Rainwater Harvesting

Relevance for climate change adaptation

The majority of global coffee production is rain fed. Optimal conditions for Arabica coffee include 1500 to 2000ml of rainfall per year, for Robusta coffee around 1500ml. Looking at future climate predictions for Brazil especially the northern part of the country expects a decrease in precipitation. For the whole country an increase in temperature and more hot days and nights are predicted. Thereby increased evapotranspiration and resulting water deficiency are expected. Coupled with a projected rising number of extreme weather events water availability throughout the year will be an intensified challenge for future coffee production in Brazil. Especially coffee production in the states of São Paolo and Minas Gerais is expected to suffer from climate change impacts such as water shortage and excessive heat. Both will foster water stress in coffee plants impacting on photosynthesis and ultimately on coffee quantity and quality.

One option to prepare for water deficiencies during some periods of the year is rainwater harvesting.

Rainwater harvesting

There are several ways to harvest rainwater. One option is to channel surface runoff to a constructed pond in order to collect the water (*see also Adaptation Option: Controlling Surface Runoff*). For this measure, the pond needs to be located downhill of the coffee field to use gravity for directing the surface runoff accordingly.

Another option is rooftop rainwater harvesting, for example at the homestead, whereby rainwater is captured from the roof through the use of pipes and stored in reservoirs or tanks. A storage tank should be located lower than the roof to enable it to fill completely and it should not be located close to, for example, septic tanks, or other potential sources of contamination. Issues to consider for construction are an overflow pipe or a flexible cover as to allow for excess water to exit into a non-flooding area. If the water is also going to be used at household level, it is advisable to filter the water before use or to opt for closed systems as water tanks may create breeding grounds for larvae. Storage tanks should be accessible for cleaning and should be cleaned regularly.

Depending on available resources, space and the amount of water to be harvested local solutions for rainwater harvesting need to be found. The Brazilian Rainwater Catchment and Management Association (ABCMAC) based in Petrolina, Pernambuco State, offers further information and guidance.

Version: June 2012 I References: Ministry of Groundwater Resources Gov. of India 2012, Baker 2011; Pictures: Google Images, Baker 2011