Rain Water Harvesting

Bogachan Benli, Ph.D
Challenge of Water Storage

Rivers represent 40% of annual precipitation
Rain Water Harvesting
Suitable for

- Dry environments where low and poorly distributed rainfall
- Rainfed areas, where crops can be produced but low with low yields
- In arid land suffering from desertification
- Remote communities where water supply for domestic and animal consumption is not sufficient
Water Harvesting Methods

Micro Catchment
- On-Farm Systems
  - Small pits
  - Runoff stirps
  - Semi Circular bunds
  - Small runoff basins
  - Inter – row systems
  - Contour-bench
  - Terraces
- Rooftop Systems

Macro Catchment
- Wadi-Bed Systems
  - Small Reservoirs
  - Jessour
- Off-Wadi Systems
  - Large Bunds
  - Tanks
  - Cisterns
Macro Catchments – Small Reservoirs
Macro Catchments – Cisterns
Micro Catchment
Micro Catchement – On Farm Systems

Runoff strips for field crops

Semi circular bunds
Contour Ridges
Water Harvesting: improves rainwater productivity

Oweis 2002
Annual income of the different water harvesting techniques and land uses

<table>
<thead>
<tr>
<th>Techniques</th>
<th>Annual income (USD/ha/year)</th>
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<tbody>
<tr>
<td>Shrubs with water harvesting</td>
<td>390</td>
</tr>
<tr>
<td>Barley with water harvesting</td>
<td>153</td>
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<tr>
<td>Barley farmer practice</td>
<td>74</td>
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</tbody>
</table>

discount rate 10% and age of techniques 15 years
Micro Catchment – Roof Top Water Harvesting

Based on roof-top rainwater harvesting as major source of water for domestic uses
More than 30 households gained access to water and sanitation.

- USD 6000-8000
- 2-7 people
- 15-20 m³
Conclusions

• Rainwater harvesting is a viable option for the drier environments and remote communities

• Involvement of users in the planning and development is essential

• Appropriate selection, design and implementation is vital for success

• Environmental and social benefits > direct benefits
bogachan.benli@undp.org