

United Nations Development Programme



Rain Water Harvesting

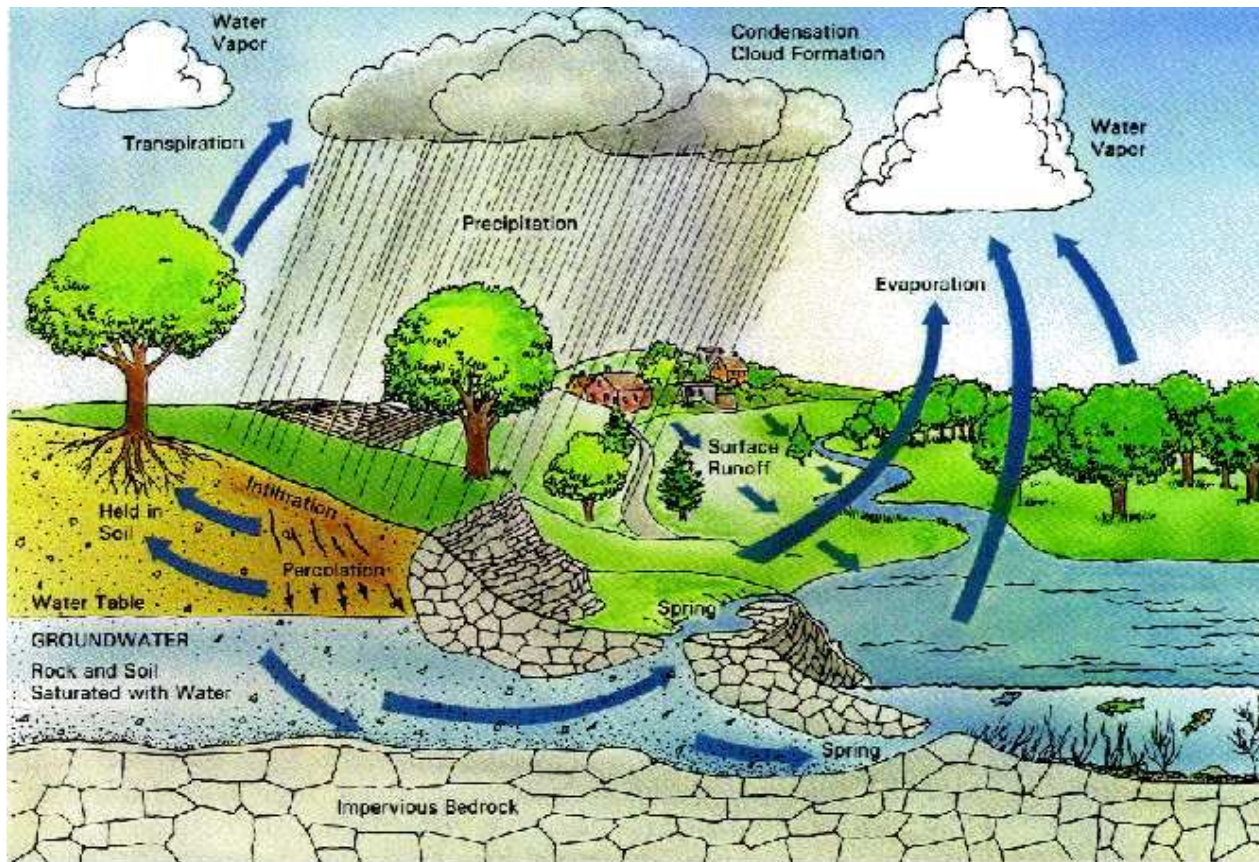
Bogachan Benli, Ph.D



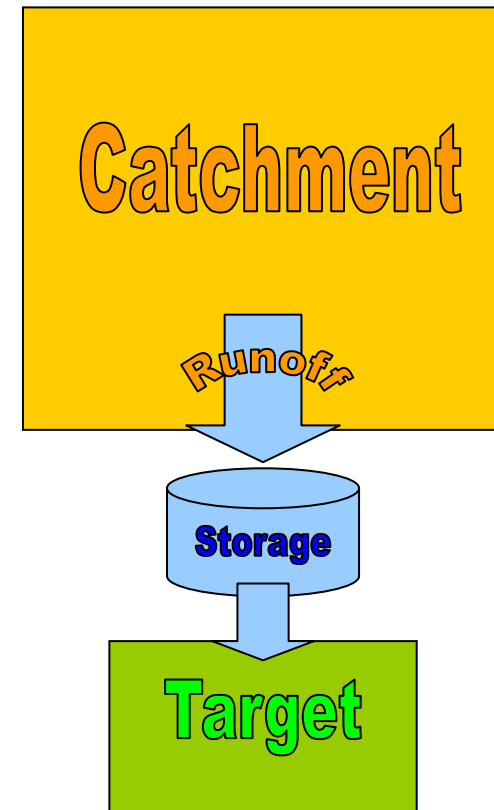
Challenge of Water Storage



Rivers represent 40% of annual precipitation



Rain Water Harvesting

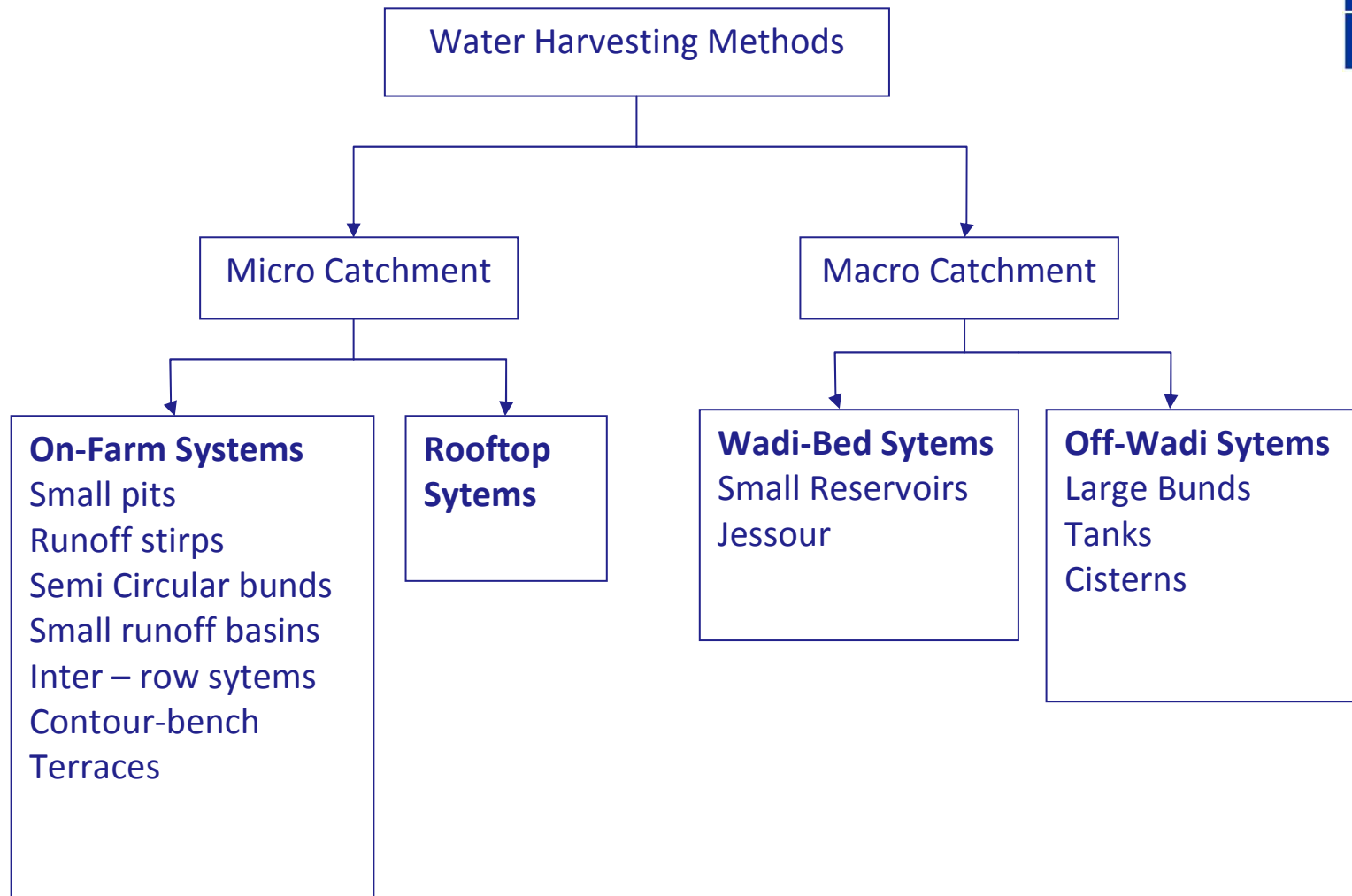




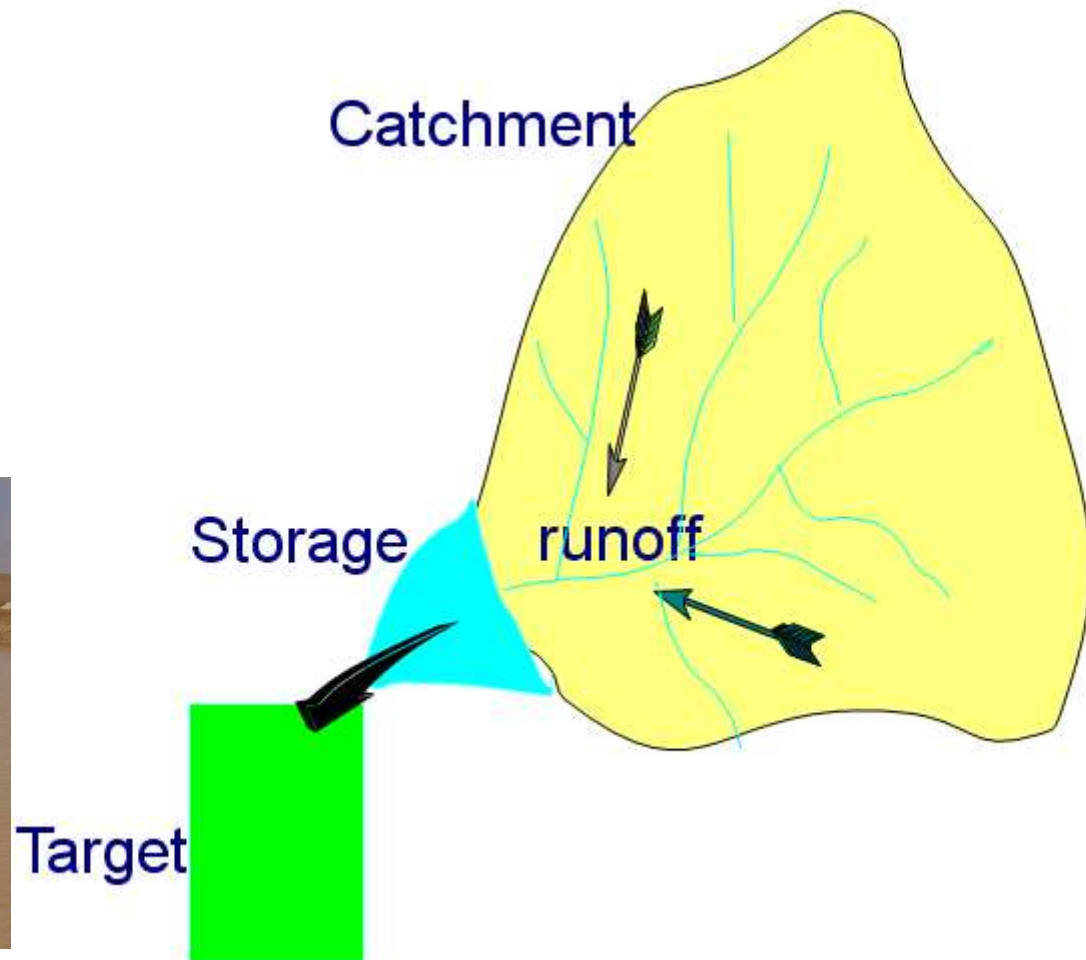
Suitable for

- 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



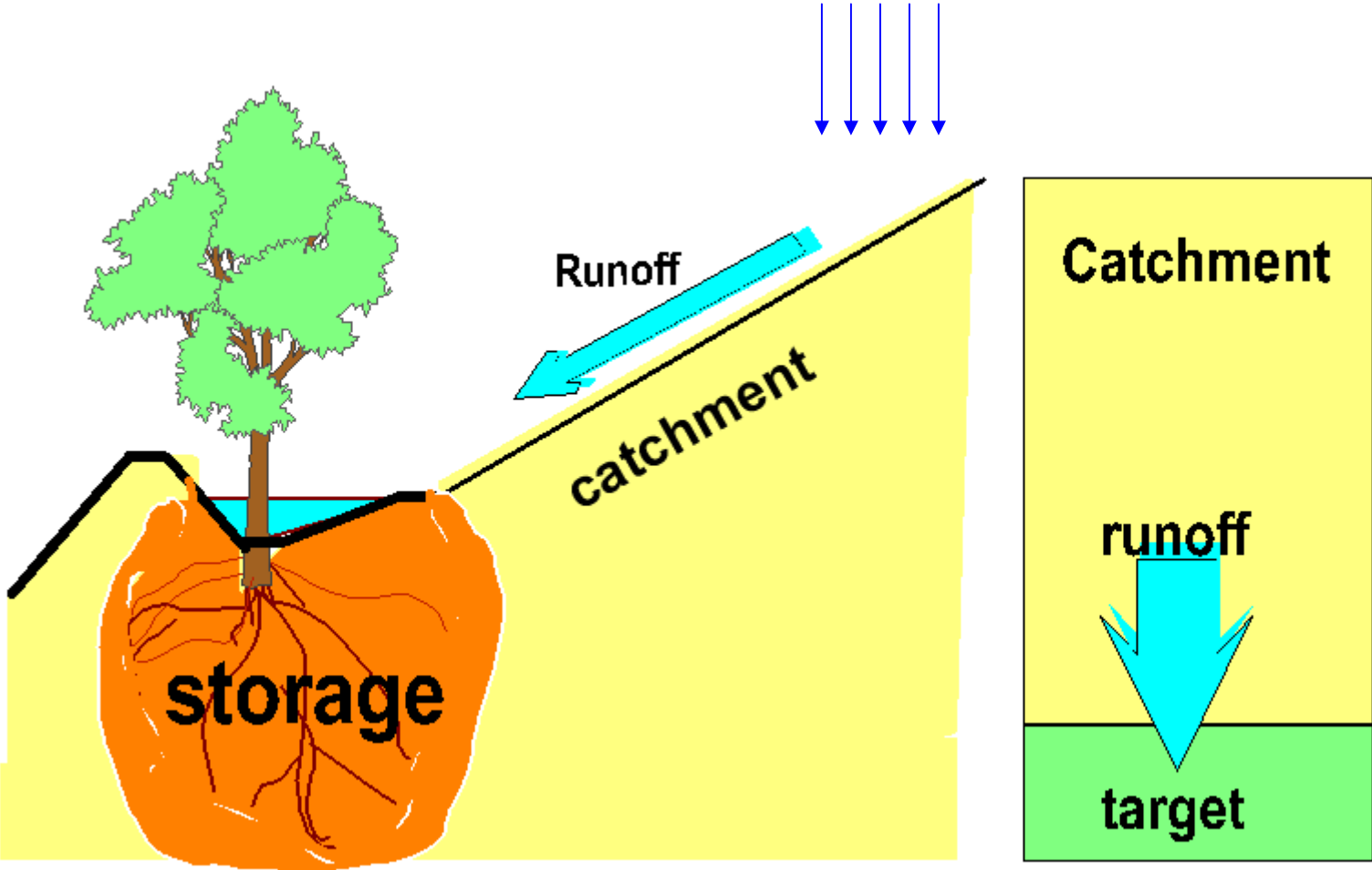
Macro Catchments – Small Reservoirs



Macro Catchments – Cisterns



Micro Catchment



Micro Catchement – On Farm Systems

Runoff strips for field crops



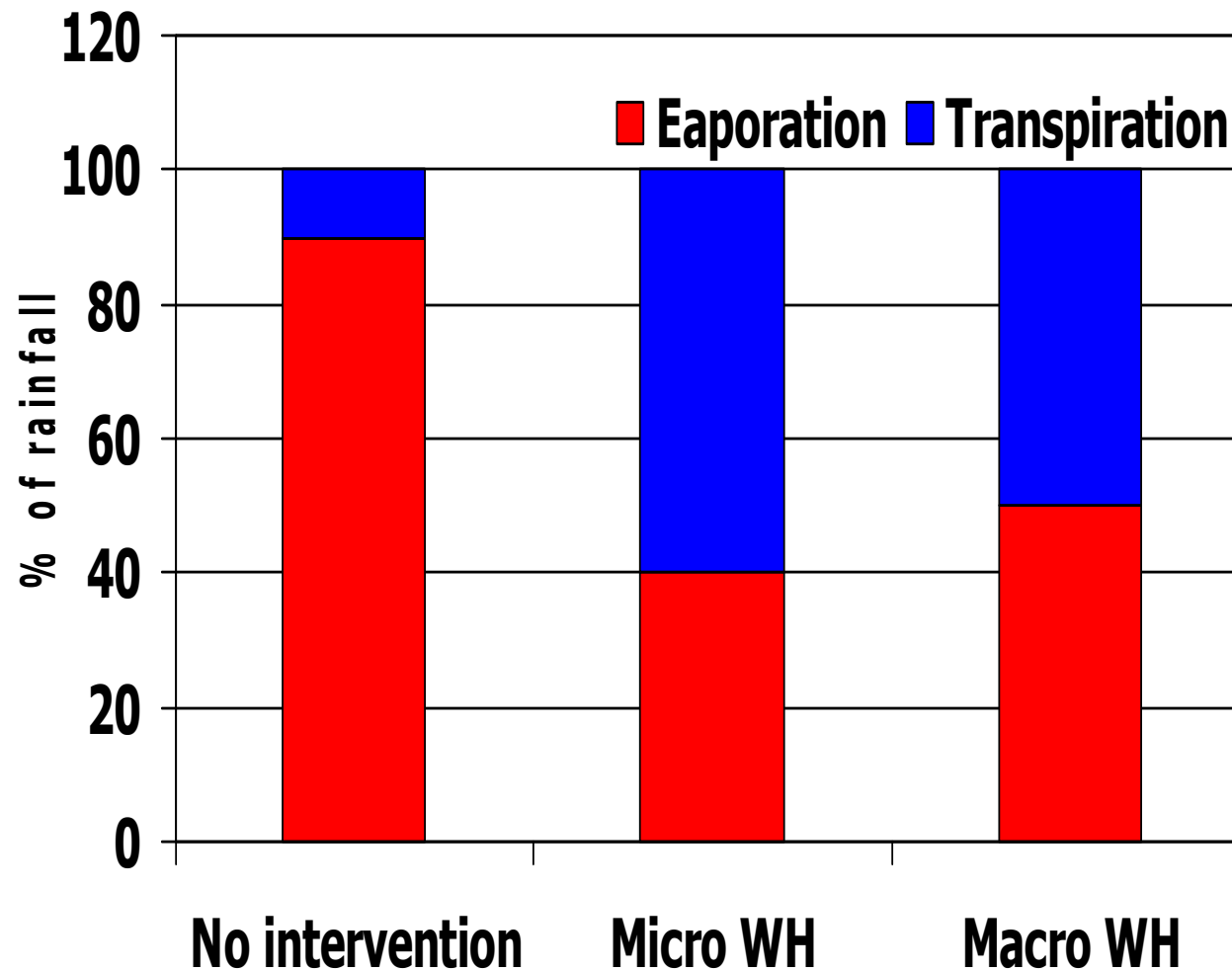
Semi circular bunds



Contour Ridges



Water Harvesting: improves rainwater productivity



Annual income of the different water harvesting techniques and land uses



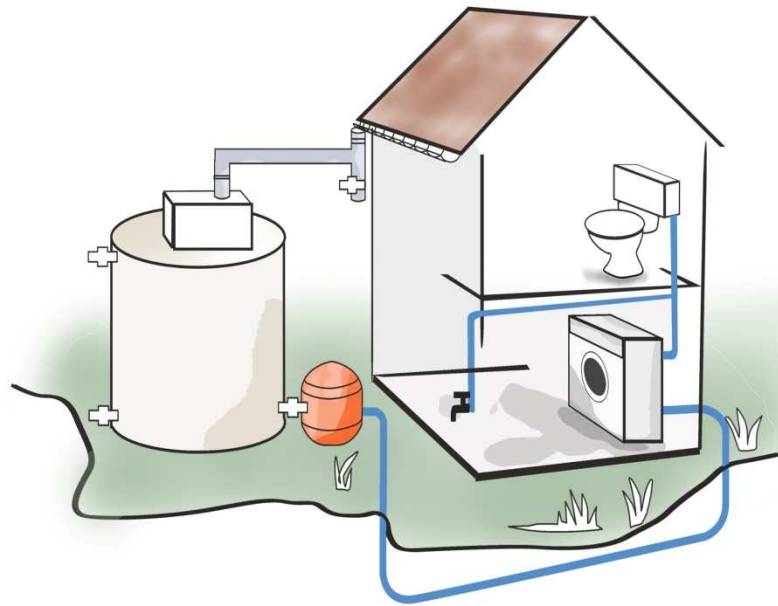
Techniques	Annual income (USD/ha/year)
Shrubs with water harvesting	390
Barley with water harvesting	153
Barley farmer practice	74

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

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bogachan.benli@undp.org

