

A Memoir of Kassala, Sudan <Part 3>

Sorghum cultivation by pastoralists using water harvesting techniques

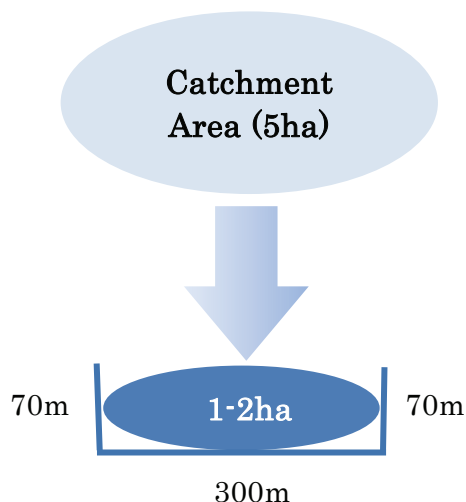
The climate in Sudan becomes drier when we move from the south to the north. Kassala State, which is located at the latitude belt of the Sahel's eastern edge, follows this same trend. The annual precipitation of 400 to 500mm in the south gradually decreases as it enters an arid area in the north (less than 100mm) adjoining the Egyptian border. Agriculture in Kassala State yields various products by combining different types of agriculture such as horticulture by pumping irrigation, mechanized rain-fed farming, and gravity type irrigation farming, which all benefit from the two rivers of Atbarah and Gash. See AAINews No.73 for more details. The majority of farmland in Kassala State is occupied by sorghum rain-fed farming on semi-arid area. Moreover, unstable sorghum production at the cultivation limit with scarce rainfall (150-250mm) is handled by a pastoral people. This time, we would like to introduce traditional water harvesting techniques practiced by pastoral sorghum growing people living in the eastern area of Atbarah River in Kassala State.

We have in the past observed various livelihood activities by pastoral peoples in Syria, Palestine, and Mongolia, and found their 'farming' styles were quite simple. Needless to say, the pastoral people's livelihood basis is livestock farming, and agriculture is only supplementary to this. Even when they engage in farming, they tend to save labor for agriculture by wage labor work or sowing seeds without tilling so that farm work is kept to a minimum.



Jidah made to collect water and
a ridge partly damaged by a strong water flow

In the case of the pastoral people in the eastern area of Atbarah River we see a different approach. They have elaborated on the usual sorghum farming and have taken the technology one step further than some others. The sorghum fields are on very gentle slopes that almost look level, and the people build U-shaped field with ridges (20-30cm in height, covering land tracts of 1-2ha), which are called 'Jidah' in the local language, so that they can pool water flowing from upstream rainwater catchment area (two to five times bigger than the size of the U-shaped field) (please refer to the figure).



Schematic drawing of a traditional water 'Jidah' catchment system

The purpose of 'Jidah' is to stabilize sorghum production by supplementing an insufficient absolute quantity of water by utilizing water in the soil collected through rainwater catchment. The system might look simple, but it is quite hard work to make ridges manually using simple farming equipment such as shovels and hoes. Also, the force of water during the rainy season is sometimes so strong that 'Jidah' often get destroyed by the water flow. When it rains, the pastoral people frequently stay up all night and repair damaged 'Jidah'. Although the work is limited to a short period during the rainy season (June to August) each year, it is very interesting to see that the pastoral people allocate such a volume of time and labor for farming. Varieties of sorghum, such as Fatalita and Halirai, cultivated by the pastoral people usually grow tall and are strongly resistant to drought. They are cultivated not only for grains but also for stems and leaves that are used as livestock fodder. This selection of the hardy variety can be also recognized as traditional knowledge to adapt to the harsh natural environment of semi-arid area.

However, even after constructing 'Jidah', the annual yield becomes zero when the rainfall is extremely small or rainfall is erratic and unpredictable. Rainwater harvesting is fragile and comes with a harsh reality. The pastoral people must sell their livestock and conduct migrant work in towns if there is no harvest.



Sorghum cultivated in 'Jidah' and a scene of weeding