Technology Fact Sheet for Adaptation

 Technologies in the animal husbandry

B.5. Rain and snow water harvesting for herder groups [i]	
1. Introduction	Because of global warming and climate change, rainfall in summer is expected to decrease and winter precipitation increase. The decrease in summer rain will lead to drying of rivers and streams, lack of pasture water, and reduction of pasture biomass supply for animal forage. Rain and snow water harvesting is a particularly suitable technology for areas where there is limited surface water, or where groundwater is deep or inaccessible due to hard ground conditions. Therefore, snow and spring snow melt water can be used in animal husbandry.
2. Technology characteristics	Rain and snow water harvesting is defined as a method for inducing, collecting, storing and conserving local surface runoff (rain or surface water flow that occurs when soil is infiltrated to full capacity) for agriculture in arid and semi-arid regions[1]. For the Mongolian context, snow and rain water can be harvested in small scale reservoir near summer or spring camping sites and used for animal drinking. The catchment area is the area with deep snow accumulation or flash flood flow near herders' spring or summer sites. Water reservoirs can be established using rock surfaces or building dams. In order to prevent water leakage, plastic materials can be used and reservoir surfaces should be built properly using rocks and soils. Water storing devices can be improved through the use of tanks or locally available materials. Conveyance can be completed appropriately using traditional methods and materials from water reservoirs to animal drinking tanks. This will be used for animals drinking for spring and early summer when water resources are scarce. Maintenance is required for cleaning of dams and reservoir annually in autumn. It can be used for planting of forage for livestock too.
3. Country specific applicability and potential	In areas of high snow, water harvesting basins or reservoirs can be established in order to collect water of melting snow and use for animal drinking and growing forage plants. This technology can be introduced in the high mountains and the forest steppe zone. This technology is piloted, however there might be some challenges. For example, hot and dry weather and low precipitation can shorten water usage period due to high evaporation of collected water. Suitable locations should be identified based on surface relief, precipitation and other factors by researchers. This technology would require 3-5 years to be implemented.

[1] http://climatetechwiki.org/content/rainwater-harvesting

4. Status of technology in country	This technology is widely used and accepted in other countries. Also the technology has been piloted in *Khuvsgul, Arkhangai, Bulgan and Khentii aimags* with the support of the International Fund for Agriculture Development.
5. Benefits and impact on the country development ✓ Economic (- Job creation; - Investment) ✓ Social (- Income generation; - Education; - Health) ✓ Environmental	Herders in vast areas can benefit from the technology. One reservoir can be used by 2-3 herding families or a herders group for animal drinking water and watering small scale fields of animal forage and hay. Building and maintenance of water harvesting system would create new jobs at local level. Techniques and equipments are not required to be procured from abroad. Resources within the country can be used. This technology will support herders to increase their income and improve their livelihoods. Herders will gain experience and skills to establish water reservoirs in dry areas. Pasture management can be improved and ecosystem degradation would be reduced.
6. Climate change adaptation benefits	This is an appropriate adaptation technology when water resources are diminishing due to climate change. In the context of high variability of seasonal precipitation, it can enhance crop yields, livestock production and other forms of agriculture.
7. Financial Requirements and Costs	One reservoir requires about 20,000-40,000 USD depending on accessibility and remoteness of sites. 80% of cost could be paid by international agencies or state funding and 20% by herder groups. If 100 reservoirs are established in a year, about 2.3 million USD would be required.
8. Institutional requirements	Initially, professional support is needed to identify appropriate locations and construction work. Capacity building is necessary at local levels. Once local people gain experience and skills, they will be able to run it themselves.

[i] **This fact sheet has been extracted from TNA Report – Technology Needs Assessment For Climate Change Adaptation– Mongolia. You can access the complete report from the TNA project website http://tech-action.org/**