Water resources management in Jordan

Overview on Jordan's Water Situation

- Jordan is considered to be one of the four poorest countries worldwide in water resources.
- available water resources per capita is very low at a level of 150 m^3/capita/year compared to international standards of 500 m^3/capita/year.

Demand exceeds Supply for a number of issues

- Scarcity of renewable water resources (climatic conditions).
- Lack of integrated water resources management.
- High population growth and influxes of refugees /displaced persons.
- Competing water sectors and economic interests.
- Low cost recovery ratios due to delivery systems and prices.
- High capital investments needed to utilize non-conventional water.
- Weak enforcement for laws and bylaws.
- Lack of private sector participation in planning and operation.
- Deterioration of water quality due to pollution and over-pumping.
- Public awareness to water related issues.
- Weak institutional capacity and shortages in skilled human resources.
- Weakness in research and development activities to improve water situation.
- Securing Jordan's shared water rights.

Water resources in Jordan

- **Renewable Fresh Water Resources**

Surface Water	505 MCM
Groundwater	275 MCM
Total	780 MCM

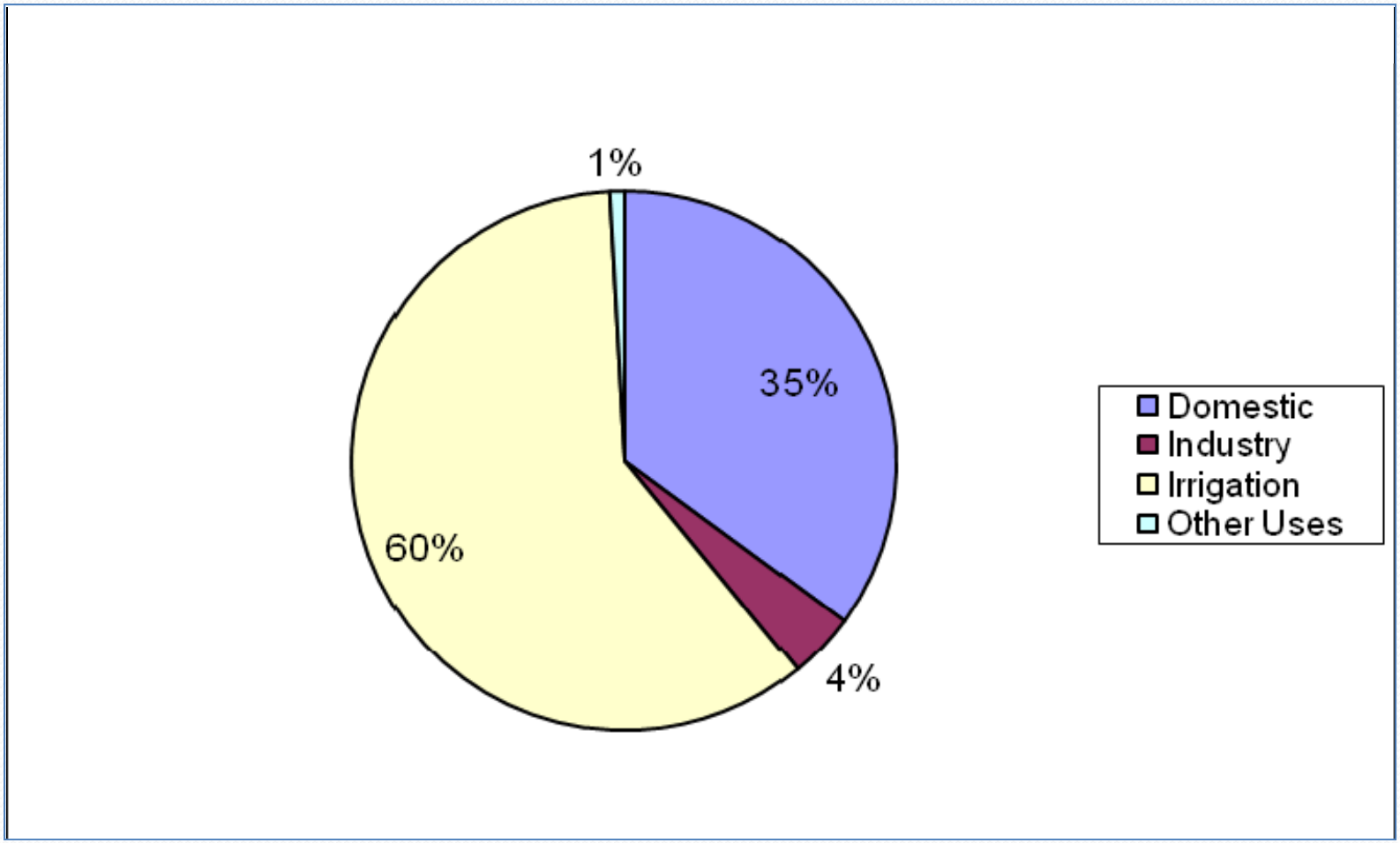
- **Non Conventional Water resources**

Fossil Water	140 MCM
Treated Waste Water	110 MCM
Brackish Water	60 MCM
Return flow	55 MCM
Total	360 MCM

Sectorial water uses

Sector	Consumption	%
Industry	37 MCM	4
Domestic	309 MCM	35
Irrigation	529 MCM	60
Other Uses	8 MCM	1
Total	883 MCM	100

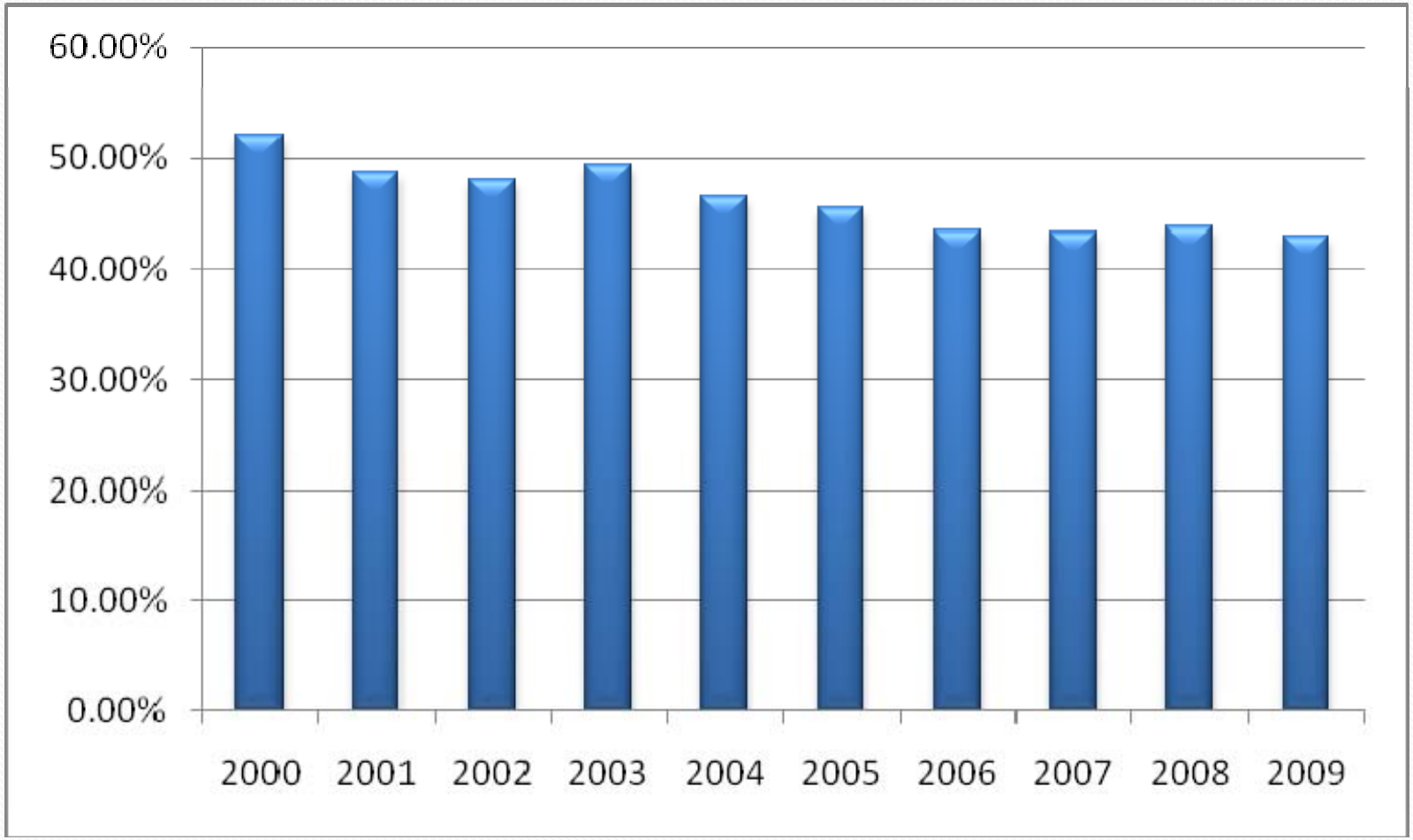
Sectorial Water Uses



Domestic Water

- Drinking water has the highest priority over the other sectors.
- The main issue with domestic water is the high percentage of losses referred to as Non-Revenue Water
- Non-Revenue Water (NRW) consists of both administrative and physical losses within the water supply systems (44% national wide).
- Such relatively high losses could be drastically reduced and fully recovered to be less than 30% by network rehabilitation as intended by MWI

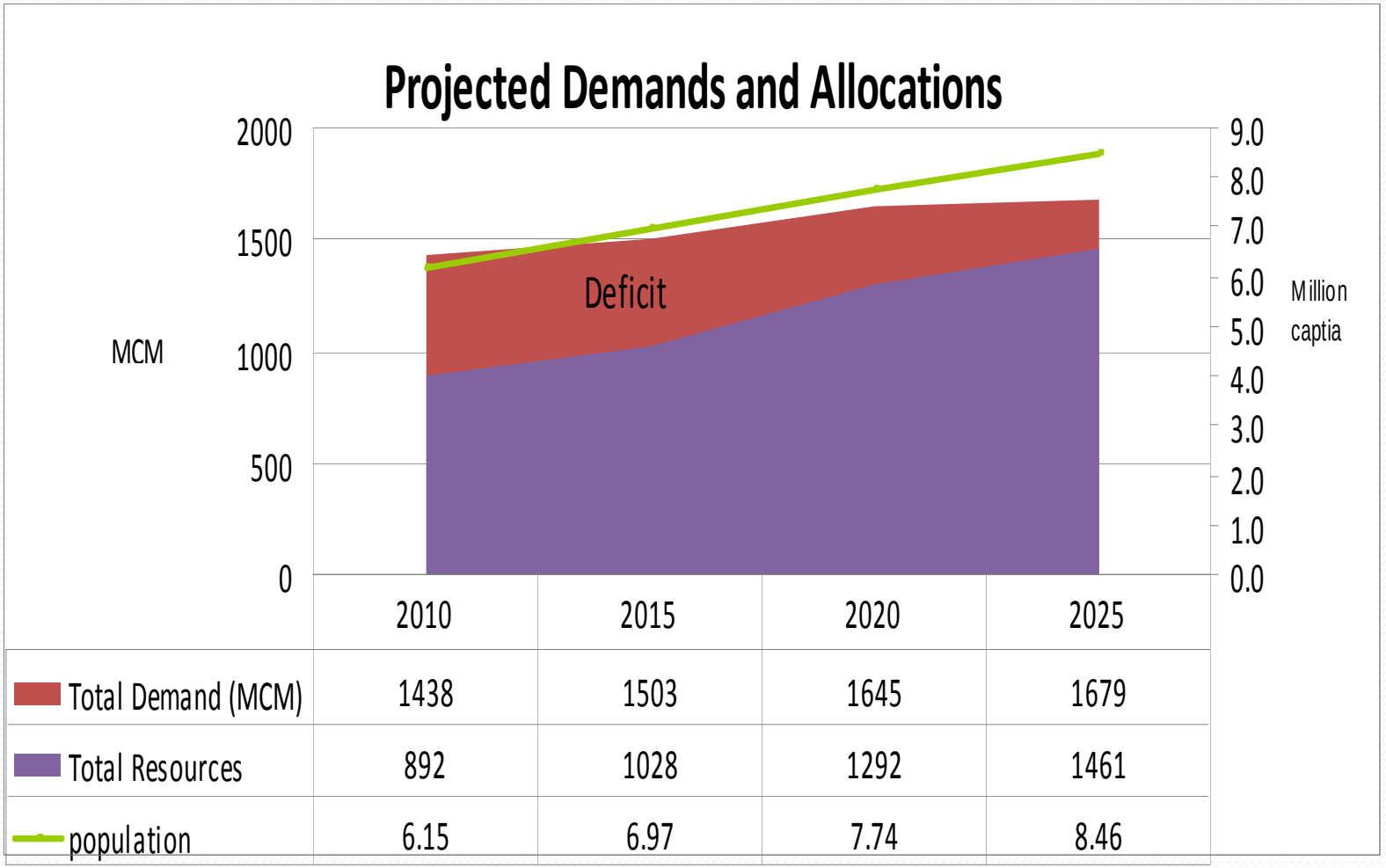
Non revenue Water



Irrigation Water

- Irrigated agriculture in Jordan is the largest user of water.
- Irrigated agriculture consumes 60% of total uses, 50% of renewable groundwater and 90% of the treated waste water.
- Irrigated agriculture is the main reason for groundwater deterioration in both quantity and quality.

Projected Water Demand and Supply



	2010	2015	2020	2025
Total Demand (MCM)	1438	1503	1645	1679
Total Resources	892	1028	1292	1461
population	6.15	6.97	7.74	8.46

Water Strategy (Water for life 2008-2022)

Jordan has developed along term Water Strategy "*Water for Life*" spanning from 2008 until the year 2022 where it has studied the status of the different themes related to the water sector and devised solutions and measures to respond to these areas of concern. The Water Strategy consists of six themes:

1- Water Demand 2- Water Supply 3- Institutional reform 4- Water for irrigation 5- Waste Water 6- Alternative Water resources

Water Resources development

- Investigation of deep aquifers shall support water resources development plans (socioeconomic and Environmental aspects have to be taken)
- Review the water balance and continuous update of the national water master plan.
- Continuously update and support of the Water Information Systems.

Water resources management

- Review allocation of previously developed and mobilized water resources for irrigated agriculture (turning fresh water used for irrigation to be used for drinking and replacing it with treated waste water)
- Plans to enhance water storage dams and implementing comprehensive monitoring and assessment program for surface water , conversion of open canals to pressurized piping system.
- development and conservation program to increase the potential of surface water development in Jordan.

Water resources management

- Maximizing the use of alternative water resources, such as grey-water and rainwater harvesting by industries and buildings.
- Groundwater abstraction will be controlled and reduced to within the safe yield for aquifers and enforcement will be strengthened.
- Encourage research targeted at improvement of water resources management and economics.
- Involving Groundwater users in multi-stakeholders consultations

Water Demand Management

- The Ministry of Water and Irrigation established a Water Demand Management Unit to institute and promote water demand management and water use efficiency in Jordan.
- A water demand policy which was implemented is intended to achieve maximum utilization and minimum waste of water, and promote effective water use efficiency and water conservation.
- Two agricultural water use efficiency policies were prepared, one on irrigation equipment and system design, and the other on irrigation water allocation and use.
- The Ministry of Water and Irrigation updated the National Water and Sanitation Plumbing Code.

Water Sector Institutions

Three generally independent, but organizationally related, public agencies are responsible for management of Jordan's water sector.

Institution name	Responsibilities
Water Authority of Jordan(WAJ), 1988	water and sewerage services throughout Jordan and for water resources management.
Jordan Valley Authority (JVA), 1988	development of the Jordan Rift Valley including water resources, primarily for agriculture in the Jordan River Valley. JVA also manages all dams/reservoirs in Jordan.
Ministry of Water and Irrigation (MWI), 1992	water resources policy and strategy development, water resources planning, research and development, information systems, and procuring financial resources.

Other Water Related Institutions

Institution name	Responsibilities
Ministry of Agriculture	agricultural policies and provides services primarily to farmers in the highlands
Ministry of Health	monitors the water quality of drinking water supplies including source areas (e.g., springs) and the distribution network.
Ministry of Municipal Affairs	Participates in Water related infrastructures
Ministry of Environment	responsible for water quality monitoring of water resources and for protecting these resources from pollution.
National Center for Agricultural Research and Extension (NCARE)	Adopt the latest research findings in agricultural production, Conservation, preservation, and sustainable use of natural resources.

Thank you for listening