3R/MUS approach

One of the tools in the Hydrological Toolbox to make the 3R and MUS approaches more practicable. It provides a spreadsheet based framework to determine the number of strategic interventions up to parish/village level required to bridge the calculated water gap. Based on MUS and RIDA, the tool assesses the resources and infrastructure on the one hand, and water demand and access on the other. Acquired information should then be verified with 3R and deep groundwater potential maps to determine the locally most suitable intervention opportunities. This should always be followed by an on-the-ground field assessment of the selected site(s). In this way the 3R and MUS-based tool contributes to well-informed decision making, strategic planning and a sustainable investment of water source interventions.

MUS

MUS stands for Multiple Use water Services. It takes water demand as the starting point for an assessment of the needed quantity, quality and distance of the water supply. The ‘Use’ is seen as different purposes: for example, drinking, cooking, and bathing.

3R

The 3R approach stands for ‘Retention, Recharge and Reuse of water’, which aims to store water when it is plentiful. 3R technologies are often low-cost, making use of natural available materials, whilst the implementation of multiple, cascading interventions will increase water storage efficiency in a larger area.

Knowledge transfer and dissemination

The tools will assist the counties to design the governance framework. The county government will be strengthened by providing a combination of a policy framework data and tools. All recommendations are based on 3R and deep groundwater potential, MUS and IWRM to increase their knowledge and capacity to make better, well-informed decisions. Eventually increased access to water for drinking, other domestic uses, livestock and other productive activities in a sustainable manner is the goal.
As experts in water resources management, Acacia Water provides specific knowledge and expertise as input for the Kenya RAPID program. Analyses on water availability, resources, potential for water buffering, important biophysical landscape aspects, and demand result in hands-on interventions to increase access to WASH and MUS services. Our studies cover an important knowledge base, including applicable and feasible interventions and serve as building blocks for county-specific policy planning. Detailed assessments of the current and future water balance of available resources and demand, will be carried out for each county. Eventually increased access to water for drinking, other domestic uses, livestock and other productive activities in a sustainable manner is the goal. By combining technical knowledge and policy making more sustainable investments can be made to generate a broad range of health and livelihood benefits.

Water as basic human right

In 2010 the ‘New Constitution of Kenya’ passed, which recognises access to safe water is a basic human right. It states that every person has the right to reasonable standards of sanitation and assigns the responsibility for water supply and sanitation provision to the county government. In 2013 the major institutional reform of Kenya’s political system started. Devolution of authority and resources from the national government to newly elected county governments is an important aspect of this reform. Our hydrological approach assists to make fully informed and county specific decisions.

Devolution of water policy

As the county government is responsible to undertake the water-related challenges and for providing sustainable provision of water and pastures they need both strong policies and stewardship to increase the access to WASH services. Acacia Water strengthens both the policy and stewardship by using its ‘Hydrological Toolbox’ to make the concepts applicable for county specific water resources plans. Examples of modules within the Toolbox are:

- Technical backstopping;
- The county narratives;
- The Water Resource Intervention Potential Map;
- The Water Gap assessment tool

Of high concern is the temporal and spatial variability of the current available water resources. Due to climate change the occurrence of flooding, more erratic rainfall and increased water demand, results in water shortages. Gaining more insight at grass root level is therefore of high importance, especially for those areas with high water and pasture demand, and where multiple water users come together. All this information on assist the county government in making strong, decentralized, water policy.

Water Resources Mapping

The resources in the five project counties in Northern Kenya are ultimately all dependent on rainfall. More than 90% (71,000 Mm³/year) of this annual available water is taken up by soil moisture, vegetation and evapotranspiration. Overland flow and infiltration to shallow groundwater constitutes another 9%. Recharge to deeper groundwater accounts for less than 1%, making it a relatively small resource for sustainable groundwater abstraction. Confined aquifers and inflow is another significant, but external resource, which adds approximately 15,000 Mm³ of water per year (nearly 20% of total available water). Improved insights on this balance narrows down possibilities of difficulties water resources development and management.

Implementation of the Hydrological Toolbox

Balancing water availability and demand is the key method to provide sustainable use of water. By using the RIDA methodology an ‘on the ground application’ of Integrated Water Resources Management is possible. RIDA stands for an integrated approach to assess resources and infrastructure versus demand and access. The Resources and Infrastructure management areas. Increased capacity is developed by giving trainings to the local partners and counties on the principles of Integrated Water Resource Management (IWRM), 3R and Multiple Use of Water Systems (MUS). In this way these principles will be integrated in well-established decision making on resilient interventions and techniques by both counties and NGOs.

Working towards an applicable Governance Framework

The overall goal is to support improved decision making for the planning of exploitation new resources which increases the access to sustainable water for domestic uses, livestock and agriculture. Existing data and documents, base maps, GIS data, the biophysical landscape information, and resource and demand figures are compiled in a central database. The database will serve as the basis for further evaluations of the potential of specific interventions in the current Kenya-RAPID program.

Devolution responsibility of water supply access asks for this detailed information about both water demand and access on county level. The studies and analyses on e.g. biophysical landscape information, precipitation and resource figures function as an important and detailed based for interventions by the county government. The way in which the county government use the data in the decision making process is the input for the governance framework.

Acacia Water provides technical backstopping to the partners by giving feedback on proposed or selected interventions including reviewing the decision making process getting to these interventions. Herewith the available knowledge is applied in the governance framework.