

Climate Adaptation to Protect Human Health

JORDAN



A Global Pilot

The climate change and human health adaptation project is a unique global initiative jointly implemented by WHO and UNDP. This novel project, piloted in seven countries, seeks to identify and share solutions to address health risks caused and exacerbated by climate change and variability.

Jordan Project Objective

To increase adaptive capacity to respond to health risks resulting from water scarcity induced by climate change in Jordan.

Climate Change in Jordan

The climate of Jordan is predominantly of the Mediterranean type. It is characterized by a hot dry summer and rather cool wet winter, with two transitional periods. Precipitation falls during October-May, but about 75% of precipitation is concentrated in the winter season, from December to March. Jordan is classified as a semi arid to arid region, with scarce water resources compared with other countries in the Middle East. Water resources in Jordan depend mainly on precipitation within the country.

Climate change is expected to increase temperatures and change precipitation patterns, decreasing surface water availability and, acting on top of other stresses, increase water scarcity in the country.

Key Health Concerns and Vulnerability

Jordan is ranked among the poorest countries in the world in terms of water availability. Resources are already seriously limited and are far below the water poverty line of (1000) m³ per capita per year. Projected increases in temperature and changes in precipitation patterns are expected will increase water scarcity. The lack of water and secondary effects of these changes are considered as the highest priority threat to health in Jordan.

Water scarcity will have a direct impact on the health of Jordanians. In 2005, a WHO/UNEP project determining minimum water requirements for health in Jordan showed a linkage between the *per capita* water consumption and the incidence of diarrhoea.

Due to the serious vulnerabilities of water scarcity, the national Government has prioritized the use of clean water for domestic supply. This should avoid much of the direct health risks from water scarcity. However, the proposed increase in use of wastewater reuse as an alternative water supply could raise a series of health risks. Unless adequately managed, both untreated and to a lesser extent treated wastewater pose significant risks to health.

Increasing agricultural use of wastewater, driven by climate change, is likely to increase intestinal diseases and exposure to toxic chemicals for farmers, neighbouring communities, and consumers.

Project Structure

The project will be implemented in close co-operation and coordination with the Ministry of Water and Irrigation (MWI) and Ministry of Environment (MoE). The Executing Agency of the project will be the Government of Jordan, MWI. The National Technical Advisory Group (TAG) for the project will be the Inter-Ministerial Steering Committee (ISC). The ISC includes representatives from the MoH, MWI, Ministry of Planning, MoE, Ministry of Agriculture, Department of Meteorology, a representative from CEHA/WHO, a representative from UNDP/GEF, and representatives from major NGOs.

Jordan is one of seven countries taking part in this Global Pilot. The seven countries, Barbados, Bhutan, China, Fiji, Jordan, Kenya and Uzbekistan, together represent four distinct environments (Highlands, Small Islands, Arid Countries and Urban environments,) and their related health risks. For more information visit the website at www.who.int/globalchange/projects/en

Project Facts

Donor: GEF Special Climate Change Fund (SCCF)

Funding: 550,000 USD

Time frame: 2010—2014

Location: The entire country

Key Stakeholders:

- ◆ The Government of Jordan Ministries
- ◆ Jordan University of Science and Technology
- ◆ Jordan Environment Society
- ◆ Metrological Department

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Project Scope

This project will focus on; (i) strengthening monitoring and surveillance capacity, (ii) development of the necessary institutional and regulatory framework for safe use of wastewater; and (iii) increasing the capacity related to health protection measures and pilot testing these in the field. To achieve this goal, several adaptive capacity issues will be addressed:

- ◆ **Standards and criteria** - The use of treated water in agriculture, and points of monitoring of treated wastewater effluent, are currently unregulated. There are also no reuse criteria related to hygiene, public health and quality control or irrigation techniques, degree of wastewater treatment, and choice of areas and types of crops to be irrigated.
- ◆ **Monitoring** - The lack of efficient control and monitoring on safe practices of wastewater reuse in agriculture.
- ◆ **Capacity** - The lack of trained personnel both in the competent authorities and the treatment plants.
- ◆ **Communication** - The low level of awareness of the farmers and the public at large, and the lack of communication and information dissemination between the different parties involved.

Expected Benefits

The greatest benefit expected from this project is the elevated level of national preparedness and adaptation to protect human health from a key risk associated with climate change and variability. Other expected benefits include:

- ◆ Enhanced coordination and cooperation among different governmental and non-governmental organizations concerned with climate change adaptation to protect human health.
- ◆ Increased awareness and strengthened institutional capacity to address other health risks from climate change within Jordan.
- ◆ All areas where wastewater reuse is practiced will have a safer and healthier environment, and the health conditions of farmers and farm workers will also be improved.
- ◆ Economic benefits will be attained on both national and local levels through fresh water savings and higher value of safer agricultural products.

Project Outcomes and Outputs

Outcome 1: A comprehensive and integrated monitoring and surveillance systems for wastewater reuse activities is in place

1.1: Coordination and implementation of existing monitoring systems of quality of treated wastewater used in agriculture are improved.

1.2: Coordination and implementation of existing monitoring systems for food safety are improved.

1.3: Health and epidemiological surveillance programs provide reliable data on wastewater-related diseases, linked to water and food quality monitoring.

1.4: Social acceptance of agricultural products irrigated by treated wastewater is increased.

Outcome 2: Regulatory and institutional frameworks for management of health risks associated with increased wastewater reuse in unrestricted agriculture are improved and implemented.

2.1: National health guidelines or standards for safe wastewater reuse are developed and promoted.

2.2: Institutional responsibilities to operationalize the national health guidelines for safe wastewater re-use are defined.

2.3: A legislative tool to define institutional responsibilities for different components of the system is issued.

2.4: Institutional capacity needed to execute the system is established.

Outcome 3: Health protection measures for safe wastewater reuse are defined and implemented in defined pilot sites.

3.1: A manual and operating procedure on health protection measures for all vulnerable groups (farmers, nearby communities, and consumers) is developed.

3.2: Operational wastewater reuse safety plan, applying the provisions of the national guidelines on safe wastewater reuse, is developed and implemented at 10 selected sites.

3.3: The manual and lessons learnt from applying the safety plan at the site are disseminated.

3.4: A mechanism for implementation of the needed safety plan at all farms using treated wastewater is established and enforced.