

FOOD AND NUTRITION SECURITY IN MARSABIT AND TURKANA COUNTIES

A Collection of Lessons Learnt



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BACKGROUND

Geographical Context

Kenya's landscape consists of almost 80 percent drylands – the “Arid and Semi-Arid Lands” (ASAL). They are home to roughly 30 percent of Kenyans, to three quarters of the country's domestic ruminants and to most of its famous wildlife. Marsabit and Turkana are the two biggest counties in Kenya and entirely located in the ASAL. The climate in both counties is predominantly hot with low average rainfalls during two rainy seasons – the short rains, usually from October to December and the long rains, usually from March to May. However, since several years rainfalls are becoming increasingly erratic. Years with extreme weather are more frequent than in the past, fluctuating between widespread, devastating droughts and, albeit less frequently, localized floods. Marsabit and Turkana counties share most of Lake Turkana, the world's largest permanent alkaline lake that is a hotspot for migratory birds and rich in a variety of fish species that are increasingly exploited. Marsabit has no permanent surface of fresh



View of Lake Turkana

water, but three major mountainous areas with lower temperatures and higher average rainfalls (Mount Marsabit, Mount Kullal and the Huri Hills) that act as local water towers. The mostly perennial Turkwell and Kerio rivers flow through parts of Turkana and end up in the lake. In both counties, vast plains crisscrossed by hilly ranges and dry valleys, dominate the landscape. The natural vegetation consists mainly of thorny shrubs and trees, grasses, herbs, as well as various aloe species.

Deteriorating ecosystems and livelihoods lead to food insecurity and poor nutrition

The mainstay of more than three quarters of the population in both counties is livestock rearing based on seasonal and daily mobility which allows for making use of the fluctuating pasture areas and water sources. Since a few decades, the pastoralist economy is undergoing a structural crisis that translates into low livestock productivity and periodically high mortalities. The family herds suffer from prolonged hunger and undernutrition, as well as crowding around overexploited water points which make them more receptive to diseases. The combined effects of increasingly frequent extreme weather events, rapid expansion of infrastructure, indiscriminate deforestation and other changes in land and water use, often at the expense of migratory routes and crucial dry season pastures and water sources for both domestic and wild animals, have severely degraded the local ecosystems including the rangelands that are indispensable for the local livestock economy. Soil erosion is accelerating, water sources are drying up earlier in the year, and biodiversity is rapidly declining. Certain particularly appreciated, palatable grass and tree species have entirely disappeared near the settlement zones and can be found only in very remote areas. Strong population growth of both humans and their livestock, with no significant positive adaptations of the local husbandry practices to the changing environmental conditions has further exacerbated the pressure on the local ecosystems. This is most noticeable near the settlements where women, children and elderly people stay throughout the year so that they can benefit from basic public services, meanwhile young people move the bulk of the family herds to faraway dry season pastures. The few milking animals that stay with the families in the settlements can't produce enough

milk because the deteriorated near-by grass and tree pastures can't provide enough good quality fodder. The lack of milk in the dry season is a key factor for poor nutrition of small children and pregnant or lactating women, as well as the elderly.

The deterioration of the local ecosystems fuels the crisis of the local livelihoods and particularly affects the livestock economy built on free range grazing. The vulnerability of the rural population increases and so does the share of rural people that live in poverty and suffer from hunger and undernutrition. Periodical local conflicts, often over diminishing pasture and water sources exacerbate this trend. Food insecurity and malnutrition rates in both counties are among the highest in Kenya. Those who drop out of the livestock economy due to excessive animal mortalities, are forced to convert to less economically beneficial activities, such as crop production or fishing where possible, petty trade, paid labour and charcoal production that further drives environmental destruction.

Due to the crises of the livestock economy and the loss of biodiversity, most rural families have experienced a profound change in their diets during the last few decades. From animal-sourced, protein rich foods such as milk, blood and meat, complemented by intakes of micronutrients and fiber from wildy growing fruits, leaves, tubers and gums that they harvested in the forests and grasslands, they switched to nutrient-poor, processed and mainly starchy foods such as maize flour, white rice, pasta, sugar, refined cooking oil and dried beans that can be found for little money on local markets or that are distributed through food aid. Traditional foods are still sought after, but not frequently consumed, mainly due to their insufficient availability. The change in diets and the increased market dependence for food exacerbates malnutrition, mainly of women and children. On many rural markets fresh vegetables and fruits are rarely available, mostly of poor quality since sourced in faraway areas, and/or often too expensive for poor families. Both lack of nutrition knowledge related to the dietary changes and lack of regular access to enough nutritious food related to the combined ecosystems and livelihood crises, became key drivers of poor nutrition and food insecurity.



Deteriorating Ecosystems

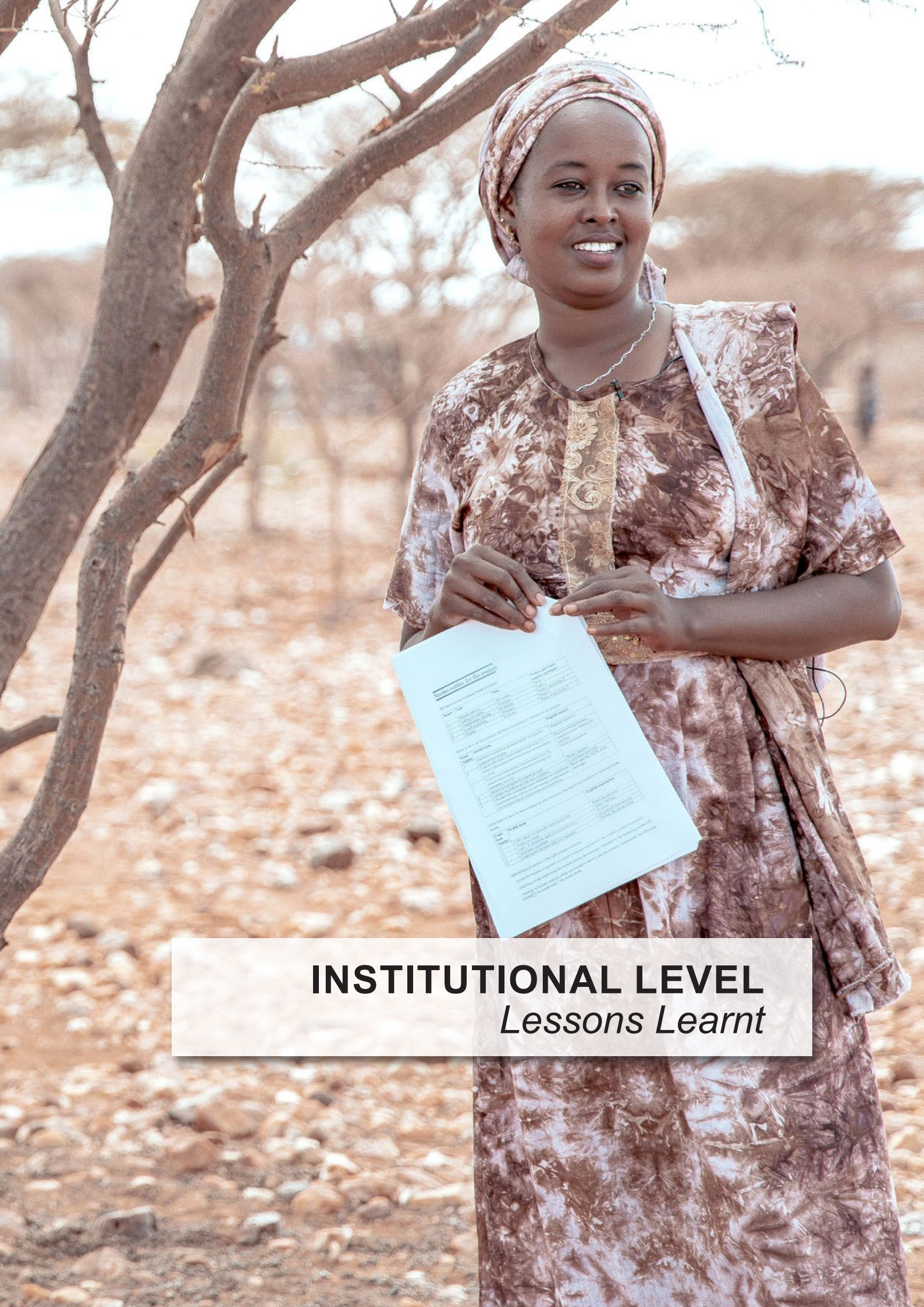
A response to food insecurity and poor nutrition – the Food and Nutrition Security project

The Food and Nutrition Security (FNS) project was funded by the German Ministry of Economic Cooperation and Development (BMZ) and implemented under the responsibility of the GIZ. It was part of a broader initiative of the BMZ called “One World No Hunger” and rolled out in 12 countries including Kenya. It started its activities in both Marsabit and Turkana counties in 2016 after a planning phase with both county governments and other key stakeholders in 2015. In Marsabit, the project was rolled out in three out of four sub-counties, in Turkana in six out of seven sub-counties. The expected outcome was “to improve the food and nutrition situation at household level of food and nutrition-insecure individuals, especially for women of childbearing age (15-49 years) and young children (0-23 months).” It was agreed that the FNS project is to focus on the underlying, structural causes of malnutrition, rather than on its immediate causes and symptoms. It was also agreed that food insecurity and malnutrition are to be tackled at both the institutional and at the household/community levels.

At the **institutional level**, the promotion of nutrition-sensitive, multisectoral approaches to address food and nutrition security was at the core of the FNS project's engagements. Such approaches require joint planning and coordinated action for a common goal of a variety of technical sectors including agriculture (crops, livestock and fishery), health and nutrition among others. For that purpose, the project supported the initiative of the national Ministry of Agriculture, Livestock, Fishery and Cooperatives (MoALFC) to develop the Kenya Agri-Nutrition Strategy, spearheaded by the Agri-Nutrition Unit of the MoALFC that absorbed the former Home Economics Department in the course of the restructuring of the MoALFC in February 2017. In both counties, the FNS project advocated for nutrition-sensitivity in the main county planning documents including the County Integrated Development Plan (CIDP, 2018 – 2022) and supported the establishment of Multi-Sector Platforms on Nutrition (MSP) in close collaboration with other development partners and the key institutional actors of the counties. The MSPs are linked to the Scaling Up Nutrition (SUN) movement with which the project also cooperated. The purpose of the MSPs is to promote and to coach joint planning as well as coordinated action of all county sector institutions that are required to contribute to effectively addressing the structural causes of malnutrition and food insecurity with a long-term perspective. Moreover, the project supported the development of the County Nutrition Action Plans (CNAP, 2019-2023) in Turkana and in Marsabit (CNAP, 2018-2022).

At the **household/community level**, the FNS project worked with implementing partners, namely Save the Children International (SCI), Food for the Hungry Kenya (FHK), World Vision Kenya (WVK), Welthungerhilfe (WHH), as well as the Northern Rangeland Trust (NRT). They closely cooperated with the respective technical county departments and institutions and were supported by the FNS project team and by consultants. Promoting basic nutrition education and strengthening of the counties' capacities to deliver it, as well as enabling rural women and their families to consume more nutritious food was at the core of the FNS project's engagements. Continuous nutrition education of more than 9,500 rural women in both counties benefitting more than 50'000 people was delivered by county Health staffs and Community Health Volunteers (CHV). They had been trained in Mother Infant and Young Child Nutrition (MIYCN) by certified Master Trainers of the national Ministry of Health (MoH) with the support of the project. Furthermore, the project supported a variety of livelihood activities chosen by the women to enable them to regularly consume nutritious food, namely establishing home gardens, improving husbandry practices of goats for milk in the dry season and of hens for eggs, improving the management of native trees, shrubs and grasses for wild food and for fodder in the settlement areas, as well as establishing savings and loan groups to increase the women's cash income to buy nutritious food. Staffs of the concerned technical county departments were trained in nutrition-sensitive approaches and supported to train and to follow up the women in the management of the respective livelihood activities.

Under the **knowledge management** component of the FNS project, a variety of documents were developed to support learning, including a set of six posters adapted to the local contexts for use by the MIYCN trainers and the CHV during community sessions, a set of four, respectively five comic books related to MIYCN subjects for use by the women and their school age children, as well as a pictorial handbook to guide rural women in nutrition-sensitive home gardening. Four nutrition-sensitive Trainer's Guides on home gardening, improved husbandry practices for milk in the dry season, chicken rearing and good forestry practices have been field-tested during the training sessions in the communities and are near completion. Moreover, lessons were learned and documented throughout the implementation process to continuously improve the support of the relevant activities, to facilitate the county departments to identify activities that they can possibly pursue, as well as to inform the design of similar interventions in the future. This document is a collection of the main lessons learned in the relevant fields of activity.



Service written for the student:

Name	Age	Gender	Religion

Number of students in the class:

Gender	Number
Male	
Female	

Number of students who are:

Category	Number
Orphan	
Widow	
Single	
Married	
Divorced	

Number of students who are:

Category	Number
Disabled	
Non-disabled	

Number of students who are:

Category	Number
From poor families	
From rich families	

Number of students who are:

Category	Number
From rural areas	
From urban areas	

INSTITUTIONAL LEVEL
Lessons Learnt

Strengthen Frameworks and Guidance

Relevant, coherent and implementation-oriented multi-sector policy frameworks and strategies for nutrition-sensitivity that benefit from committed political guidance and support are instrumental for achieving large scale and durable results in food and nutrition security. At county level, they need to be adapted to local conditions and specificities to make them meaningful and apt to mobilize local adherence, support and responsibility. Consistent, inclusive and well-coordinated county leadership and guidance is required that needs to trickle down throughout the relevant technical departments, public services and administrative echelons.

Require particular attention: 1) active encouragement and leadership to get sector specific institutions to cooperate for a common goal; 2) building awareness that food and nutrition security concerns a variety of sectors and stakeholders and that their substantive contributions are required; 3) clarifying the institutional requirements and procedures to perpetuate the badly needed consultation and coordination forums and mechanisms for food and nutrition security; 4) sensitizing relevant stakeholders at Ward level including communities on food and nutrition security to give prominence to the subject during the constitutionally required Public Participation for the development of the county budget, so that county funds can be geared towards the subject.

1. **A multisector strategy for nutrition-sensitivity and an effective institutional set-up** are required at both county and national levels to sustainably enhance food and nutrition security.

Reason: Nutrition and food security are at the interface of a variety of sectors, activities and human behaviours. Delivering desired outcomes Require a common goal, joint priority setting and planning, as well as coordinated, results-oriented action of institutions of various technical sectors including agriculture (crop, livestock, fishery), environment, education, health, water and sanitation among others.

2. **Consider the whole food value-chain** to address the underlying causes of malnutrition. This was a big step forward in the delivery of a meaningful multisector strategy for food and nutrition security. It has been championed by the Agri-Nutrition Unit (Ministry of Agriculture, Livestock, Fisheries and Cooperatives, MoALFC) in cooperation with the Department of Nutrition and Dietetics (Ministry of Health, MoH).

Reason: good food security and nutrition levels can't be achieved without considering all stages from the farmers' decisions and practices related to food production up to the consumers' decisions and practices related to food consumption, including the intermediate stages of the food value-chain such as processing, storage, packaging and transportation, as well as the food safety imperatives at all stages. Both the agriculture and the health/nutrition sectors are at the core. Other sectors, mainly environment (ecosystems services and biodiversity related to food) and education (knowledge and behaviours related to food) also play a crucial role.

3. **Follow the Standard of Procedures** and adopt an inclusive approach in the development of any guiding framework or document for the agriculture and nutrition sectors: involve key stakeholders and sectors right from the start, conduct consultations with those at the implementation level at an early stage to get their buy-in, incorporate the feedback of the decision making levels (e.g. Joint Agriculture Sector Consultation and Cooperation Mechanism, (JASCCOM); Inter Governmental Forum), conduct an interactive validation with key stakeholders and sectors.

Reason: this ensures ownership and provides opportunities to get key stakeholders and sectors committed to resource provision and implementation.

- 4. Keep both policy and strategy documents action oriented;** formulate clear, straightforward, feasible and measurable objectives.

Reason: this facilitates implementation. Incorporating an implementation plan with concisely formulated activities, costing, and responsible actors contributes further to smooth implementation.

- 5. Committed political leadership is crucial** for the results-oriented cooperation of various sector-specific institutions to deliver enhanced food and nutrition security at both county and national levels.

Reason: results-oriented cooperation towards a common goal between sector-specific institutions is rather unusual at technical level. To get it done, guidance and regular follow-up of the political leadership on the defined targets is necessary.

- 6. Multisector planning, coordination and implementation is crucial** to effectively address the underlying, structural causes of malnutrition and to progress towards durable food and nutrition security. To make multisector cooperation happen, a common platform or forum with a clear mandate and agreed modalities is needed.

Reason: regular, structured exchanges of views and expertise between the relevant technical sectors facilitates coordinated, informed decision-making and action during both planning and implementation processes. It also favours effective mainstreaming of nutrition and food security related objectives and activities across the relevant sectors.

- 7. The Multi-Sector Platform on Nutrition (MSP)** is a ready-made proposal of the international Scaling Up Nutrition (SUN) movement to establish such forums. It has the potential to set on track structured and results-oriented multisector cooperation. Kenya is an active member of the SUN movement with a focal person at the MoH.

Reason: The MSP is a thought-out proposal, allows for adaptations to various contexts and has a track record in a variety of countries.

- 8. An institutional anchor for the MSP is missing** at both national and county levels. To become operational and sustainable the MSP must be institutionalized. To make that happen, several areas need clarification including the status of the MSP, the procedure to institutionalize it and the funding of its activities. The responsible institutions in the counties and at national level should address this missing link.

Reason: without a clear institutional anchor, neither adherence and regular participation of the required technical sectors at the required level, nor donor-independent funding of the MSP activities are guaranteed. Without these parameters the MSP can't operate.

- 9. Clarify the precise mandate and purpose of the MSP** or of any other forum for multisector cooperation for nutrition and food security as compared to the County Steering Group (CSG) and the County Nutrition Technical Forum (CNTF) to avoid confusion and duplication.

Reason: Mainly in Marsabit the perceived duplication with the CSG has been an obstacle for the MSP to develop and get the endorsement of the county government. It has been proposed to incorporate the MSP into the CNTF which is a structure of the County Department of Health and mainly tasked with addressing the immediate causes and symptoms of malnutrition, as well as nutrition emergencies. The specific purpose of the MSP, i.e. joint multisector planning and coordination of long-term action to address the multifaceted structural causes of malnutrition and food insecurity, is yet to be given enough weight and consideration.

10. **Enhance the dialogue between national SUN movement and counties** to favour the exchange of experiences and good practices between MSP of different counties, to promote the adoption of long-term multisector approaches, and to foster the policy and strategic dialogue between the national SUN movement and the county's political and technical leadership including the County Assembly.

Reason: That would contribute to foster learning as well as to clarifying the added value of an institutionalized multi-sector approach to food and nutrition security. It would make adherence of the county leadership more likely and thereby facilitate the MSP to get due consideration in the county's institutional set-up. It would also foster understanding of the connections between county, regional, national and international levels.

Strengthen county capacity to expand and upscale knowledge in nutrition

1. **Follow the institutional line.** Work with the official basic course in MIYCN structured in eight modules that had been developed by the MoH and approved by the County Departments of Health (CDoH). The set of illustrated counselling cards of the MoH provides the basis and ensures the link with the Baby Friendly Community Initiative (BFCl) approach developed by the WHO and UNICEF and domesticated by the MoH. The CDoH are committed to promoting and implementing the BFCl.

Reason: Fitting into the institutional set-up contributes to both strengthening the system and facilitating the responsible county structures to guide, coordinate and follow up the interventions. The official counselling cards give a workable structure to the basic MIYCN course.

2. **Map the pool of local MIYCN trainers; assess their skills** in nutrition and adult education. A quick assessment helps to well calibrate measures to enhance the required MIYCN training capacity in the counties.

Reason: Basic information on the existing training capacity – both technical and methodological (adult education) – facilitates optimizing the trainings of MIYCN trainers (ToT).



Nutritionist, trained MIYCN trainer

3. **Build a pool of well-performing MIYCN trainers** and assign them to the Community Units. Qualify them in both nutrition-technical and adult education aspects to enable them to induce a significant knowledge increase among the participants in the MIYCN courses. The ToT must be focused on quality and not just on numbers of MIYCN trainers trained. The ToT must be conducted by certified MIYCN Master trainers of the MoH, respectively the CDoH.

Reason: Despite of a range of ToT conducted with a variety of funding sources, there is still an important gap in MIYCN knowledge, training skills, capacities and mentorship of trainers in both counties. Weak nutrition training capacities impede the improvement of nutrition awareness and nutrition skills and practices of the population.

4. **Develop guidelines for adult education on MIYCN; incorporate them in the ToT.** Most local trainers need guidance and training to effectively interact with the participants, to convincingly convey the MIYCN messages, to foster mutual learning by using training methods adapted to adults.

Reason: A lack of basic methodological skills of the trainers in adult education impedes the participants' learning and thus the effectiveness of the MIYCN courses.

- 5. Include Community Health Volunteers (CHV) with a good potential in the ToT.** Using dedicated and stable CHVs with at least primary school level as MIYCN trainers in their communities will contribute to strengthening the Community Health Strategy model for MIYCN. Linking all trained MIYCN trainers including Community Health Assistants (CHA), CHV and others to nutrition officers in the local health facilities for better nutrition outcomes is a requirement.

Reason: Unlike most of the health personnel, the CHVs live in the communities. Selected CHVs can perform well as trainers and they are easily accessible to residents for practical nutrition advice.

- 6. Incorporate MIYCN in the standard services of the Health Outreaches** with a focus on the key nutrition and hygiene messages. A trained CHV can deliver and discuss them with the women while the health personnel are providing basic health services. Appropriate institutional steps should be taken to strengthen Health and Nutrition Outreaches (HNO) so that they become a lean and mobile, but permanent branch of the county's public health system, independently of external funding.

Reason: Mainly in Marsabit, an important part of the rural population lives widely scattered in remote areas with a low population density, far away from the next operational health facility. Access to basic health services and nutrition advice is very scant or inexistent mainly at the expense of women of reproductive age and small children that need them most. The HNO have proven to be an effective and efficient tool to substantially improve this situation.

- 7. Enhance the CHV capacities to provide nutrition advice** in their community.

Reason: Easy access to competent nutrition advice is an indispensable extension of the MIYCN courses. If well done, it greatly contributes to deepening the understanding of the main MIYCN messages and to stabilizing and expanding good MIYCN practices. It is therefore very important to train active, well-performing CHVs in nutrition-technical aspects, as well as to strengthen their advisory skills.

- 8. Keep the MIYCN trainers active in their Community Unit.** County nutrition authorities should ensure that the MIYCN trainers regularly practice their training skills. Continuous monitoring of and support to the trainers on the ground is also a key requirement of a comprehensive MIYCN support system in the counties. Identifying county MIYCN champions can contribute to fostering the county capacity and ownership.

Reason: Instability, absenteeism and lack of practice of the MIYCN trainers is an additional reason for the weak MIYCN training capacity in the counties.

- 9. Foster the county capacities to support and evaluate the MIYCN trainers.** Identify and train qualified nutrition officers to follow-up and train the MIYCN trainers on-the-job. Use appropriate tools to monitor and evaluate the trainers' progress and give feedback on the results. Monitoring and evaluating their performance keep the trainers on alert mode so they strive to do their best at any time.

Reason: Inexperienced MIYCN trainers need frequent practice, on-the-job-training and feedback to improve their performance. Regular evaluations allow to progressively identify and build a pool of well-performing, qualified MIYCN trainers in the counties to effectively expanding nutrition knowledge and good practices.

- 10. Streamline BFCI/MIYCN monitoring and reporting at all levels.** Make sure the existing forms for the bottom-up monitoring and reporting are available at health facility and community levels and are regularly filled in accordance with the on-going activities and the achieved results. Train the CHV and the health personnel accordingly and supervise the monitoring and reporting. Mainstream the MIYCN reporting tools in the Kenya Household Integrated Survey, so that reports can be entered and accessed by anybody interested.

Reason: The counties' nutrition authorities and the CDoH need facts and figures to identify both areas of achievement/progress and areas of weakness/required improvement, as well as to convey viable information to the MoH for their reporting duties.

- 11. Train staffs of relevant county departments in nutrition-sensitive approaches.** Targeted trainings in both basic nutrition skills and in nutrition-sensitive approaches are highly desirable for staffs at both decision making and technical levels of various county departments that are supposed to play an important role in the MSP.

Reason: Such trainings aim to foster understanding of and commitment to food and nutrition security in county departments that have other core mandates but are instrumental to progress towards food and nutrition-related goals. Strengthen the information and knowledge base of all MSP members in nutrition and nutrition-sensitive approaches may increase the effectiveness of the MSP as well as facilitate the adoption of nutrition-sensitive approaches in the relevant sector departments at all stages (policy/strategy, planning, implementation) and thereby contribute to considering the whole food chain at county level.



CHA, trained MIYCN trainer



**HOUSEHOLD AND
COMMUNITY LEVEL**
Lessons Learnt

Knowledge in Nutrition – MIYCN

Related to the profound changes in people's diets in both counties, traditional knowledge of food and nutrition has lost relevance for the daily eating habits, affecting its inter-generational transmission. Many younger women know less of traditional foods and diets than their mothers and have not had the opportunity to acquire adequate skills related to the foods that prevail nowadays. They handle commercial foods that neither their mothers nor themselves know well. It is therefore not easy for them to prepare well-balanced, tasty meals. Particularly commercial vegetables and fruits are often little known, rather expensive and therefore not frequently eaten. Many rural women are aware of the health risks of pesticide misuse in commercial crop production and that doesn't encourage them to regularly consume vegetables and fruits. Certain deep-rooted taboos and ancient practices that can negatively affect nutrition and health still play a role, mainly in certain remote areas. They are often directly or indirectly perpetuated by older women and by men. There is a clear need for appropriate new nutrition knowledge and practices that value field-proven traditional knowledge and good local practices.

Require special attention: 1) access to enough safe, nutritious and diverse food is the key challenge for households in both counties; 2) need for enough qualified, experienced and timely available expertise on the ground that can deliver appropriate nutrition training and advice, as well as facilitate households to get support on all the sequences from production to consumption of healthy food.

A. Strengthen Nutrition Awareness in the Community

1. **Sensitize the community influencers on nutrition before starting** the MIYCN sessions. Provide clear, convincing information on key elements of nutrition underpinned with local examples to men, elderly people and local authorities, including relations between nutrition and health, window of the 1000 days, importance of maternal nutrition during pregnancy and lactation, relations between nutrition and birth spacing as well as relations between nutrition and child marriage and female genital mutilation practices. Use different platforms such as chief's baraza, malezi bora campaigns, baby friendly meetings and dialogue days to sensitize the communities. Identify and encourage key influencers that are willing to actively advocate for nutritional change in the community.

Reason: Men often confuse eating enough and being well nourished. They usually determine how much the household spends on food and what foods the household consumes. Elderly people as well influence eating habits, and grandmothers often feed and look after small children. Therefore, it is advisable to have key influencers on board so that they encourage rather than restrain the adoption of good practices promoted during the MIYCN trainings. Local authorities should play an important role as promoters of good nutrition and hygiene practices as well.

2. **Keep in touch with the influencers throughout the MIYCN course.** Update them periodically, discuss specific subjects of common interest with them, consult them as required, and invite them to specific MIYCN sessions of common interest.

Reason: One single meeting with the influencers is not enough to create awareness and to build trust and commitment. It is important to regularly communicate with them. The women may listen more to community influencers than to health personnel.

B. Train for MIYCN

1. **Work with active women and/or community groups** and help them to incorporate nutrition education in their usual activities. If there are no such groups, support the formation of groups.

Reason: Women organized in groups are more likely to receive MIYCN trainings and to regularly follow the course. The members can exchange knowledge with each other.



A mother breastfeeding with correct positioning and attachment

2. **Monitor the participants knowledge increase in MIYCN.** Assess and document the participants' nutrition knowledge systematically before and after the eight modules of the MIYCN training with simple targeted questions for individuals and well-focused discussions with the group.

Reason: The trainers need the feedback of the end-users to allow them to improve their training skills. The county nutrition authorities need a clear picture on where the county stands regarding the nutrition skills and practices of the population.

3. **Optimize the composition of MIYCN learning groups.** A group should not exceed 20 to 25 regular participants. The inclusion of men in the group is to be adjusted to the specific sociocultural conditions. Most participants should be younger women as they are the most directly concerned but interested older women should be welcomed in the course as well. Refrain from excluding older women, as well as from financial incentives to avoid participation on financial grounds.

Reason: Interactive, didactically sound MIYCN courses limit the number of participants so that the trainer can get everybody actively involved and manage the sessions within an appropriate timeframe. Older women often have considerable influence in the family and actively participate in the care of young children. In certain communities the women hesitate to freely express themselves on sensitive topics in the presence of men from their community.

4. **Contextualize the learning content.** Invest in adapting and translating the official MIYCN course and counselling cards in the best possible manner to the respective local context. Incorporate field-proven local knowledge and good practices related to food and nutrition. Focus on locally available and accessible healthy foods (both crops and wildy growing plants, as well as appreciated animal sourced foods) and consider cultural practices as well.

Reason: Adaptation to the local context is indispensable to allow the participants to relate to the course, and to connect the new knowledge promoted in the course with the field-proven knowledge that they have acquired in their social environment. It helps them to better understand the messages and to act accordingly.

5. **Visualize the learning content.** Develop or use existing information, education and communication materials on nutrition (photos, posters, comics, flyers) that are adapted to the local context, as well as specimens of nutritious crops and edible wild plants to illustrate the learning content.

Reason: Visualization is required to concretize the learning content so that the participants can better capture it and relate it to their daily lives.

6. **Work with interactive methods and value field-proven local knowledge and skills.**



Cooking Demonstration

Encourage the participants to ask questions and to express their points of view, involve them in finding good answers to their peers' questions, favour group discussions and knowledge exchange among participants and between the trainer and the participants, value the participants' own knowledge, use songs, demonstrations, practical exercises and role plays.

Reason: Interactive methods support effective learning of

all concerned, broaden the knowledge base by including local knowledge, allow the trainer to appreciate the level of understanding of the participants and to adjust their inputs and explanations on the spot. They help the participants to better retain information and they foster good understanding.

7. **Incorporate cooking demonstrations in the MIYCN sessions** and develop tasty recipes with locally available, healthy foods. Make the participants compile and cook a healthy and tasty meal together when addressing maternal nutrition and complementary feeding. Use locally available, healthy foods (safe, nutritious, diverse) including wild foods, as well as foods grown in the home gardens and encourage the participants to develop tasty recipes. Use fuel-efficient stoves for the cooking demonstrations and promote them in the MIYCN course. Recap and discuss the key MIYCN messages, also on hygiene, while cooking together. Encourage the participants to invite their husbands so that they can hear and understand the messages and taste the healthy and tasty food.

Reason: Cooking demonstrations are rich in practical lessons and therefore enhance the learning process – even more so, if the relevant messages of the MIYCN course are repeated, re-discussed and directly linked to the promoted cooking practices. Getting the husbands involved reduces their reluctance to accept the different taste and texture of the food.

- 8. Recap the previous session; look out to the next session.** At the start of each session, request the participants to recap the previous session. Complement, adjust and conclude. At the end of each session, give an attractive outlook to the next session.

Reason: Recaps help the participants to recall and focus on the addressed subjects and allow those who couldn't attend to catch up. They help the trainer to check on the level of understanding of the participants. Outlooks on what comes next stimulate the motivation of the participants to attend the following session.

- 9. Facilitate regular attendance.** Set norms with the participants on the modalities of the MIYCN course and identify the best possible time slot, location and duration for the sessions i.e. on a day when they congregate anyway (market day, regular gatherings etc.) and agree on a fixed training schedule.

Reason: This facilitates participants to regularly attend and to benefit of the entire course.

- 10. Support participants to access healthy food.** Emphasise on selected, healthy vegetables and fruits grown near the homestead and/or sustainably harvested in the bush (wild foods) in collaboration with the relevant county departments. Buying diverse vegetables and fruits on the market is the second option.

Reason: Improved MIYCN skills are only effective if availability and stable access to healthy food is given. In both counties availability and access are major bottlenecks.

- 11. Make sure participants can access nutrition advice after the MIYCN course.** Encourage participants to practice what they deemed useful, and to seek advice if needed.

Reason: Practice in daily life and changing certain behaviours is a progressive endeavour and needs examples of people that can serve as a reference, respectively that can provide advice such as experienced residents, trained peers, and trained CHVs.

Home gardening for access to healthy food

Both nutrition wise and from a gender point of view, well-tended, small plots near the homesteads where the women grow a variety of selected vegetables and fruits for continuous household consumption is in the local contexts the **best activity to progress in a short time towards increasing intakes of nutritious, safe and diverse food**. Although a growing number of men are interested in the activity and appreciate the produce, they usually don't interfere in home gardening. The women control the produce, as well as the cash in case they sell surpluses. They can supplement their milking goats and chickens with the by-products or blemished produce of their home garden and use the droppings for compost making. This contributes to increasing both the productivity of the milking animals and of the home garden.

Require particular attention: 1) little or no experience and skills in crop production and proper utilization in the predominantly pastoralist communities; 2) need enough qualified, experienced and timely available home gardening expertise on the ground that can advise on both the production and the utilization aspects; 3) environmental constraints, such as water scarcity, excess salinity in some places, crop damage by wildlife including insects, reptiles, rodents and others, as well as by freely roaming livestock.

A. Working Principles

- 1. Select and promote optimal crops.** Criteria include high nutrient content, having several edible parts, serving multiple purposes (food, fodder, soil protection etc.), perceived tastiness, longevity and yields, little water and labour requirements, ease of storage, seeds production, relative resilience to diseases and pests. Based on that, we recommend a range of eight crops to promote. Each crop is very nutritious and several of them excel in specific nutrient contents and combinations including beta carotene, lycopene, vitamins C, K and vitamins of the B-group, iron, magnesium, dietary fiber, papain, protein, water etc. and thereby address the most important nutrition gaps in both counties. Each crop has a prolonged period of productivity, fulfils several agro-economic criteria and has at least two edible parts, as well as nutritious by-products for milking animals. The focus was set on vegetables that have been grown for a long time in parts of Africa. They are often more nutritious, as well as more resilient against water shortages, plant diseases and insect attacks than most commercial types of vegetables such as kale, cabbage, tomato etc.

Amaranth: resilient, modest water and labour requirements; domesticated from the wild and therefore women associate it with fodder at the beginning; productive after three to four weeks; appreciated in Turkana, considerable progress in adoption in Marsabit. Edible: leaves, seeds.

Jute mallow: resilient, modest water and labour requirements; domesticated from the wild and therefore women associate it with fodder at the beginning; very high iron content; productive after three to four weeks; slimy texture can be avoided with appropriate cooking practices; appreciated in Turkana, very recommendable for Marsabit. Edible: leaves, seeds.

Swiss chard: resilient, modest water and labour requirements; appreciated in Marsabit; the women say it does well even with saline water; productive after two months; disadvantage: it doesn't produce its seeds. Edible: leaves, stalks.

Pigeon pea: resilient, modest water and labour requirements; advantage: perennial, the tall variety is productive for up to three years, if well protected; may require five to six months for first production of seeds, then regular and frequent seeds production; grows tall and allows for planting smaller crops underneath (e.g. jute mallow) for optimal use of space



Harvesting Pigeon Peas

and water; appreciated in both counties. Edible: seeds, leaves, shoots. Leaves also provide abundant and nutritious fodder supplements for milking animals if dried and stored in the shade.

Watermelon: resilient, modest water and labour requirements; productive after three to four months; high water content besides essential vitamins and therefore good against dehydration; appreciated in both Marsabit and Turkana. Edible: flesh, seeds, and rind for fodder.

Pumpkin/Butternut: resilient, modest water and labour requirements; productive after three to four months; appreciated in both Marsabit and Turkana; taste of butternut is usually preferred. Edible: fruits and seeds or leaves and flowers.

Sweet potato, orange/yellow: resilient, medium water and labour requirements; after four months, it can be harvested as per needs and stored in the seedbed for three months; appreciated in both Marsabit and Turkana; women say it fills the stomach. Edible: root, leaves.

Papaya: resilient, modest water and labour requirements; advantage: perennial, productive for three to four years; produces fruits all year round after 10 months; grows tall and allows for planting smaller crops underneath (e.g. jute mallow) for optimal use of space and water; disadvantage: male and female plants are indistinguishable before flowering; appreciated in both Marsabit and Turkana. Edible: flesh, seeds, leaves.

Reason: A home garden needs to be as nutrient-dense, resilient and productive as possible. The owner should like the taste of the produce and be able to harvest fresh produce every day.

2. **Minimize market dependence.** Fertilizers, pest repellents, seed and protection materials should be sourced in the garden and near-by where they are always accessible for free.

Reason: The produce is mainly for family consumption. Mostly, the home garden won't generate enough cash income to pay for its inputs. It's not advisable for the gardeners to spend scarce cash for inputs that they can easily produce themselves. The ingredients for most of the home-made inputs can be regularly harvested in the garden or near-by, while commercial inputs need to be bought on faraway markets and supplies are not always stable. Producing their own inputs broadens the gardeners' skills and sense of ownership.

- 3. Healthy soil is the key to healthy produce.** Soil fertility is the most crucial requirement for a productive, water-efficient home garden that continuously provides nutrient-rich produce.

Reason: Fertile soil increases both crop nutrient content and yields, as well as crop resilience and water efficiency. Enough organic matter in the soil plays a crucial role for a productive home garden and for healthy produce. Most soils on the home gardening sites are poor in organic matter and most commercial fertilizers don't add organic matter. Fertile soils in home gardens can be achieved through dispatching compost made of dung of livestock, ash, crushed eggshells, local soil and wastewater in a seed bed clogged with stones, logs or bricks to retain the run-off when watering. Judicious crop rotations and associations (e.g. cover crops, companion planting) as well as mulching with plant materials or elephant dung further improves both soil quality and soil moisture. When available, elephant dung is more effective and acts as a fertilizer as well.

- 4. Using organic repellents against diseases or undesired insects is a Must.**



Spraying Organic Concoction

Reason: The produce is to be safe for consumption at any time and healthy garden produce should be available daily. The use of synthetic pesticides doesn't allow that. Furthermore, they are detrimental to beneficial soil organisms and to pollinators. The promoters of home gardens can build on local skills how to fabricate organic concoctions and broaden these skills. Effective are: 1) concoctions of neem leaves and/or fruits, chillies, certain locally

growing plants (e.g. marigold, lantana camara), ashes and soap, as well as the urine of livestock; 2) intercropping with crops that act as repellents, such as chillies; 3) judicious crop rotations and associations.

- 5. Water efficiency is a key requirement.** Inexperienced gardeners often struggle to water their garden efficiently. That impedes crop growth and/or entails waste of scarce water.

Reason: Water is often a limiting factor due to seasonal shortages and because of the time and labour it may require fetching it. Water efficiency can be considerably improved through a combination of:

- a. good watering practices (evening, according to the needs of each crop, water the soil and NOT the crops);
- b. fertile soils, rich in organic materials that retain the water (appropriate use of compost);
- c. mulching with plant materials for soil coverage;
- d. seed beds demarcated with stones, logs or bricks to retain the water and the good soil;
- e. using non-soapy household wastewater for compost making and crop watering (add ash to slightly soapy water and let it rest for one day before use);

- f. providing shade to the crops during the hottest period of the day (establish the home garden near a grown-up tree; cover the garden with mats during the hottest period of the day etc.);
- g. promoting simple “drip irrigation” tools that the women can fabricate themselves (perforated tubes, hoses or bottles buried in the seed beds);
- h. protecting wildy growing tree seedlings and saplings near-by from browsing, so that they can grow up faster and regulate soil moisture and provide shade once they are bigger.

6. Go for individually owned and managed home gardens.

Reason: Individually owned gardens have a higher chance of success than group gardens. Each gardener can work at their own rhythm and make their own decisions. The responsibilities of the work to be done, as well as the ownership of the benefits are clear.



Woman tending to her diverse home garden

7. Go for locally sourced material to plant the crops. Whenever possible, go for planting directly in the soil enriched with compost before planting. When space is limited, storey gardens on locally made multi-storey shelves and planting pots made of half parts of recycled containers, respectively stone gardens made of small stone walls filled with a mix of soil and compost, are preferable as compared to commercial vertical bags.

Reason: Locally crafted shelves with recycled planting pots, respectively stone gardens are considerably less expensive over time. Made of fine layers of plastic nets, the commercial bags are not robust enough for unexperienced gardeners, their life span is limited, and their cost is high. The water requirements of the bags are superior as compared to the pots on the shelves or the stone gardens. Unexperienced gardeners struggle to make crops grow in the lateral wholes of the bags; they find it easier to plant their crops in the containers or the stone garden.

8. Go for locally sourced material to protect the crops. Protection against undesired eaters (livestock and wildlife including birds, insects and rodents) as well as weather vagaries (sun, winds, heavy rains etc.) needs targeted measures, in addition to an optimal site selection. *Local solutions are preferable as compared to commercial agro- or shade-nets.* Local solutions include dead fences made of branches from invasive tree/shrub species, live fences made of cuttings from local trees/shrubs, partial coverage of the top of the home garden, as well as the parts in the direction of the predominant winds with local materials like doum palm leaves, mats, blankets, grilles made of intertwined branches etc., as well as regular spraying of the crops with organic concoctions. Where thorny branches aren't available, chicken-wire is a feasible option.

Reason: Solutions based on locally available materials are less expensive and more sustainable over time. Made of plastic fibres, agro- and shade-nets are often not robust enough for unexperienced gardeners, their life span is rather limited in the local context, and their unit costs are high. They are too big for a home garden; properly cutting and stitching them into smaller pieces adds to the unit costs.

9. Go for crops that produce their own seed materials.

Reason: Seeds independence based on good, safe seeds is an obvious key requirement for home gardening. The desired seeds cannot always be found on the local markets. Seeds management (multiplication, harvesting, storage, renewal) enhances the gardeners' skills. Those who succeed in multiplying the seeds of their crops can find buyers among those who couldn't produce their seeds or want to start planting a given crop. This encourages local seeds multiplication and favours seeds independence on a broader scale.

10. Emphasize proper utilization of each crop concomitantly with advice on production.

Reason: The proper utilization of a variety of crops is unknown to many beginners in home gardening. They need timely and accurate advice or training in these subjects in order to reap the full benefits of their home garden.

11. Protect wildly growing indigenous tree seedlings and saplings in and near the home garden.

Reason: Many indigenous trees provide nutritious, safe and appreciated foods for humans and livestock for free. These foods play an important role in both quality and diversity of the diets and are a valuable complement to the produce harvested in the home gardens. Furthermore, the trees protect the soils and the crops from strong winds, contribute to soil fertilization, moisture preservation and provide much required shade for the garden crops. Protecting such wildly growing seedlings and saplings until they are big enough to withstand all forms of exploitation is easy. Often, it's enough to extend the fence of the garden a bit to include the trees in the home garden. If vigorous seedlings/saplings of valuable species grow outside the fenced home garden, the gardener can protect them from overexploitation by an enclosure as people usually do for goats and sheep. The enclosure needs to be fit for keeping the goats out and letting sunlight and wind in. To foster plant growth, the gardener can make a simple, small catchment around the seedling/sapling to capture rainwater for better infiltration. No other measure is needed.

B. Train for Home Gardening

- 1. Clarify the purpose of a home garden.** The produce of a home garden is for family consumption. The by-products and blemished produce provide fodder supplements for milking animals. Surpluses are properly stored to preserve the nutrients for later consumption; or possibly sold. The smart home garden continuously produces a maximum of nutrients contained in a variety of crops on a minimum of space and with minimal costs (money, water, labour).

Reason: For most people in the mainly livestock-rearing communities in both counties, home gardening is an entirely new activity. The few people with some practice in crop production are used to field crops or commercial crops, with a focus on bigger surfaces, extra-farm inputs and limited variety. The home garden is the opposite.

2. **Inform on each of the promoted crops and explain why you recommend it**, according to the underlying criteria that include nutrition and health benefits, edible parts, multipurpose character,



Harvesting watermelon

yields and productivity, water and labour requirements, time from planting to harvesting, resilience to pests and diseases etc. Use photos to show the crops at various stages.

Reason: Many people know the crops only superficially or not at all. To allow them to make informed choices which crops they want to start with, they need to get proper information.

3. **Beginners select three advisable crops, plus papaya.** One green leafy vegetable should be part of the three, as well as pigeon pea and one red/orange coloured crop. Once the gardeners have well adopted all stages, they can add other crops.

Reason: Starting with more than three or four crops confuses beginners and can compromise harvests and overall success. Good harvests allow them to increase their intakes of healthy food, and success encourages them to pursue and possibly expand their gardening activities.

4. **Develop a systematic training methodology**, for instance:

- a. Participants recap previous session; trainer adjusts, concludes
- b. Participants explain their successes/challenges, trainer comments and advises on the spot
- c. Group goes for a commented tour of two or three gardens, discussion participants/trainer
- d. Trainer explains topic/s of the on-going session;
- e. Trainer asks questions to encourage knowledge sharing and to check understanding
- f. Trainer concretely demonstrates how to do what he/she is explaining (topic of the session);
- g. Participants do it themselves (practical exercise) and comment each other's work
- h. Trainer observes, adjusts and comments
- i. Participants wrap up, trainer concludes, and outlines the work to do until the next session.

Reason: The subject is new, and the participants are mostly inexperienced. A systematic training outline with active participants is required to facilitate understanding and foster adoption.

5. **Work with interactive methods; value the participants' own experience.** Encourage the participants to ask questions and to express their points of view, involve them in finding good answers to their peers' questions, favour discussions and knowledge exchange among participants and between the trainer and the participants, value the participants' own knowledge; use songs that express the benefits of a productive home garden.

Reason: Interactive methods support effective learning and broaden the knowledge base, allow the trainer to appreciate the level of understanding and to adjust his/her inputs and explanations on the spot. They foster understanding and help the participants to retain information.

- 6. Emphasize practical demonstrations and exercises.** Both practical demonstrations by the trainer and practical exercises by the participants with comments of all involved are indispensable for good understanding and adoption of the various planting practices.

Reason: Home gardening is a practical activity with many details to consider, above all for beginners. Many rural people in both counties are nearly illiterate, they depend on their memories. Well done practical demonstrations and above all practical exercises greatly facilitate understanding and help to retain information. Repetition is also a key requirement.

- 7. Match the training sessions with the stages of crop development.** The entire training process can stretch over several months as the sessions take place according to the stages of crop development to allow for practical demonstrations and exercises. Good planning and organization of the sessions are required, as well as availability of the trainers on time.

Reason: This is indispensable for a meaningful home gardening training, based on practical demonstrations and exercises.

- 8. The manyattas and home gardens of the participants serve as training venues.**

Reason: The training sessions should happen in the participants' own environment and under their work conditions. This allows the trainer to convince the participants and their wider social environment that new beneficial activities are feasible for everybody under local conditions, without important outside investment and material support.

- 9. Good garden planning for continuity of production needs special emphasis** including timely planting for crop renewal, optimal use of the fenced space, etc.

Reason: The owner and her family should be able to eat fresh produce several times a week throughout the year. This requires timely planting of the next generation of crops on rotational bases so that the succession crops are ready at the end of the productive cycle of the previous generation, planting each crop at the good place for optimal use of the garden space and growth conditions, etc. Beginners need regular advice on these aspects.

- 10. Optimal fertilisation of the soils needs special emphasis.**

Reason: Beginners tend to neglect this key aspect and therefore to compromise the very base of a productive, successful home garden. Yellowing of the crops is frequently interpreted as a lack of water when it is in fact often a lack of soil nutrients. The trainer should recall as much as possible the crucial role of a healthy, nutrient rich soil for healthy, nutrient rich crops and encourage the gardeners to always have a stock of compost ready.

- 11. For beginners, correct spacing and planting and thinning need attention.**

Reason: Beginners tend to plant too many seeds in pockets that are too close to each other. Overcrowded seed beds have suboptimal yields, increased pest attacks and little seed production.

12. For beginners, water efficiency needs attention.

Reason: Overwatering is frequent in homesteads where water isn't the major limiting factor. The trainer should make the beginners understand that water efficiency is the key to a productive garden and not the quantity of water. Water efficiency can be improved through a variety of combined measures (point A 5).

13. Timely spraying with well-adapted organic concoctions needs special emphasis.

Reason: The trainer should make the gardeners understand that they need to start spraying as soon as they discover undesired eaters and that they should spray regularly, according to the protocol for the respective concoction.

14. Appropriate seeds production and management needs special emphasis.

Reason: Beginners often struggle to harvest and store their seeds properly. The trainer should therefore repeatedly demonstrate proper seeds harvesting practices for each crop, appropriate storage before reseeding and timely renewal of the seeds stock.

15. For beginners, appropriate utilization of the crops needs attention.

Reason: Beginners often hesitate at what stage and to what extent they can utilize the home garden crops. They also need to be sure what parts of the crops are edible to make best use of the crops, and they need to know how to cook and possibly store them for nutrient preservation and with what type of other foods to combine them for a healthy meal. This stage of the activity strongly influences the impact of the home garden on family nutrition. The trainer must make sure that the required information is provided properly, and that practical demonstrations and exercises take place. Professional advice of an agri-nutritionist is essential.

16. Protection of wildly growing seedlings of indigenous trees needs special emphasis.

Reason: People rely on the multiple benefits of wild indigenous trees for themselves, their livestock and their environment. They often take advantage of the presence of such trees when they select a site for their home garden. Nevertheless, people rarely protect seedlings and saplings of such trees from overexploitation, trampling and browsing. The trainer should build awareness and concretely demonstrate how to best protect young indigenous trees in or near the home gardens and homesteads from overexploitation. Practical group exercises are required to further sensitize the gardeners.

17. Regular follow up of the beginners is key. In-between the sessions and after the training module, the trainer needs to visit the gardeners and give practical advice what and how to improve (on-the-job and on-site training).

Reason: The visit of the home gardens with their owners reveals what has been well-understood and what needs further explanation and exercise or adjustment to specific conditions. Challenges and questions of beginners often come up after practicing. Visits of the gardens by the trainers further motivate and encourage the beginners.

Improved Animal Husbandry Practices for Access to Healthy Food

1- Goat Husbandry for More Milk in the Dry Season

Increasing livestock productivity for milk is the **most promising activity for most households in drylands**, nutrition wise, from a broader economic perspective, and from a gender point of view. Milk is a staple food and counts as a whole food group. The nutrient composition of goat milk comes next to human milk and is therefore easy to digest and to utilize by the human body. In the local context all types of milk (goat, cow, sheep, dromedary) play an outstanding role for healthy diets for children, pregnant or lactating women and older people. Having more milk favours the growth and body condition of young animals, so that they can enter production, respectively achieve higher prices at earlier stages of their lives. Higher productivity per animal reduces the need to rear big numbers of less productive animals and can thereby contribute to easing the pressure on the natural vegetation. Milk (both fresh and processed into butter, ghee, or other dairy products) is one of the rare high-value food products in the local context that is largely controlled and managed by women. They control both the product and the cash income in case they sell the surpluses. Milk contributes to empowering the women economically.

Require particular attention: 1) men manage the herds including the few animals that may belong to their wives; women have little control over the animals; 2) good quality fodder stocks to supplement the milking goats in the households require special training, practical exercises and regular follow-up; 3) increasing the availability of good quality fodder near the settlements may need community engagement to improve pasture management in the settlement areas including the adoption of good forestry practices 4) need for enough qualified, experienced and timely available expertise on the ground to ensure appropriate training and follow up on good practices that are feasible for the women, economical in the local context, effective in increasing milk productivity mainly in the dry season, as well as effective in processing fresh milk into less perishable dairy products for gradual consumption of the stocks.

A. Working Principles

1. **Determine the good number of milking animals to keep near-by.** Husband and wife



Milking for the family

need to agree on the number of milking animals that can be properly sustained near the homestead during the dry season to produce milk for both household consumption and the young animals.

Reason: Usually, the husband controls the family herd. His consent to keeping enough milking animals with the household while the bulk of the herd moves to distant pastures is required. The lack of milk during the dry season is one of the key

causes for undernutrition of small children and pregnant/breastfeeding mothers in pastoralist communities, as well as for mortalities/stunting of young animals.

- 2. Provide enough good quality fodder each evening.** After roaming freely during the day, the milking animals need a ration of a nutritious fodder supplement in the evening including a mixture of hay, greenish dry leaves of wildy growing trees and shrubs, pods of acacia ssp., and if available, blemished home garden produce and greenish stalks and leaves of field



Fodder Supplementation, Green Leaves



Fodder Supplementation , Pods of Acacia tortilis

crops. Proper sustenance of the milking animals near the homestead during the dry season Require improvement of both current husbandry practices and of the management of the natural vegetation and the water sources in the settlement area.

Reason: The lack of milk in the dry seasons is mainly due to insufficient intakes of good quality fodder. The pastures near the settlements are usually very degraded. Therefore, daily rations of fodder supplements during the dry season are a must for both milk production and to maintain the body condition of the milking animals.

- 3. KEY MEASURE: store fodder stocks in the SHADE, in a ventilated place.**

Reason: Exposure of the fodder stocks to the sun destroys the nutrients. Storage without ventilation can lead to moulding, and the hay can catch fire.

- 4. Protect wildy growing indigenous tree seedlings and saplings near the homestead**

Reason: Many indigenous trees provide not only nutritious, safe and appreciated foods for humans but excellent fodder for milking animals as well. In the dry season and during droughts when grasses are dry and devoid of nutrients or lacking altogether, the leaves and fruits of indigenous trees provide a big share of the nutrient intakes of the animals and allow for milk production and stable body condition. In addition, many indigenous tree species protect the soils from erosion, and contribute to soil fertilization and moisture preservation which creates favourable condition for the growth of grasses. Stabilizing or increasing the cover of valuable indigenous tree species in and near the settlements through protecting young trees from overexploitation, so that they can reach adulthood and become fully productive sooner, is therefore a key measure to support and sustain milk production in the dry season. It progressively enables the women to keep a growing number of milking goats near the homestead and to increase milk consumption of their family for improved nutrition.

- 5. Provide salt supplements each evening.** If commercial salt licks aren't accessible, table salt mixed with clean dug soil in the ration 1:1 is good for purpose.

Reason: Salt is a key ingredient to stimulate milk production and to ensure the bodily wellbeing of the animals. Transhumant animals usually lick salty earth on their migration routes. Animals kept near the households mostly need supplements.

- 6. Provide water daily.** Household-based rainwater harvesting and improving the management of local water points including priority for milking animals, as well as simple water harvesting measures on community lands can be necessary preliminaries.

Reason: Due to water insufficiency and/or poor management of local water sources, the milking animals including goats are often watered only every two or three days in the dry season. Together with fodder supplements and salt, enough water is a requirement for milk production and growth of the young. It also helps to increase the efficiency of the fodder digestion process. Thirst increases stress and affects metabolism and productivity.

- 7. Provide appropriate shelter.** A sufficiently spacious, solid and covered shelter for mother animals and their young near the homestead is also part of the basics.

Reason: Protection against rustlers and carnivores, as well as against weather vagaries mainly after the onset of the rains when the cold hits weak animals that were starving in the dry season, is a requirement. An appropriate shelter can also help to better protect the milking animals and their young in case of disease outbreaks allowing to shelter them from potentially contaminated animals.

- 8. Deworm regularly and ensure basic vaccination.** Deworming at least twice a year at the onset of the rains and if possible, in the middle of the dry season should be standard practice. The milking animals also need to be vaccinated against the prevalent and deadly diseases, as per County protocol, especially PPT and CCPP.

Reason: Animals affected by parasites and diseases produce less milk and suffer from poor body condition even if they are well fed.

- 9. Cure the animals if they are sick or injured.** There are many local animal health practices that have produced good results for generations. They can be administered by the livestock keepers themselves or by a knowledgeable person in the settlement.

Reason: Sickness and injury negatively impact the productivity of the animal and/or can affect other animals as well. Veterinary services and drugs are not easy to access.

- 10. Value local breeding skills; go for exotic males and local females** with good milking traits, if it is felt that the local breeds need to be improved. Source the males (e.g. Gala goats) near the locations they are supposed to live in, so that their organism is as adapted and resilient as possible. The farther away the males are sourced, the higher the risk of health challenges, respectively, the more demanding and costly their acclimatization in their new environment.

Reason: Although breeding is not of immediate urgency to foster dry season milk production for family consumption, improved breeds positively impact milk productivity in the longer term, provided that the livestock keepers apply the previously mentioned good practices (2 to 8). Furthermore, avoiding inbreeding fosters the animals' resilience. Despite widespread inbreeding mainly of small ruminants, many local livestock keepers have valuable breeding skills that should be mobilized if they are compatible with animal welfare considerations.

B. Train on Increasing Milk Production in the Dry Season

- 1. Develop a training methodology that suits experienced practitioners.** It needs to be interactive, allow the participants to bring in their own knowledge and experience, foster discussion and find consensus between the main inputs of the participants and those of the trainer, and emphasize on the participants' summarizing of key aspects and conclusions. The trainer highlights the main insights in each subject. The trainer engages the participants to start implementing concrete measures of improvement (2 to 7) immediately after the training.



Milk Processing

Reason: Many participants have practiced the activity since their childhood and have learned it from their parents. They can contribute valuable knowledge, skills and field-proven experiences that benefit everybody, including the trainer. However, the wider ecological, economic and institutional environment has undergone profound changes. Certain current husbandry practices need to be adjusted; new knowledge and skills that are sustainable in the local context, are needed.

- 2. Go into the details (what, why, how, when) when addressing new aspects or aspects that aren't commonly practiced:**
 - Good quality fodder supplements need special emphasis and practical exercises: drying and storing in the SHADE; making hay; crushing half the pods before distribution; rationing and optimally distributing the rations; etc.
 - Protecting tree seedlings/saplings from overexploitation: making an enclosure that keeps goats out and lets the sunlight and wind in, making a small rainwater catchment of favour infiltration and boost growth;
 - Salt supplements need special emphasis: supplementing milking animals that stay with the households;
 - Watering daily needs special emphasis: watering the milking animals daily, harvesting rainwater in the compound, improving the management of the waterpoints to make daily watering of milking animals possible – this aspect may need adherence of the community and water user association;

- e. Deworming and basic vaccinations: doing it regularly in order to benefit from the effects;
- f. Breeding: introducing exotic breeds from the near-by areas and only, if all measures 2 to 8 are practiced; valuing field-proven traditional skills.

Reason: New or not frequently practiced skills need detailed explanation, practical exercises as required and ample opportunity to ask questions, so that the participants understand them well. Points 2a), 2b) and 2c) are critical.

3. **Demonstrate and do practical exercises with the participants** when addressing new or not commonly practiced subjects and aspects, namely fodder stocks for daily supplementation in the dry season, as well as salt supplements and protection of wildy growing tree seedlings and saplings. Make the participants comment on each other's work, conclude and engage the participants in taking concrete commitments to implement what they learned.

Reason: hands-on demonstrations by the trainer and practical exercises by the participants fosters understanding. Concrete commitments in front of the group increases the motivation to effectively practice.

4. **Compare the costs of a given recommended measure to the benefits** that it provides with simple, striking examples drawn from the local context.

Reason: The economic benefit of the promoted measures 2 to 8 largely outweighs the cost including labour. Most livestock keepers have a keen sense of cost-benefit relations. They are receptive to such arguments.

2 - Chicken Rearing for Eggs

Rearing chickens for eggs is a promising activity, both nutrition wise and from a gender point of view. Eggs count as a whole food group. They are rich in nutrients and low in fat. Therefore, eggs, together with nutrient dense vegetables and fruits, can effectively address both the women's nutrient requirements at an advanced stage of pregnancy and their concerns that the unborn shouldn't get big to avoid complications at delivery. Cultural barriers against egg consumption are shrinking. In general, men don't interfere in chicken rearing. Like milk, eggs and chickens are high-value products that are largely controlled and managed by women and that contribute to empowering them economically.

Require particular attention: 1) little experience and skills in chicken rearing in the predominantly pastoralist communities; 2) regularly available, household-sourced, nutritious feeds for chickens that don't compete with human food; 3) discipline for strict hygiene including dusting against soft ticks and fleas, as well as daily feed supplements including unsoiled drinking water is imperative to avoid high mortalities; 4) need for enough qualified, experienced and timely available expertise on the ground to ensure appropriate training and follow up on husbandry practices that are feasible for the women, economical in the local context, effective in increasing egg production.

A. Working Principles

1. **Provide good quality feed supplements each evening.** After roaming freely during the day, the chickens and their chicks need a ration of a nutritious feed supplement in the evening. It can include crushed grains (from crops or wild plants) and pods of acacia ssp., insects including termites, locusts and grasshoppers, blemished home garden produce, food rests if available.

Reason: Insufficient intakes of good quality feeds is a major reason for the low productivity of hens. It negatively impacts the nutrient content of the eggs. There is often not much to scavenge in the settlements, therefore, a daily ration of household-sourced supplements is a must for hens to produce enough nutrient rich eggs. Storage of the feed in a shady, ventilated place for nutrient preservation is a key message.

2. **Provide clean water at any time.** The keeper needs to establish a water station with local materials; permanently filled with clean water and accessible to the chicks as well.

Reason: The hens and chicks need access to clean water whenever they want to drink. Soiled water stations can easily become a vector of diseases. Thirst increases stress and affects the metabolism and productivity.

3. **Build an appropriate chicken house.** A sufficiently spacious, solid and covered chicken house built with local materials in the compound of the keeper where the birds spend the night, is crucial. It should be suspended about one meter above soil level and have horizontal bars for the birds to sit on.

Reason: Together with mortalities due to diseases, predation by birds of prey and small carnivore mammals is the main cause of loss of chickens and their young. A covered chicken house also provides shelter against rains and wind. Vertical bars allow the birds to rest in their natural position and avoid that they get soiled by their droppings.

4. **Provide a safe and quiet breeding space.** For instance, a quiet corner in the keeper's compound with enough shade, an underlay made of dry grass and protected with thorny branches, is good for purpose.

Reason: The hens look for quiet and protected spaces to lay their eggs and breed them until hatching. If they aren't offered a suitable space in the compound, they may hide in the bush and there is a high risk of losing both hens and chicks.

5. **Strict hygiene is a must.** Regular cleaning of watering and feeding stations, chicken houses and breeding spaces is an absolute requirement. Chicken feces can be collected for composting. They are high in nitrogen, phosphorus and potassium and should be applied in small quantities when composting.

Reason: Mentioned above are the places where the chickens congregate and leave their droppings. Diseases can easily spread if hygiene mainly in these places is neglected.

6. **Regularly dust the chickens against fleas and soft ticks,** dust or fumigate the chicken houses and breeding spaces as well. Use commercial dust powder that can be found at certified agrovet shops.

Reason: Fleas and soft ticks are widespread and transmissible from chicken to chicken. They negatively impact on both production and health of the birds.

- 7. Vaccinate the chickens against Newcastle.** One vaccination when the birds are roughly three months old, followed by a second one six weeks later, covers the birds for approximately five years.

Reason: Newcastle is the most frequent and deadly contagious disease in chickens.

- 8. Go for improved Kienyeji cocks and local hens,** if it is felt that the local breed needs to be improved. Source the cocks near the locations they are supposed to live in, so that their organism is as adapted and resilient as possible. The farther away they are sourced, the higher the risk of health challenges.

Reason: Although breeding is not of immediate urgency to foster egg production for family consumption, improved breeds positively impact production, provided that the chicken keepers apply the previously mentioned good practices (2 to 7).

A. Train on Chicken Rearing for Eggs

- 1. Develop a training methodology that suits newcomers.** It needs to be interactive, allow testing the participants' understanding, offer ample opportunity for the participants to ask questions and go into the details (what, why, how, when) of the main subjects. For each subject, the participants summarize the main aspects and the trainer repeats the conclusions
- 2. Do practical demonstrations and exercises with the participants.** There is need for



Woman giving water to her chicken

concrete demonstrations by the trainer and practical exercises by the participants for the main subjects. The participants comment on each other's work; the trainer highlights the main insights in each subject and engages the participants in taking concrete commitments to implement.

Reason: Chicken rearing is not common practice. Mostly, the keepers rather practice a foraging approach than a rearing approach. The measures 2 to 7 are largely new for most of the participants and need

attention. Hands-on demonstrations by the trainer and practical exercises by the participants fosters understanding. Concrete commitments in front of the group increases the motivation to effectively practice.

- 3. Compare the costs of a given measure to the benefits** that it provides with simple, striking examples drawn from the local context.

Reason: The economic benefits of the promoted measures 2 to 7 outweighs the costs, including labour. Most rural women have a keen sense of cost-benefit relations. They are receptive to such arguments.

Indigenous Plants for Access to Healthy Food and Enhanced Biodiversity

In drylands, fostering the multiplication and sustainable management of valuable indigenous trees, shrubs and grasses is **instrumental for food and nutrition security, as well as for both livelihood resilience and livelihood development**. In the short term, products of wildy growing indigenous plants that are harvested for food contribute to food diversity and intakes of nutrients and dietary fibers, as well as to enhancing resilience of local communities in case of prolonged disturbances in food supplies. Foraging for wild foods is a traditional good practice. The products include fruits, leaves, roots, tubers, resins and gums. They are mostly free of agrochemicals, mostly nutrient-dense and accessible without monetary costs. Concomitantly to food for humans, a variety of indigenous plants provide good quality fodder for milking animals and other livestock. Hence, they contribute twofold to human nutrition – through direct consumption and through the consumption of animal-sourced products that become more plentiful when the animals eat enough nutrient dense fodder of these plants. In addition, many of them are also used as medicines for both humans and livestock since ancient times. This an important aspect in areas where access to both human and animal health services is limited. Moreover, sustainably managing and multiplying these plants contributes to reducing soil erosion, to preserving soil moisture, as well as to protecting the habitat of a variety of wildlife including pollinators. It enhances biodiversity and provides safer, more promising livelihood prospects to the young generation in their home villages.

These benefits are more palpable and transformative if the required measures are agreed, planned and implemented at watershed or landscape scales, and if conservation zones are set aside for the natural regeneration of larger areas. This calls for strong community and county leadership and guidance, as well as for consistent bottom-up planning for sustainable land and water use and management starting at community and Ward levels.

Require special attention: 1) consensual, effective by-laws that are adhered to by all user groups and implemented and enforced accordingly; 2) need for enough qualified, experienced and timely available expertise on the ground to ensure appropriate training and follow up of the required technical measures and good practices; 3) competent bottom-up planning support for sustainable land and water use and management; and 4) mainly if larger areas are involved, aggregation and upgrading of the by-laws and local plans for sustainable resource management into the relevant county plans and legal systems.

A. Working Principles

- 1. Foster sustainable harvesting of plant-based wild foods.** The users must make sure that they observe field-proven, traditional rules designed to ensure the regeneration of the plants and to prevent their overexploitation. If such rules are not effective anymore, the users need to develop appropriate rules and regulations (by-laws) and implement them, including the protection of highly valuable plant species threatened by local extinction.

Reason: Although the reproductive cycle of indigenous plant species is generally known by local inhabitants, there is a trend to overexploit them, also for food. When promoting wild foods, its crucial to sensitize people to take the required measures to ensure the regeneration and foster the multiplication of the respective species, as well as to develop and demonstrate concrete practical measures on how to do it.

- Promote appropriate, fuel-efficient stoves that are easy to fabricate** by local artisans or by the women themselves.

Reason: collection of firewood and/or other local biomass for fuel is a time-consuming, arduous task that is mostly relegated to women and girls. It often considerably contributes to depleting the local vegetation. The traditional stoves consume considerably more firewood and/or other biomass than appropriate fuel-efficient stoves and emit considerably more noxious fumes if used in closed rooms. The women should have a say in the design of fuel-efficient stoves since cooking habits are diverse and locally adapted stoves facilitate adoption. Local production of fuel-efficient stoves creates additional revenue for artisans and considerably reduces the costs for the clients, thereby further facilitating adoption.

- Document local knowledge on processing plant-based wild foods.**

Reason: Field-proven, local knowledge is most relevant in this regard. Knowledgeable people can often be found among the older generation, and mainly among older women. Documenting their skills helps to preserve them for the benefit of the communities and the young generations. Moreover, it adds value to these skills and may contribute to improving and expanding them.

- Protect wildly growing seedlings and saplings of indigenous trees** near the homesteads, in the home gardens and in the compounds. As developed under points A.11 Home gardening and A.4 Goat husbandry for milk, it's easy to implement. Unlike planted nursery seedlings, wildly growing seedlings/saplings don't need to be watered, favoring rainwater infiltration is enough. They are more resilient than nursery tree seedlings because unlike nursery seedlings that have been grown under artificially favorable conditions, wildly growing seedlings have undergone a natural selection process. Only the strongest and healthiest survive under the harsh conditions they are exposed to right from germination.

Reason: This key measure takes advantage of the good potential for natural regeneration that can still be observed in many areas in both counties. Protecting wildly growing indigenous tree seedlings/saplings has a double advantage over planting nursery seedlings – first, the probability to get healthy, vigorous trees is higher due to natural selection; second, it's more economical (no need to grow seedlings in nurseries, buy, transport and plant them) and easier to implement at household/community level (no other maintenance than keeping the enclosure in good shape). Planting indigenous nursery seedlings may be required in areas where the potential for natural regeneration is vanishing.

Usually, people only protect old trees meanwhile seedlings and saplings often struggle to survive and to grow. They are trampled over, cut and over-browsed so that they reach maturity only after a much longer time, or not at all. Overexploitation, lack of care and the climate crisis combined, imperil the very existence of a variety of valuable indigenous trees near the settlements. Their disappearance entails the loss of high-value food and fodder sources and reduces local biodiversity and livelihood resilience. Often, at least one generation of young trees is missing, meanwhile the productivity of the mature trees drastically declines when they grow into age until they die. Protecting wildly growing seedlings and saplings of valuable indigenous local species helps to effectively and efficiently fight the disappearance of these species in and near the settlements and beyond. Once the protected young trees enter productive age, the households can harvest their products for food, fodder, medicines and other purposes. The households will also benefit from the trees' soil protection and soil moisture retention, as well as from the shade for their homes, home gardens and livestock.

5. Apply good forestry practices in and near the settlement areas including:

- a. life fencing with suitable native species of bomas, crop areas, private and public compounds,
- b. correct pruning and coppicing of native trees without tearing parts of the bark off;
- c. refraining from debarking trees;
- d. refraining from shaking trees during the flowering stage;
- e. removing invasive species as well as noxious climbers and vines;
- f. informing the forestry services of tree diseases.

Good forestry practices are one of the key requirements to progressively bring back the useful indigenous vegetation in and near the settlements so that women and children and the elderly have easy access to nutritious wild foods and good quality fodder for their milking animals, as well as to plant-based medicines.

Reason: Bad forestry practices are frequent. They contribute to reducing the populations of highly beneficial plants in and near the settlements which is detrimental to both food and nutritional security and livelihood resilience.

6. Strengthen governance for sustainable use of the indigenous vegetation, mainly near the settlements (and beyond as well) for all purposes including grazing, collection of firewood and specific grasses for domestic needs, foraging of products for food, fodder stocks, medicines etc. Achieving adherence of different user groups in the community to specific, agreed rules and regulations (by-laws), and making all user groups (both from the community and from outside) comply with these by-laws, are key requirements, together with the establishment of an effective and respected community organization for monitoring, control and enforcement. Well perceived common interest, strong and inclusive community leadership to foster consensus and reach adherence to the by-laws by all user groups including implementation and sanctions, as well as the support of local authorities are instrumental for durable results.

Reason: The severe degradation of the grazing lands near the settlements is one of the main Reason why the milking animals that stay with the households throughout the dry season almost stop producing milk soon after the rains. This provokes considerable nutrition gaps. To allow the households having enough milk during the dry season, grazing lands nearby need to be sustainably managed and partially rehabilitated to ensure a good quality grazing and fodder base.

7. **Demarcation, removal of invasive species, soil work, targeted reseeded.** The grazing areas that the community has selected for improved management need to be completely **demarcated** (e.g. red paint on trees, rocks etc.). In the strongly degraded parts, the **removal of noxious and/or invasive species** will reduce bush encroachment and create space for the natural regeneration of useful indigenous species. Targeted **re-seeding of selected grass species**



Grasses growing on re-seeded and protected area, Acacia reficiens cleared



No grasses growing under Acacia reficiens, non-reseeded and non-protected area

may be necessary. To favor germination, **manual soil scarification before seeding** as well as protection of the reseeded areas with **thorny branches of the removed trees** has given appreciable results. On hillsides, **semi-circular bunds** have also given good results, provided that their diameter is no more than five meters, and provided that they are established in several rows over the slope in a manner that favors capturing a maximum of water for infiltration, while the excess water can spill over the entire slope. Capacities to

establish semi-circular bunds and other simple measures the right way, need to be strengthened at both community and county levels.

Reason: If well-conceived and well implemented, simple measures with local materials and local labor can achieve quick and convincing results at a low cost. The community workers and county technicians should be trained on-the-job so that they can perform well, and that the relevant skills can spread in the community and beyond for maintenance and extension.

8. **Step up measures to reduce the cover of invasive species.** Certain invasive species pose a serious threat to the useful indigenous vegetation in both grasslands and forested areas, as well as to fertile soils and water sources. Due to the prevailing environmental degradation, certain species propagate particularly well in and near the settlement areas. These species threaten people's livelihoods and capacity to produce their own healthy food. Active reduction of invasive species to create space for the natural regeneration of the indigenous vegetation on which the local livelihoods depend, combined with targeted replanting/reseeding where necessary, are therefore among the most important measures to build livelihood resilience and food and nutrition security.

Reason: Simple, locally feasible practices to reduce the cover of invasive species and to promote valuable local species and thereby protect and value the land, are well known and field-tested and directly contribute to livelihood resilience and food and nutritional security. To be effective in the longer term and on a larger scale, a well-conceived package including governance, policy, fiscal and technical measures is required and needs to be implemented and enforced under strong county leadership.

9. **Step up measures against soil erosion.** Soil erosion is rapidly progressing. Erosion gullies should be treated right from the start to avoid further damage. Moreover, if applied at an early stage, locally manageable and low-cost techniques and practices have proven very effective in drylands. The most effective and economical approach against soil erosion is fostering the indigenous vegetation cover. However, simple, mechanical forms of erosion control based on local materials are often required to slow down the runoff and its destructive effects, as well as to improve both water infiltration and the capture of fertile soil elements and seeds of wild plants, so that the natural vegetation can recover. Mobilizing community knowledge of the terrain and local skills, fostering skill transfers between knowledgeable local people and field-proven outside expertise, as well as keeping techniques simple and costs low, are required to ensure local ownership and maintenance, as well as expansion of the measures in the longer term.

Reason: Soil erosion is a major threat to the local environment and livelihoods, as well as to food and nutrition security. Simple, locally feasible practices are well known and field-tested, and have demonstrated their direct and major contribution to livelihood resilience and food and nutritional security in many drylands. To make such practices effective in the long term and on a large scale, a well-conceived package of specific governance, policy, fiscal and technical measures implemented under strong county leadership is required.

10. **Foster comprehensive, participative land use and land management planning** at community, intercommunity, watershed and landscape levels, including the establishment or extension of meaningful conservation zones that are put under protection for natural regeneration, respectively under sustainable management rules. The purpose is to foster biodiversity and to preserve headwaters and wider water catchment areas for the longer-term benefit of the inhabitants, their livelihoods and their food and nutrition security.

Reason: A combination of internal and external factors have accelerated structural changes in land use and management, as well as in local livelihoods and have led to steadily increasing human encroachment in areas that were previously preserved and sustainably managed. The local ecosystems rapidly deteriorate, and their capacity to provide enough water, fertile soils and habitats for diverse indigenous plant and wildlife populations declines. To make land use planning effective in the long term and on a large scale, a well-conceived package including governance, policy, fiscal and technical measures is required and needs to be implemented and enforced under strong county leadership.

The FNS project has been active in point 2) in Laisamis sub-county (Marsabit), in point 5) in Marsabit County, in points 6) to 8) in specific settlement areas in the Melako and Songa Conservancies (Laisamis and Saku sub-counties, Marsabit), marginally in point 9) in the same settlement areas, and not at all in point 10). Nevertheless, it became evident throughout project implementation that these measures are in both counties **a crucially important and urgent preliminary for sustainable food and nutrition security**, as well as for livelihood resilience and livelihood development in the longer term.

B. Train on fostering the indigenous vegetation for healthy food and biodiversity

- 1. Develop a methodology that suits both practitioners and newcomers.** According to the addressed measure, participants may have their own skills, or not. The methodology needs to be interactive and flexible as per knowledge base of the participants. The participants should be encouraged to bring in their own skills and share them with their peers and the trainer. Giving ample opportunity to ask questions is required. The trainer needs to go into the details (what, why, how, when) of the new subjects and regularly test the participants' understanding. The participants summarize the key aspects and conclusions; the trainer wraps up and highlights the insights.
- 2. Do practical demonstrations and exercises with the participants.** This is a requirement for most subjects to make sure the participants understand well and acquire the good practices. For most subjects, there is need for the trainer to concretely demonstrate himself/herself what to do and how, as well as to engage the participants in practical exercises whereby they comment each other's work. The trainer concludes and requests the participants to take concrete commitments to implement. Learning by doing is the key to successful practice.

Reason: Hands-on demonstrations by the trainer and practical exercises by the participants fosters understanding. Concrete commitments in front of the group increases the motivation to effectively practice.

- 3. Mobilize experienced local practitioners as trainers** mainly for the modules on processing, storing and utilizing plant-based wild foods. Often, elderly women hold such knowledge.

Reason: The knowledge on how to make best use of these safe, nutritious and freely accessible foods is vanishing among the younger generations. Using local practitioners helps to value, preserve and propagate their skills, and can contribute to progressively improving them once they are again more widely practiced, also among younger people.

- 4. Enhance county capacity** to provide technical advice on points 4 to 8, as well as guidance to local communities on points 4 to 9 on both their communal lands and on the spaces that they share with other communities. The county capacity to design, implement and enforce coherent packages of supportive and complementary actions for points 7 to 9 in terms of governance and policy development, as well as appropriate fiscal and technical measures, needs also to be enhanced.

Savings and Loan Groups for Access to Healthy Food

The main purpose of Savings and Loan Groups (SLG) in relation with food and nutrition security is to enable the group members to engage in profitable, cash income generating activities through loans that have been allocated to them by their SLG, so that they can buy more diverse and nutritious food. In terms of cash income generation, there are better chances of success in locations and activities with a higher level of monetary transactions and relatively stable markets. In terms of durability of the SLG, much depends on the internal governance and the cohesion of the members of the group. In terms of value added to nutrition, much depends on the supplies (quality, diversity, quantity) of the local food markets.

Require particular attention: 1) little experience of many women in market-based activities; 2) identification and proper management of businesses activities that generate enough and regular net benefits; 3) capacity to timely reimburse loans as well as other obligations to the SLG while generating enough benefits to purchase nutritious food.

A. Working Principles

1. **Work with voluntary groups that have a common goal.** Voluntary SLG membership based on a common goal, as well as on common views on savings and loans (SL) rules and management should prevail.

Reason: SLGs may easily disintegrate if they are not based on well-informed and voluntary adherence, and/or if they are based on criteria with little connection to the purpose of SL activities.

2. **Strengthen the capacity of the SLG to build its internal governance** including accountable leadership and appropriate rules and by-laws that favor transparent management. Once a SLG is formed, the members usually need advice in establishing a functional internal structure with clearly defined responsibilities and tasks, as well as rules and by-laws that foster mutual transparency and accountability of the leadership and the other members. The members need to learn how to create group consensus, to build their own dynamics and to sort out their internal differences relying on their rules and by-laws.

Reason: The success of a SLG depends on mutual trust, internal discipline and abidance by the rules and by-laws that all the members have understood and approved. The SLG needs dynamic, transparent and accountable leadership that knows how to involve all the members. This needs a process that is mainly determined and maintained by the SLG itself.,.

3. **Minimize outside interference in the internal affairs of the SLG.** Once structure, rules and by-laws of the SLG are agreed by the members and coming into effect, the external organizational support should progressively withdraw and intervene only upon demand.

Reason: The members of the SLG need to understand from the onset that outside support and advice are available only during a limited time. The sooner the SLG operates on its own, the better in terms of durability.

4. **Make the SLG fund its loans exclusively through the savings of its members.** Experience shows that introducing outside funds (grants, match funds etc.) as start-ups or at a later stage, often lead to the break-up of the SLG.

Reason: There is a high probability that the SLG members don't consider outside funds as theirs and that they manage them less carefully than the funds saved and deposited by their members.

5. Advise members not to participate in more than one SLG at once.

Reason: Membership in multiple SLG can lead to the members being constantly in debts that they may not be able to repay with ease.

6. Linking the SLG to financial institutions should be the exception and not the rule. Only the best performing SLG with the most successful IGA and the best working internal governance and cohesion should be linked.

Reason: Risks at group level: the financial institutions may gently impose their own model to the SLG and thereby dislocate the group's own rules and practices. Important amounts of external money often entail loss of ownership and sound management principles. Risks at individual level: debt trap. Members may contract inconsiderate loans for activities that are not as economically and financially sound as they should be and then have difficulties to reimburse the loans.

7. Clarify the link between nutrition and membership in the SLG right from the start. In a food and nutrition security intervention, each woman needs to well understand how their membership in the SLG is intended to help them to buy more healthy food through additional cash income that they can generate by engaging into profitable activities funded by loans from the SLG. During the meetings of the SLG, nutrition related activities (MIYCN training sessions, cooking demonstrations, nutrition talks etc.) should always happen prior to the SL transactions.

Reason: This will remind the members that the main purpose of the group is to help its members to improve their food and nutrition security and that the SL transactions are a means to achieve that purpose.

B. Train for saving and loaning and for developing income generating activities

1. Work with experienced, professional trainers who have been involved in a variety of SL approaches, and who have supported the development of income-generating activities (IGA) in various contexts.

Reason: Each area has specific potentials and challenges, and the IGA need to be profitable for the SLG members. Experienced trainers can accurately adapt both the set-up of SLG and the development of IGA to the specific contexts as well as to support the members to find viable solutions and to go for IGA with a good economic potential.



Stock taking

2. Work with trainers that present a spectrum of small business-related skills e.g. expertise in trade, small business development, micro-credit and cooperative development and any other relevant skills that the SLG members can benefit from.

Reason: Trainers with a wide spectrum will be able to impart the much-needed skills and knowledge to the members based on their experiences. This will enable the group members to make informed decisions.

3. Always keep in mind the link between nutrition, SL and IGA, so that the trainers conduct both SLG and IGA trainings and mentoring accordingly. The trainers need to be sensitized on the desired nutrition outcomes.

Reason: If the trainers do not understand the nutrition objectives and the fact that SL and IGA are meant to contribute to achieving them, they may tend to conduct the trainings and mentorships as if the SL and IGA were objectives per se. Nutrition may slip off the screen.

4. Identify and train one or two local facilitators from within the SLG and/or the wider community. SLG members should select them, based on agreed, relevant criteria and supported by the trainer. Many members are illiterate and need someone who can ensure the tasks that require literacy. The trainer should train these persons more in-depth on the methodology, so that they can be mobilized for following up. This helps to sort out possible issues and questions, and to keep up to date the SLG documentation, as well as the collection of relevant data.

Reason: Motivated and well-prepared community-based facilitators are of big help for both the SLG and the trainers in charge of the mentoring. Some groups may need technical support for a prolonged period which the local, properly trained facilitators should be able to provide. In parallel, the facilitators can ensure the collection of relevant data (e.g. the level of capacity of SLG members to timely pay all their financial commitments to the SLG and to generate at the same time benefits through their IGA in order to buy more nutritious food; etc.).

5. Start the SLG transactions on the last training day in presence of the trainer, mainly the savings deposits with proper registration and the documentation of the meeting (e.g. list of presence/absence, agenda, decisions/measures taken, outlook for next meeting).

Reason: The immediate start of implementation enables the SLG members to practice the skills they have just acquired and to benefit from the guidance of the trainer so that they correctly apply the methodology right away. Experience shows that groups that don't start transaction very soon after the training are likely to never start them at all.

6. Closely mentor new SLG for the first six meetings after which the visits can be less frequent. The mentorship ensures that the methodology is being followed correctly and that any issues that may arise can be sorted out before they escalate. The facilitators need to participate in all the visits to get further on-the-job training from the trainer.

Reason: Mentorship provides a good opportunity for the trainer to be able to follow the progress of the group from its infancy. This is the period within the group experiences the most problems and if not properly guided, its chances to fail will be high. Furthermore, the mentorships should continue for as long as the trainer will still identify issues that need to be sorted within the groups.

7. Ensure that the trainer who trained the group mentors the group.

Reason: The trainer knows best the group and its members including their potentials and challenges and is well positioned to help the group to address them. By experience, the members of the SLG show more openness and confidence in the trainer than in outsiders so that possible difficulties can be effectively addressed at an early stage.

8. Promote visits of SLG beginners to well performing, experienced SLG. Usually, such visits accelerate smooth uptake of advice as well as adoption of field-tested practices by the new SLG. They also foster real engagement of the new SLG. The trainer should accompany the exchange visits, so that questions can be immediately addressed.

Reason: The SLG members like to chat with and learn from their peers that live and work in similar conditions and concretely demonstrate that success is possible. Experience shows that, if well-prepared, such visits are very effective.

9. Build capacity in the SLG for the use of both passbooks and ledger books. Usually, the SLG prefer recording in the ledger book; they use the passbook for inputting shares only. Loan recording in the passbooks has proved challenging for the groups, due to the lack of literate members. Refresher trainings of some literate individuals are required to assist the group in adequate record keeping.



New business owners

Reason: For quality checks and reconciliation both books are needed. This facilitates the tracking of the loans by the SLG and others.

10. Keep the records as simple as possible. They can be customized from the standard tools to ensure that they can easily be applicable to the SLG in question. Keep them as simple as possible, so that the secretaries of the SLG can correctly keep them and the other member can easily understand them.

Reason: The low literacy level Require simplification, so that the secretaries can manage the recording and the chairpersons, treasurers and other members can easily understand what the records are about.

- 11. Be aware of practical details** – for instance, the usual three padlock system is not always suitable.

Reason: In contexts where people are mobile, it's not easy to make work that system, since often, one of the padlock holders is away.

- 12. Train the SLG on economically and financially viable micro-businesses.** Keep focus on the identification with the SLG members of viable income generating activities and train and advise the SLG members accordingly. The proper training and advice on sound micro-businesses is as important as the training on SLG.

Reason: Only profitable micro-businesses will generate enough additional proceeds to timely reimburse the loans, honor the other financial commitments towards the group (e.g. solidarity fund) and set enough money aside to buy more healthy foods. The SLG members are inexperienced in launching businesses and tend to just imitate to what seems to work with others without proper analysis. Furthermore, they lack basic skills to correctly manage a micro-business.



**QUANTITATIVE RESULTS
PER ACTIVITY**

County capacity to expand and upscale knowledge in nutrition – MIYCN

Field of Activity	Marsabit	Turkana	Total
1. MIYCN trainers trained ⁽¹⁾	57	77	134
Confirmed knowledge increase ⁽²⁾	-	-	50%
2. CHV trained in MIYCN	92	84	176
Confirmed knowledge increase ⁽²⁾	-	-	58%
3. Staffs trained in nutrition-sensitivity ⁽³⁾	19	18	37

⁽¹⁾ Marsabit: Nutrition officers, nurses, Community Health Assistants (CHA); Turkana: Community Health Extension Workers (CHEW)

⁽²⁾ MIYCN knowledge assessed through a specific questionnaire before and after initial training, as well as before and after refresher training.

⁽³⁾ In both counties: staffs of Agriculture, Livestock and Fisheries and of Environment

Knowledge in nutrition at household and community levels; basic health services

Field of Activity	Marsabit	Turkana	Total
1. Women trained in MIYCN	6,965	2,603	9,568
2. Men trained in MIYCN	377	40	417
3. Household members reached ⁽¹⁾	> 40,000	> 15,000	> 55,000
4. Women groups supported	263	88	351
5. HNO supported	55	-	55
- Women screened (malnutrition)	6,794	-	6,794
- Children < 5 screened (ditto)	27,546	-	27,546
- Women treated (malnutrition)	3,094	-	3,094
- Children < 5 treated (ditto)	5,294	-	5,294
- Pregnant women: folic acid, iron suppl.	1,824	-	1,824
- Children < 5: vitamin A suppl.	8,824	-	8,824
- Children < 5: dewormed	7,019	-	7,019

⁽¹⁾ Average statistical household size: Marsabit: 5.8; Turkana: 6. Only the women trained were considered in the numbers of household members reached to exclude double counting.

Home gardening for access to healthy food

Field of activity	Marsabit	Turkana	Total
1. Women trained in production ⁽¹⁾	1,902	375	2,277
2. Men trained in production	31	36	67
3. Women trained in utilization ⁽²⁾	1,233	375	1,608
4. Men trained in utilization	26	36	62
5. Local facilitators trained	65	40	105
6. AEO trained, in-depth ⁽³⁾	2	2	4
7. Productive home gardens (end of 2019)	733	127	860

⁽¹⁾ After August 2018 trainings were based on the Trainer's Guide developed by the FNS project for nutrition-sensitive, organic home gardening.

⁽²⁾ Training focused on linking home gardening and nutrition: nutrition benefits of the promoted crops, edible parts, advisable quantities to be consumed per person, proper cooking practices to preserve nutrients, optimal combination of promoted crops and other foods to get an equilibrated meal.

⁽³⁾ on-the-job training by the GIZ consultant in organic agriculture

Improved animal husbandry practices for access to healthy food

1 – Goat husbandry for more milk in the dry season

Field of Activity	Marsabit	Turkana	Total
1. Women trained in goat husbandry ⁽¹⁾	3,167	190	3,357
2. Women trained in milk processing	481	-	481
3. Men trained	83	-	83
4. Goats handed over to women (2)	500	380	880

⁽¹⁾ From mid-2016 until August 2018, trainings were based on the manual used by the Livestock Production Department of Marsabit encompassing various aspects of livestock production and marketing. After August 2018, trainings were based on the nutrition-sensitive Trainer's Guide developed by the FNS project, focused on improving husbandry practices of milking goats that stay in the settlements, so that they can produce more milk in the dry season for women and children, as well as for their young. 190 women in Turkana and approximately 1800 women in Marsabit were trained according to the Trainer's Guide.

⁽²⁾ Trained beneficiaries were selected by their group, based on agreed criteria. Required before receiving the goats, as per training: fodder stock in the shade, protected wild saplings, covered and spacious shelter, stock for salt supplementation. Each beneficiary signed an agreement with her group committing herself to handing over the first suitable and weaned offspring of each goat received to another trained member selected by the group.

2 – Chicken rearing for eggs

Field of Activity	Marsabit	Turkana	Total
1. Women trained	1,452	96	1,548
2. Men trained	40	-	40
3. Chickens handed over to women ⁽¹⁾	1,150	295	1,445

⁽¹⁾ Required before receiving the chickens, as per training: stock of locally sourced feeds, water station for adults and chicks, suitable and protective chicken house built with local materials, protected breeding space. Handover agreement: ditto goats.

Indigenous plants for access to healthy food and enhanced biodiversity

Field of activity	Marsabit	Turkana	Total
1. Women trained in agro-forestry practices ⁽¹⁾	677	-	677
2. Men trained in agro-forestry practices	71	-	71
3. Women trained on-the-job in FMNR ⁽²⁾	1,855	-	1,855
4. Men trained in on-the-job in FMNR	42	-	42
5. Women trained on energy saving stoves	556	-	556
6. Wild tree seedlings/saplings protected, approx. ⁽³⁾	1,000	300	1,300
7. Nursery tree seedlings planted ⁽⁴⁾	2,000	-	2,000
8. Grazing areas protected, in ha ⁽⁵⁾	1,000	-	1,000
9. Grazing areas rehabilitated, in ha ⁽⁶⁾	200	-	200

⁽¹⁾ Training based on the Trainer's Guide developed by the FNS project with the Forest Conservator and the Kenya Wildlife Service, Marsabit. Purpose: protection, sustainable utilization and multiplication of native trees near the settlements for domestic needs including food and fodder, as well as proper processing of plant-based wild foods for consumption.

⁽²⁾ Farmer Managed Natural Regeneration. Approach initiated by ICRAF (World Agroforestry Center), expanded by WVI in various countries including Kenya; on 10 sites in Laisamis sub-county, Marsabit. The women learned mainly through practice.

⁽³⁾ This activity has been properly promoted only in 2019. Since the last few months of 2019, the number of women engaging in the protection of wild growing tree seedlings/saplings from browsing and trampling is growing in many settlements.

⁽⁴⁾ Priority given to native species that provide food for humans and fodder for livestock among other products, in degraded areas in Songa conservancy were natural regeneration isn't effective enough. A few Moringa trees were also planted. In Melako conservancy, the women planted Neem seedlings in their compounds for future use for organic concoctions and disinfectants. The overall survival rate in December 2019 was > 80 percent.

⁽⁵⁾ In four settlement areas, Melako and Songa conservancies. Demarcation done, by-laws for sustainable management developed and implemented by the communities, supervision and enforcement by settlement committees and chiefs.

⁽⁶⁾ Same locations. Very degraded areas within the 1,000 ha under sustainable management rules: removal of invasive species, targeted re-seeding of palatable grass species, semi-circular bunds for improved water infiltration and retention of fertile soil particles and seeds of local plants.

Savings and Loan Groups for access to healthy food

Field of activity	Marsabit	Turkana	Total
1. Women trained in savings and loans (SL)	2,500	2,403	4,903
2. Men trained in SL	28	-	28
3. Number of SLG	120	80	200
4. Accrued savings, in KES	19.87 Mio	30.13 Mio	50 Mio
5. Accrued Social fund, in KES ⁽¹⁾	35,650	5.45 Mio	35.485 Mio

⁽¹⁾ The purpose of the Social Fund is to support SLG members confronted with financial hardships that they can't manage on their own. In Turkana, each member pays KES 100 in the Social Fund at every SLG meeting. The SLG members decide collectively whether a needy member should be supported. The Social Fund works on grant bases.

Water for humans (domestic consumption, hygiene) and livestock

Field of activity	Marsabit	Turkana	Total
1. Rehabilitated water points ⁽¹⁾	8	-	8

⁽¹⁾ Including the burying of two pipelines of 2.4, respectively of 1.7 km through Marsabit forest for protection from elephants.

In brief – some effects on nutrition skills and access to healthy food ⁽¹⁾

- **63 percent** of the women and men that had participated in the MIYCN course could demonstrate a very good or good nutrition knowledge ⁽²⁾.
- **95 percent** of the women and men engaged in livelihood activities supported by the project could improve their access to healthy food as compared to the same period in 2018. The Individual Dietary Diversity Score (IDDS) of the beneficiaries by end of 2019 was 5.5 as compared to 4.8 in 2018 and 3.2 during the baseline in 2016. The Medium Dietary Diversity Score for Women (MDD-W) has been slightly surpassed in 2019.
- **90 percent** more women practiced home gardening in 2019 than in 2018. This is quite remarkable, since 2019 was a particularly dry year mainly in Marsabit, after the failure of two successive rainy seasons. Spontaneous peer to peer training among neighbours also picked up in both counties.
- **47 percent** of the home gardeners consumed the entire harvest with their families, as compared to 22 percent in 2018, while the overall number of home gardeners increased in 2019. This indicates that people appreciate the produce and utilization is improving.
- **80 percent** of people trained in goat husbandry for milk with the project's support consumed milk of their own animals, as compared to 70 percent of those that were not trained (values 2019).
- **62 percent** of the roughly 70 percent of beneficiaries that were members of an SLG consumed more food with their families at the time of the survey, due to higher incomes related to the small businesses that they financed with the loans.

⁽¹⁾ Results of interviews of randomly sampled beneficiaries (2019: n = 1399; 2018: n = 1014; the difference is due to higher beneficiary numbers in 2019).

⁽²⁾ The trained women's and men's knowledge was assessed with the help of a specific, scaled questionnaire.

ACRONYMS AND ABBREVIATIONS

AEO	Agriculture Extension Officer
ASAL	Arid and Semi-Arid Lands
BFCI	Baby Friendly Community Initiative
BMZ	German Ministry of Economic Cooperation and Development
CHA	Community Health Assistant
CHEW	Community Health Extension Worker
CHV	Community Health Volunteer
CU	Community Unit
CIDP	County Integrated Development Plan
CMSG	Community Mother Support Groups
CNAP	County Nutrition Action Plan
CNTF	County Nutrition Technical Forum
CSG	County Steering Group
FHK	Food for the Hungry Kenya
FNS	Food and Nutrition Security
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
HNO	Health and Nutrition Outreach
IGA	Income Generating Activity
IGF	Intergovernmental Forum
JAS	Joint Agriculture Secretariat
JASCCOM	Joint Agriculture Sector Consultation and Cooperation Mechanism
LPO	Livestock Production Officer
MCH	Maternal and Child Health
MOALFC	Ministry of Agriculture, Livestock, Fisheries and Cooperatives
MIYCN	Maternal, Infant and Young Child Nutrition
MSP	Multi-Sectoral Platform on Nutrition
NRT	Northern Rangeland Trust
SCI	Save the Children International
SL	Savings and Loans
SLG	Savings and Loan Groups
SUN	Scaling Up Nutrition
ToT	Training of trainers
UNICEF	United Nations International Childrens Fund
WHH	Welt Hunger Hilfe (German Agro-Action)
WHO	World Health Organization
WVK	World Vision Kenya

OPERATIONAL DEFINITIONS OF TERMS

BFCI - Baby Friendly Community Initiative: A community-centred initiative of the national Ministry of Health (MoH) and UNICEF Kenya that is adopted from the 10th step of the WHO/UNICEF Baby Friendly Hospital Initiative of supporting mothers in the communities after they leave the hospital after giving birth. BFCI aims to protect, promote and support breastfeeding, optimal complementary feeding and maternal nutrition. It is conducted through the formation and training of Community Mother Support Groups (CMSG) as well as the formation of mother-to-mother support groups (MTMSG). The mother-to-mother support groups are supposed to conduct home visits and to maintain close links to primary health care facilities. BFCI also includes feeding of sick children, hygiene, early childhood stimulation, referral to and from Maternal and Child Health (MCH) clinics.

CHA - Community Health Assistant: An officer that provides Community Health Services. Their specific duties and responsibilities include: collecting health related data at household level for analysis; maintaining and updating community health unit registers and keeping records; identifying common ailments and minor injuries at community level for appropriate action; identifying and referring health cases to appropriate health facilities; visiting homes to determine health situations and dialogue with household members; identifying and sensitizing communities on health interventions; monitoring growth of children under the age of five years; identifying defaulters of health interventions and referring them to appropriate health facilities; and convening and coordinating monthly community meetings and action days.

CHEW - Community Health Extension Worker: This is what a CHA was previously referred to. Some counties have adopted the new name while others still use this term.

CHV - Community Health Volunteer: Community Health Volunteers are lay members of the community who work according to the counties, either for pay (new development) or as volunteers in association with the local health care system in both urban and rural environments. CHVs usually share ethnicity, language, socioeconomic status, and life experiences with the community members they serve (CHVs typically serve where they live). They are frontline agents of change, helping to reduce health disparities in underserved communities.

CNFT - County Nutrition Technical Forum: The Nutrition Technical Forum (NTF) is the national coordinating structure for the food security and emergency nutrition program in the nutrition sector. This is further cascaded to the county level to form The County Nutrition Technical Forum. The forums are aimed at improved coordination and harnessing all the required resources from all stakeholders to plan implement and monitor the response plans put in place.

CU - Community Unit: A community unit is a health service delivery structure within a defined geographic area covering a population of approximately 5,000 people. Each unit is assigned two Community Health Extension Workers/Community Health Assistants (CHEWs/CHAs) and community health volunteers who offer promotive, preventative and basic curative services.

CSG - County Steering Group: multisectoral and multi-agency body, whose membership includes members of the County governments, as well as representatives of local leaders of the administration (chiefs etc.). This structure is part of the intergovernmental coordination of the Council of Governors that oversees coordinated identification and implementation of identified priority areas of action in various topics. According to the Constitution, CSGs are supposed to be implemented across the 47 counties.

HNO - Health and Nutrition Outreach: this term is used to describe any type of health service and nutrition advice that mobilizes health personnel and possibly CHV to provide services to the population or to other health personnel, away from the health facility where they usually work. HNO often constitute the only access to basic health services of the population in regions where people live scattered on large areas and/or are mobile and are underserved in terms of health facilities.

JAS/JASCCOM/IGF: The Joint Agriculture Secretariat (JAS) is the operational secretariat that supports the Joint Agriculture Sector Consultation and Cooperation Mechanism (JASCCOM), the organ that facilitates sector coordination by following up on resolutions made by the Sector Intergovernmental Forum (IGF) for the improved coordination of actors in the agriculture sector at national and county levels. The JASCOM is one of the arms of the Council of Governors.

MIYCN - Maternal, Infant and Young Child Nutrition: Developed and promoted by UNICEF, this approach includes all skills, and good practices on maternal, infant and young child nutrition together with care and stimulation that contribute towards improving the health, nutrition and wellbeing of infants and young children (0-5 years), as well as those of mothers and mothers-to-be. In Kenya, MIYCN is an integral part of BFCI at community level.

MMSG - Mother-to-Mother Support Groups: Group of lactating mothers and pregnant women, who meet on a regular basis to discuss and support each other on MIYCN.

Malezi Bora Campaign: Is an annual, countywide campaign to foster the use of maternal and child health and nutrition services offered in county health facilities.

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