



3R SOLUTIONS: TRANSFORMING LANDSCAPES TRANSFORMING LIVES

3R solutions transform the lives of people in arid and semi-arid areas by improving the buffer function. It helps to cope with climate variability, like recurrent drought and floods.

3R stands for **Recharge, Retention and Reuse**. 3R solutions solve water scarcity issues, improve food security and achieve climate change resilience to people and their environment.

What is 3R?

The key idea behind 3R is water buffering, storing water when it is plentiful and making it available for dry periods. Storage is thus the central concept. The creation of small storage structures all over the landscape offers the possibility to create a water buffer by applying a range of simple and often locally known 3R technologies. This helps to deal with seasonality and droughts.

Four types of storage can be used to recharge, retain and reuse water:

- Groundwater storage (e.g. sand- and subsurface dams)
- Open reservoirs (e.g. valley dams and ponds)
- Closed reservoirs (e.g. rock catchments and rooftop harvesting)
- Soil moisture storage (e.g. the use of bunds, terraces and mulching)

The 3R approach can be applied at different levels, from watershed scale to community or farm level.



3R example: Rain water harvesting tank, collecting water during the rains from rooftops and storing it in tanks provides a source of good quality water.

Benefits and results

A combination of 3R techniques allows for both *short-term results* (increased water supply and food production), as well as *benefits over the longer term* (e.g. resilience to climate change). Examples are:

- Increased water and food security
- Solve water scarcity issues
- Diminished risk of floods
- Community resilience
- Low investment & operation costs
- Flexibility in application and appearance

How do we work?

3R partners work on projects and programs in many different countries, to maximize the availability and use of water. We stimulate all stakeholders involved (including major planning and financing agencies and the private sector) to apply these effective technologies in their investment programs. 3R interventions are adapted to local circumstances, demands and landscape characteristics. The 3R approach systematically integrates a technological basis with capacity building and training for local water practitioners. We work alongside our



3R example: Grass bunds, slowing down the overland run-off and thus increasing the infiltration; these methods increase the amount of water that is stored as soil moisture.

implementing partners, who are experienced and familiar with the local context.

What do we offer?

- Tailor-made sustainable water solutions at local or regional scale;
- Technical and non-technical advice - from (ground) water management to improved agricultural practices and training programs;
- A 3R component as an 'add-on' for new or existing programs (e.g. 3R scan, map or training module);
- Knowledge and valuable experiences;
- A large implementation network in different countries;
- An up-scalable concept, replicating the benefits of 3R technologies in other areas in the world (semi-arid, coastal or flood prone).

Are you prepared for floods and droughts?

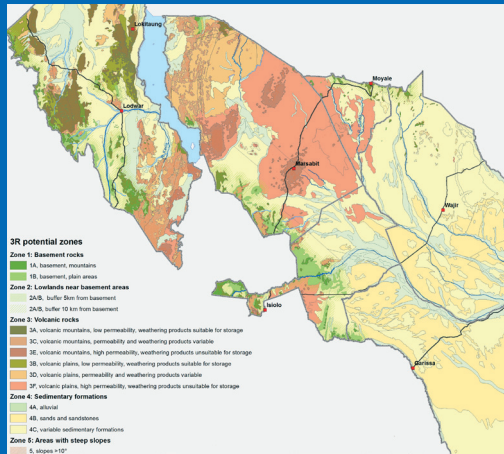
We would like to invite you to contact us and share your needs, so we can contribute to your challenges. Furthermore, we actively seek program partners, funds for up-scaling and support for networking and promotion.



3R example: Sand dams, these are small scale dams that capture sediment and water during the wet season, thus creating groundwater storage in the newly created aquifer behind the dam.

3R Example: Kenya Arid Lands Disaster Risk Reduction program

Dutch partners, including 3R, contribute to a large drought resilience program of the US Millennium Water Alliance (MWA). We cooperate with local implementing organizations to improve access to WASH and build resilience to climate change for at least 160,000 people in the arid lands in the north of Kenya. The project realizes small scale water buffering interventions like pans and sand dams, located in Marsabit, Isiolo, Wajir, Garissa and Turkana.



Our results offer a framework to inspire and select cost-effective, sustainable water solutions. The results contribute to improve current practices and form a basis for an integrated water supply strategy.



Sometimes
you're standing
on a solution
without even
knowing it...

www.bebuffered.com

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International Groundwater Resources Assessment Centre

