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Activity: Construction of Individual Water Cisterns

Location: Karak, Tafila, Madaba, Irbid, Balqa'a, and Ajloun

Beneficiary: 90 Families

Objective: To encourage residents of these areas on harvesting rainwater for house uses and supplementary irrigation of the garden.

Summary

Background information:

Water in Jordan is considered closefisted; yearly available water per capita from renewable fresh water is about 145m^3, this amount will decrease during the next 10 years due to continuous population increase, depletion of non renewable resources, and the high demand on water from the different growing sectors such as tourism and industry among other reasons.

About 8 billion cubic meters of rain fall annually on the different areas of Jordan. From this huge amount, very small portion is used and the rest is lost by evaporation and runoff. Water harvesting is considered as a way with high potentials to relief part of Jordan water crises.

Individual water cisterns dug in the rocky layers in certain areas having the pear shape were considered as a common practice in the past for most of the houses. Unfortunately, due to the new building patterns and the availability of water for house hold uses through the water networks, the construction of these cisterns has become more and more scares.

This activity aims at increasing water availability from rainwater harvesting through demonstrating the feasibility of construction of individual water cisterns as a decentralized water harvesting procedure.

Criteria for location/ beneficiary selection:

- Families in high location where tap water during summer is available for limited time.
- The water prices at these locations are very high.
- Geologically, rock layer is very shallow (less than one meter deep), and the type of rock is suitable for such work.
- There is enough space to construct the cistern in each location
- Beneficiaries are cooperative and willing to take part of the responsibilities of constructing and maintaining these cisterns and in encouraging neighboring residents to do the same.

Available documents

- Photo gallery
- Tender documents
- Contractor schedule project plane
- Beneficiaries agreement
- Design
- Per location fact sheets

Photos

with funding from
Austrian Development Cooperation

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Design assumptions:

- Catchments area = 170 -210m^2 in each location.
- Individual Cistern volume = 30 m^3.
- Annual precipitation = 170 - 350 ml/year

Benefits:

- **Expected:**
  To harvest from 38 -47m^3 during the rainy season. The benefit from the cistern may reach up to 133 -165 € per year. Water will be used for domestic use then in some locations the grey water from the house will be used for irrigation.
- **Actual:**
  Preliminary monitoring of the already constructed units showed good results of water harvesting. Precise records on amounts harvested will be available at the end of the rainy season 2007 - 2008

Beneficiary contribution:

- Connect the house roof to the basin of the cistern to collect rain water.
- Maintain the cistern.
- Prepare the catchment area for water harvesting (if such an area is available)
- Transfer knowledge to neighboring locations.

Time schedule of implementation:

Location/beneficiary selection:

- Phase (1) 20/8/2004 –14/09/2004
- Phase (2) 15/11/2005 – 30/12/2005

Tendering:

- Phase (1) 26/10/2004 –24/12/2004
- Phase (2) 20/02/2006 – 17/05/2006

Implementation:

- Phase (1) 1/5/2006 – 15/10/2006
- Phase (2) 02/01/2007 -15/02/2008

Monitoring:

- Phase (1) 20/12/2006 – 31/3/2008
- Phase (2) 15/02/2008 - 31/3/2008