

## Rehabilitation and Management of Salt-affected Soils to Improve Agricultural Productivity (RAMSAP)

Completed



### Duration

17 December 2015 - 31 December 2021



### Beneficiaries

More than 50,000 farmers benefited directly from the project. The produce by these farmers would indirectly benefit 250,000 people.



### Objectives

The project aimed to develop strategies and approaches for rehabilitating and managing salt-affected soils to improve agricultural productivity and livelihoods of rural poor in Ethiopia and South Sudan.



### SDGs



### Countries

Ethiopia, South Sudan



### Funders

International Fund for Agricultural Development (IFAD)



### Funding

2,000,000 USD



The cultivation of halophytic forages, integrated with livestock and appropriate management systems, can bring salt-affected soils back into production.

**methods**, including the planting of **halophytic forages, integrated with livestock and appropriate management systems**, could bring saline soils back into production.

### Activities

Under the project, a **comprehensive baseline survey** was conducted in the target areas of Ethiopia and South Sudan to collect data on the socio-economic characteristics of farmers and their perceptions about salt-affected lands and crop productivity, and suggestions for improvement. After that, the **soil classification and spatial distribution of surface soil salinity** was mapped using GIS tools. The **soil salinity maps**, combined with socio-economics data, were used to select appropriate areas for scaling up **salt-tolerant food and feed crops** in different regions in consultation with local partners.

The project team identified current irrigation practices in both countries with a specific focus on interventions causing and aggravating soil salinity, and recommended sustainable irrigation management.

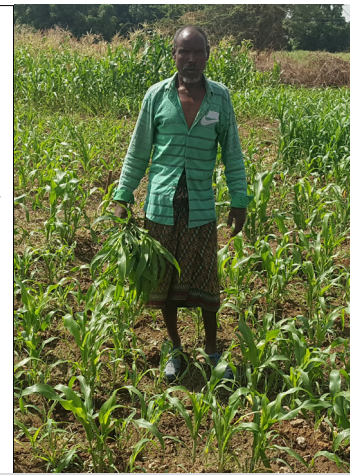
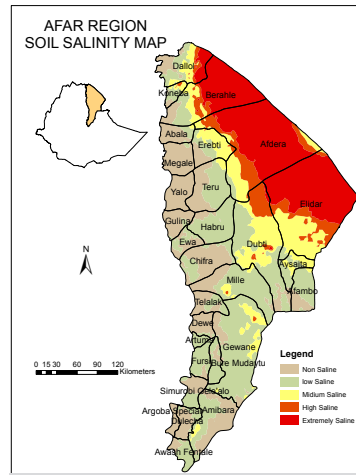
The project **introduced and tested more than 25 genotypes of different food and fodder crops and shrubs** that produce excellent biomass yield under high soil salinity levels where no output is expected from cultivating other field crops. They included sorghum, barley, cowpea, lablab, and three forages (Rhodes grass, blue panicum, and Cinchrus ciliaris).

### Background

**Increasing salinity** remains a challenge to the sustainability of irrigated agriculture in Ethiopia and South Sudan, and the situation is expected to exacerbate further due to climate change-induced factors. Land degradation happens in many different forms and is considered one of the major causes for **low agricultural productivity**. Restoration of salt-affected lands into productive lands and protection of newly developed areas from the spread of salinity is therefore of paramount importance. In highly salinized areas, where technical solutions to soil rehabilitation are expensive and time-consuming and growth of traditional field crops is restricted, use of **bio-remediation**



The project introduced and tested over 25 genotypes of different food and fodder crops and shrubs that produce excellent biomass.



Soil salinity maps, combined with socioeconomic data, were used to select appropriate areas for scaling up salt-tolerant food and feed crops in different regions.

Seed multiplication units were established in Ethiopia and South Sudan to produce seeds of different crops for distribution among farmers as a scaling-up strategy. **About 35 tonnes of seed** were distributed to **more than 50,000 farmers**.

The seed produced by these farmers would indirectly **benefit 250,000 people covering more than 100,000 ha of land**. All the seed recipient farmers agreed to provide seed to their neighboring farmers for further multiplication. The ministries of agriculture in both countries committed to supervising seed distribution after the formal termination of the RAMSAP project.

Over the course of the project, **22 training courses** were organized for farmers and extension workers. These training courses were attended by **1,500 participants** and covered a wide range of topics related to different aspects of the rehabilitation and management of salt-affected soils such as soil and water analysis, crop management, water management, scaling-up strategies, seed multiplication and production. Farmer field days were organized regularly to demonstrate newly introduced technologies to farmers from the target areas. The participating farmers were trained in sowing, weeding, and irrigation practices.

In addition to the training courses, workshops and farmer field days, manuals for the farmers and extension workers were prepared and distributed in English and local languages. The project achievements were also highlighted in local and international media to reach a wider audience. A total of 16 papers and book chapters were published in peer-reviewed publications to share the scientific outcomes of the project.

## Outcomes

The main outcomes of the project include:

- Introduction of salt-resistant crops and best management practices in both countries;
- Enhanced skills of farmers and extension services to cope with soil salinity;

- Improved and sustained farm productivity, stability in crop yields, increased farm return of salt-affected farming communities;
- Inclusion of rehabilitation and management of salt-affected lands in the national policy and development agenda.

## Future Directions

Considering the importance of soil salinity, ICBA and the Ministry of Agriculture in Ethiopia developed a joint proposal for the second phase of this project to extend the successful work to other potential areas in the country. Through common efforts, a GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit) grant was secured for the second phase.

Although the project made significant progress in the target areas, challenges to large-scale adoption of the recommended technologies remain. Many farmers still have limited awareness and information about the causes of salinity on their farms, which results in a limited ability to take appropriate measures: there is a need to provide continued capacity development on salinity management to extension workers and farmers. The supply of good quality fodder seed is another significant challenge affecting pastoralist communities that ICBA aims to resolve in the future. Improving drainage systems and on-farm water management are also key directions for future interventions.

ICBA will continue supporting national efforts to address soil salinization and increase agricultural production through science and innovation. It will also mobilize partners to join in these efforts.

### About ICBA

The International Center for Biosaline Agriculture (ICBA) is a unique applied agricultural research center in the world with a focus on marginal areas where an estimated 1.7 billion people live. It identifies, tests and introduces resource-efficient, climate-smart crops and technologies that are best suited to different regions affected by salinity, water scarcity and drought. Through its work, ICBA helps to improve food security and livelihoods for some of the poorest rural communities around the world.