision of water and sewerage services in a sustainable manner.. As such, some of the water supply projects are currently implemented with a renewable energy component to reduce the operational costs.

As the number of islands with water shortages during the dry period has increased over the years, the government has initiated projects to increase rainwater harvesting and storage capacity, particularly targeting islands with small populations. Water storage will be increased up to 30 tons by provision of community water tanks for rainwater harvesting facilities in these islands. Islands with high and medium populations will utilize RO desalination plants, water supply networks with integrated rainwater supply