



# Innovative agriculture, livestock and natural resource management in Somalia

Gender-sensitive approaches promoted by the Rome-based Agencies Resilience Initiative

## Context

From 2017 to 2023, the United Nations Rome-based agencies (RBA) – the Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural Development (IFAD) and the World Food Programme (WFP) – implemented a joint initiative funded by Canada aimed at strengthening resilience for food security and nutrition in the Democratic Republic of the Congo, the Niger and Somalia (FAO, IFAD and WFP, 2018). This joint programme aimed to bridge humanitarian and development objectives and meet immediate food needs while sustainably increasing food security in regions affected by protracted and recurrent crises, with a specific focus on vulnerable women and children.

In Somalia, the joint RBA initiative combined FAO's productive sectors elements (water infrastructure, crops, livestock and natural resource management) with WFP's activities focusing on nutrition support services for malnourished populations, behaviour change and incentives on expanding household diet diversity, knowledge on breastfeeding and complementary feeding among women as well as the provision of nutrition services to prevent diseases. The initiative targeted the same beneficiaries for the entire project's duration with the intention of enhancing nutritious food availability and access as well as increasing income through safety nets, whilst strengthening the capacity of women, communities and local authorities in decision-making and management of natural resources.

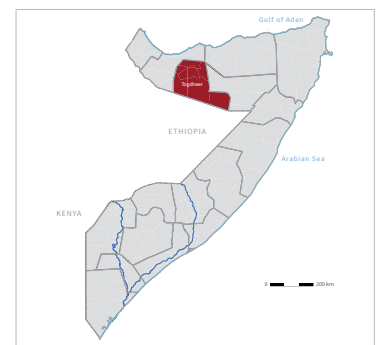
The objective of this good practice is to present the RBA initiative in Somalia and its resilience-building layering and sequencing model of multisectoral interventions, built around traditional and alternative livelihood pathways including kitchen and market gardens, beekeeping husbandry, *Prosopis juliflora* processing into alternative livestock feed and charcoal as well as natural resource management.

## Key facts



### Geographical coverage

Burco and Odweyne districts in Togdheer region, Somaliland



Source: United Nations. 2011. *Map of Somalia*. [Cited 17 July 2023.] <https://www.un.org/geospatial/content/somalia>



### Target beneficiaries

2 600 beneficiaries annually in  
18 villages



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## Background

Since 2017, Somalia has faced a combination of challenges that severely impacted the country. Drought conditions, desert locust infestation, the socioeconomic effects of the COVID-19 pandemic, and political instability. These challenges had significant consequences for the agriculture sector, leading to poor cereal harvests and livestock production. As a result, there was a decline in food availability, income, and purchasing power for households. The impact of these factors led to acute food insecurity, affecting 7.2 million people, with 3.5 million in crisis or worse (Integrated Food Security Phase Classification [IPC] Phase 3 and above). Global acute malnutrition remained serious, affecting 13 percent of the population, and nearly 1.2 million children under 5 years of age faced acute malnutrition (RBA, 2021).

The lives and livelihoods of the communities of Burco and Odweyne districts in the Togdheer region of Somaliland have been extremely affected by the 2017 drought which triggered famine conditions. The region has an estimated population of about one million people. In Burco district, approximately 75 percent of the population reside in urban areas while 22 percent engage in nomadic pastoralism and the other 3 percent practice agropastoralism. Livelihoods are primarily based on livestock rearing, with some small-scale farming and petty trade. In 2017, the number of internally displaced pastoralists reached an all-time high. These pastoralists made the difficult decision to reduce their livestock husbandry or abandon their alternate livestock-based livelihoods. This had a significant impact on pastoral communities and the urban poor who rely on these activities for their sustenance.



## Methodology

The RBA Resilience Initiative in Somalia followed a layering and sequencing model of multisectoral interventions to boost people's resilience to shocks. With support from FAO and WFP, participants engaged in livelihood activities, and formed producer groups across traditional and alternative pathways to increase supplies and enhance their markets. While the traditional pathways focused on agriculture and fodder production, the alternative pathways included activities related to kitchen and market gardens, beekeeping husbandry, processing of *Prosopis juliflora* to make fodder and charcoal production as well as natural resource management. In addition, communities rehabilitated community assets by desilting and expanding water catchments, rehabilitating rangelands, and feeder roads. Beneficiaries were also trained on and formed joint savings and loans associations marking the completion of the expected livelihood pathway programme.

The alternative livelihood pathways included:

### 1. Kitchen and market gardens

Women beneficiaries received training and inputs to establish home gardens with the aim of obtaining home grown nutritious fruits and vegetables, as well as extra income to augment their household incomes from the traditional pastoral system while also producing vegetables and nutritious fruits at the household level. Market gardens groups were allocated plots of land for communal women-led market gardens authorized by the local authorities and supported by the regional ministry of agriculture. Market garden groups in Burco and Odweyne were also supported with inputs (hand tools, vegetable seeds and fruit trees) and trainings on improved farming techniques for agriculture production and crop diversification for improved food security.

Trainings involved 263 female-headed households in seven villages for three days per village and focused on market garden set-up for income generation, land preparation, perma-gardening, harvest and post harvest disaster risk management and integrated pest management. Practical sessions enabled the households to practice: compost making, set-up of seed beds and seedling nurseries, drip irrigation (fixing, use and maintenance), plot layout and crop alignment, as well as pest and disease management. Two school gardens were established in Burco district and supported with inputs such as hand tools and vegetable seeds as well as trainings thus creating a source of nutritious food and income. The trainings focused on

garden management, agronomic practices for good crop production, farming practices for growing safe vegetables without the use of chemical pesticides, integrated pest management, water use/conservation and harvest/post-harvest management.

## 2. *Prosopis juliflora* processing into alternative livestock feed and charcoal

*Prosopis* is a thorny, dominant and thirsty tree species that has invaded the main grazing areas in many countries in the Horn of Africa, posing a major threat to rural livelihoods. Widespread planting of *Prosopis* in Somalia took place in the 1980s as a response to deforestation during and after the Ethio-Somali war and subsequent droughts. Since then, it has spread vigorously, invading at least 550 000 hectares (ha) in Somaliland alone (FAO, 2020). Yet, by controlling its harmful effects and diversifying local incomes, communities and local economies become less vulnerable to climate-related disasters in contexts where severe drought episodes are recurrent. The sustainable management of *Prosopis* can help pastoralists, agropastoralists and dryland farmers adapt to climate change through the processing of drought-resistant *Prosopis* tree parts into a variety of products, while enabling local groups, focusing on women and youth, to establish a range of commercial activities – from pod collection and milling to charcoal and feed production – that are profitable and self-sustaining.

In 2020, FAO introduced a pilot activity to control the invasive species around farms in Beerato and Xaaxi villages in Odweyne district and *Prosopis juliflora* was used as a sustainable source of charcoal and biochar production technology. From January to March 2020, 120 households were engaged in cash for work to collect *Prosopis juliflora* pods and collected a total of 12 tonnes. The households were paid USD 65 for ten 50 kg sized bags of dry pods collected per month for a total of three months. In November 2020, 2 000 gunny bags and 5 fodder machines were distributed to Beerato village. The production of the livestock feed processing centre was connected to local dairy farmers and livestock feed importers resulting in the supply of 15 tonnes of *Prosopis juliflora*-based livestock feed in Togdheer region which was sold to dairy farmers and commercial livestock owners.

Community members were trained on *Prosopis juliflora* based livestock feed formulation and the key topics covered were: feed formulas for different production purposes, feed mixing, feed packaging and labelling, feed storage and the impact of improper feed storage. The aim was to utilize *Prosopis juliflora* pods as an alternative fodder source to improve household fodder availability and drought preparedness for enhanced survival of livestock and income diversification.

This practice also reversed land degradation through systematic regrowth and management of trees and shrubs on farmlands and on grazing lands requiring minimal external inputs and expensive equipment.

## 3. Beekeeping husbandry

Communities were introduced to beekeeping as an income-generating activity provided with beekeeping inputs (beehives, honey harvesting gears, fencing and water tans for community apiaries) and training (setting apiaries, clean





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honey harvesting and processing) to improve honey production, value-added products and income diversification. Fourteen beekeeping groups were trained in beekeeping and apiary management. Examples of routine technical support provided included apiary setting, routine apiary inspection procedures, honey harvesting techniques and honey processing to achieve production of pure, natural and clean honey.

The community of Boodley in Buroa district reported that “the beekeeping intervention enhanced the practical knowledge and behaviour of the targeted beneficiaries as well as the others. The community engaged to increase their production and have alternative sources of income other than the livestock. Currently, some of the members are continually producing the honey from the established beekeeping farm. Although the majority of the bees migrated and the reason is unknown or may be scarcity of water” (FAO, 2021).

#### 4. Natural resource management

Communities were supported in the implementation of plans for natural resource conservation and management including tree planting and re-seeding and building soil erosion structures. **FAO supported natural resource conservation and management through the establishment of farmer-managed natural regeneration.** Eighteen dry season rangeland reserve areas were set up – one in each of the targeted villages – covering 100 ha per reserve area with bylaws developed by the communities to govern access and management of these reserves. This included the provision of natural resource management committees with training on participatory natural resource management techniques to protect and manage the natural regeneration of rangelands while addressing land degradation, soil infertility, soil erosion, biodiversity loss, food insecurity, fuel wood and fodder shortages. FAO also provided training on tree nursery establishment and management as well as techniques on how to produce tree seedlings (shade, fodder, and fruit trees) to reverse land degradation and restore vegetation as well as diversify livelihoods to increase availability of fodder, pasture and fuel wood.

### Partnering with national universities

The University of Burao’s Faculty of Agriculture and Environmental Science implemented a technical supervision and training strategy focused on food security and nutrition. The University team significantly contributed to the development of an effective framework for the empowerment of local communities in the production of fodder, honey and vegetables for market and kitchen garden groups. Students were providing training to the beneficiaries under the supervision of their professors.

Farmers showed effective participation in attendance at different thematic training activities, involvement in association affairs, being able to solve emerging problems among associations, and mandatory participation in field work. Being involved in capacity development activities with national universities has a positive influence on farmers’ attitudes, aspirations and motivation, which can lead them to adopt technologies in the farm industry and produce food for their families.



## Impact and results

**Kitchen and market gardens increased availability and equitable access to nutritious, diversified and stable food supply**, especially for women and children around their homesteads. They also allowed to diversify income and strengthen resilience of women in Burco and Odweyne districts. Seven market gardens and 605 kitchen gardens were established in Boodhley, Ceelxume, Beerato, Xaaxi and Qalooqato in Odweyne district and Boodhley, Kalbare, Nasiye and Harada villages. After the successful completion of the trainings on market gardening, the targeted households were able to apply market gardening as a business, irrigation techniques, soil and water conservation, crop calendar and requirements as well as control of pests and diseases.

**Preliminary on-farm livestock feeding trials demonstrated increased milk yield by lactating camels and improved growth by goats fed on the *Prosopis juliflora*-based feed.** This indicates the potential for replacing expensive imported concentrated animal feed. In the pilot on the collection, drying and processing of *Prosopis juliflora* into an alternative source of animal feed more than 41 tonnes of pods were processed into animal feed in 2020. In 2021, the processing of the *Prosopis juliflora* pods production was scaled up into value-added products through an in-depth evaluation of the actual nutritional value of the *Prosopis*-based feed through chemical analysis and long-term feeding trials. There is the potential for a collaboration with local universities through student scholarships for the participation in feeding trials at the institution or more controlled farm-based trials.

**Villages involved in the RBA initiative have shown high adaptability to beekeeping and target households improved their income and nutritional availability by producing honey.** Dedicated capacity development activities involved 327 households who were trained on the importance of beekeeping as an enterprise as well as on apiary siting, seasonal beekeeping calendar management, colonization rate and division of colonies, routine inspection of hives, bee feeding during drought and management of bee predators..

**Communities were provided with energy-efficient options to conserve forest resources and fuel wood, including energy efficient stoves.** Trainings were provided to 64 natural resource management committee members from 2 villages (Xaaxi and Beerato) in Odweyne district and focused on improved charcoal production technologies utilizing *Prosopis juliflora*, cook stove repairs and the formation of 2 charcoal producer associations. Additional activities

included the distribution of 480 energy saving cook stoves as well as trainings on safe access for fuel and energy trainings for natural resource management committee members in 18 target villages.

### **Prosopis management: a success story**

In Beerato village of Odweyne district, the fodder production and commercialization of *Prosopis* has improved to a competitive level. This means that the locally produced outperformed compared to imported fodder. After the community received fodder machines and young farmer technicians were trained for the processing and production of the fodder, it soon became a highly profitable business and attracted more consumers for their fodder products. Most importantly, the camel dairy farmers around Burao district requested thousands of kilogrammes of *Prosopis* buds to feed their lactating camel. This was achieved after the village committees ordered the collection of the *Prosopis* buds, that they processed, grinded and mixed with maize and sorghum fiber.

They also started testing it by feeding it to a lactating cow. They first measured the amount of milk of the cow produced per day and its weight long before starting to feed the product. *“Remarkably, the average cow milk before*

*the feeding was 1.5 litres per day and after the feeding, the cow soon increased more weight and the average amount of produced milk was 3.5 litres of milk in one milking time with improved animal body appearance”*, said Mr Abdillahi Abdi Hasan, beneficiary from Beerato village. During focus group discussions, Beerato respondents reported that they can sell in the town at USD 10 per bag when it unprocessed. In addition, after it is processed and grinded, they can sell it at USD 25 per bag.

This story shows that, the fodder production and commercialization of *Prosopis* has become a new source of household income; furthermore, it assisted Beerato farmers to clear the cooperative communal farmland for cultivation. So, the village elders trialed the *Prosopis* bud, the target beneficiaries improved fodder production, packaging and marketing, this created more income for a large part of the communities.





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## Key learning

**The RBA initiative in Somalia** leveraged activities from different agencies to benefit communities. This approach **brought complementarity across interventions and partners' comparative advantages to enhance communities in capacities reducing the risk of disaster, strengthening livelihoods, and building over time**. This has resulted in improved involvement and coordination among partners across multiple sectors and multiple line ministries in supporting the targeted communities.

**Market garden groups add value to existing production** (vegetables under drip irrigation) **and generate additional income for women in the groups**. The processing and sale of vegetables allow women's groups to market and sell production collectively in higher value markets. **Crop production, diversification and marketing** had a positive and significant effect on household food security status. Furthermore, it **improved household income by around 15 percent** (FAO, 2021). It is therefore important to improve and upscale the concept of crop diversification through the lessons learned, linking it with other programme activities like access to credit and livestock production. In addition, future programming should encourage group formation for learning, better access to markets and more bargaining power.

***Prosopis juliflora* pods have the potential to be a highly nutritious source of animal feed if mixed with other agricultural residues**. Creating markets and linkages for the *Prosopis juliflora*-based animal feeds with livestock farmers and fodder traders has stimulated demand hence assuring sustainability of animal feed processing activities and income diversification opportunities. For replicability purposes, it is advisable to source improved machines that grind *Prosopis* pods to a finer feed to reduce the regeneration of *Prosopis* shrubs in other areas that are not *Prosopis*-prone.



## Testimony



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*“I’m from Berato village. I’m the chairman of the Prosopis group. We used Prosopis as animal feed and we have benefited a lot: after we grind it we use some for our animals and we sell some. This is an invasive tree, which kills other trees growing nearby by taking away water and nutrition. Other trees cannot grow around it. However, it is nutritious for animals, such as donkeys and goats. The drought used to cause degradation and animals had nothing to eat. This drought has affected me personally. I used to own 100 goats, but now only 40 survive, and if the drought continues, these remaining goats will die. [...] Because of the severity of the drought, we started cutting Prosopis tree branches and then grinding them to make animal feed. This tree has a lot of benefits: it sustains many families who also use it as charcoal.”*

**Abdirahman Arab Abdullah**  
Chairman of a Prosopis group



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## Partners

### Resource partner

- Government of Canada

### Technical partners

- ActionAid International Somaliland
- Candle of Hope Foundation
- Horn of Africa Voluntary Youth Committee
- IFAD
- Ministry of Planning and National Development
- Ministry of Agriculture Development
- Ministry of Livestock and Fishery Development
- Ministry of Environment and Climate Change
- Ministry of Water and Resources Development
- Somaliland Agricultural Organization
- United Nations Children's Fund
- WFP
- World Vision Somalia
- University of Burao

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