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We would like to thank
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Sand dams: the most cost-effective method of rainwater harvesting in drylands

 **Excellent** | Pioneers of Sand Dams

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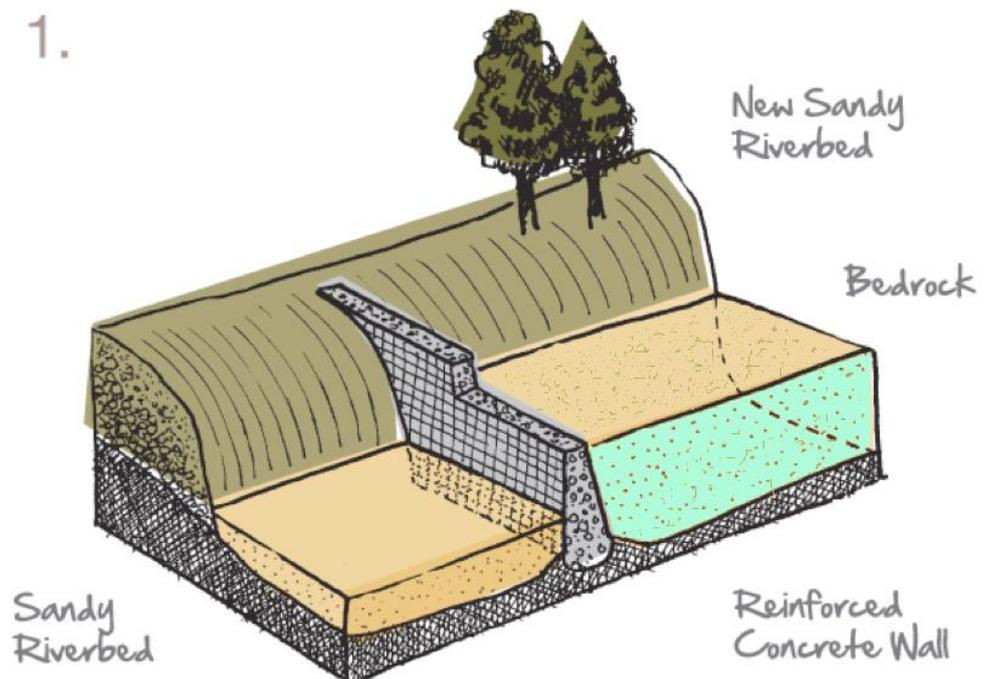
Summary

In drylands, rainfall occurs in just one or two short, intense seasons. Because the land is so dry, when rain does fall, up to 85% is simply lost to the oceans as run-off. Capturing this water where it falls is essential for improving environments and livelihoods. Sand dams are by far the cheapest way of doing this. Excellent believes that sand dams will transform millions of lives.

Objective :

Sand dams are the most cost-effective method of rainwater harvesting in drylands – home to 80% of the world's poorest people. They provide clean water for life and the opportunity to grow more food to eat, store and sell. Excellent Development's goal is to enable millions of the world's poorest people to transform their lives through sand dams.

Methodology :



A sand dam is a reinforced rubble cement wall built across a seasonal sandy river.

During the rainy season, a seasonal river forms that carries soil (made up of silt and sand) downstream. The heavier sand accumulates behind the dam, while the lighter silt is carried downstream.

Within one to four rainy seasons, the dam completely fills with sand. But, up to 40% of the volume behind the dam is actually water, trapped in the spaces between the sand and protected from contamination and evaporation. Each rainy season the water stored behind the sand dam is replenished.

Sand dams have a range of abstraction methods, depending on the context in which they are applied:

- 1. Scoop holes:** Many dryland communities collect water from sand rivers using simple holes scooped in the sand. Sand dams permanently raise the water table, making water easily accessible from traditional scoop holes all year round.
- 2. Infiltration gallery connected to a pipe and/or tank.** Pipes built into the sand dam wall and connected to an infiltration gallery provide water 'on-tap' close to people's homes. Often these are also connected to a tank behind the dam which allows for water to be pumped for irrigation. An infiltration gallery is a horizontal pipe installed in the dam during construction. Holes are drilled into the pipe and it is covered with different grades of sand to allow water to filter into the pipe.
- 3. Infiltration gallery leading to a shallow well.** The infiltration gallery can also be connected to a shallow well in an adjacent river bank. Water can be abstracted using a bucket and rope, a hand pump or – if the water is to be used for irrigation or distribution to water kiosks – a mechanical pump.

Sand dams have no operational costs, require virtually zero maintenance and don't rely on complex technology.

Results :

- Sand dams provide a buffer against water scarcity in drought prone dryland regions.
- The water they contain raises the water table, turning the area into an oasis.
- *Excellent Development* has supported the construction of 372 sand dams with 111 self-help groups in SE Kenya.
- The sand dams bring a clean and reliable water source within 30 minutes of people's homes for over a quarter of a million people – saving women and children up to 12 hours a day to invest in farming and going to school.
- The communities we support are investing this time in climate-smart agricultural practices at an adoption rate that far exceeds the regional averages.
- With the time saved, people have dug over 1.4 million square metres of terraces in their land and planted over 872, 000 trees.

Sources :

Excellent Development – www.excellent.org.uk

Africa Sand Dam Foundation

<http://ccafs.cgiar.org/blog/bit-bit-east-african-smallholder-farmers-adapting-climate-change>