

# Strengthening Institutional Systems for Scaling up OFSP for Improved Nutrition and Food Security in Tigray and SNNPR, Ethiopia

## Annual Technical Report

1 July 2017–30 June 2018

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# Strengthening Institutional Systems for Scaling up OFSP for Improved Nutrition and Food Security in Tigray and SNNPR, Ethiopia

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## ANNUAL TECHNICAL REPORT

1 July 2017–30 June 2018

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The authors' views expressed in this report do not necessarily reflect those of Irish Aid.

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## ACRONYMS

|        |   |
|--------|---|
| ATVETs | Agricultural, Technical, and Vocational Education Training Colleges |
| BoANRD | Bureau of Agriculture and Natural Resources Development             |
| BoARD  | Bureau of Agriculture and Rural Development                         |
| BoH    | Bureau of Health  |
| CIP    | International Potato Center   |
| DAs    | Development agents]   |
| DVMs   | Decentralised vine multipliers                                      |
| ELE    | Egna LeEgna   |
| FAO    | Food and Agriculture Organisation of the United Nations             |
| FTCs   | Farmer Training Centres   |
| GoE    | Government of Ethiopia  |
| HCA    | Host country agreement  |
| HEWs   | Health extension workers  |
| HH     | Household(s)  |
| ILRI   | International Livestock Research Institute                          |
| MoANR  | Ministry of Agriculture and Natural Resources                       |
| NGO    | Non-governmental organisation                                       |
| NSA    | Nutrition-sensitive agriculture                                     |
| OFSP   | Orange-fleshed sweetpotato  |
| SARI   | South Agricultural Research Institute                               |
| SDS    | System diagnosis study  |
| SGAs   | Sub-grant agreements  |
| SNNPR  | Southern Nations Nationalities Peoples Region                       |
| SSP    | System Strengthening Plan   |
| TARI   | Tigray Agricultural Research Institute                              |
| TC     | Tissue culture  |
| ToT    | Training of trainers  |
| WAT    | Women Association of Tigray   |

## EXECUTIVE SUMMARY

The Irish Aid-funded project, “Strengthening Institutional Systems for Scaling-up Orange-Fleshed Sweetpotato (OFSP) for Improved Food Security and Nutrition in Tigray and SNNP Regions of Ethiopia”, aims to strengthen institutional capacities and processes of government systems at national and subnational levels to support the scaling-up of production and consumption of vitamin A-rich orange-fleshed sweetpotato (OFSP) in Tigray and the Southern Nations Nationalities Peoples Region (SNNPR). The project, led by the International Potato Center (CIP) in collaboration with government and non-governmental organisation (NGO) partners, is programmed to be executed from 1 July 2017 to 31 December 2018. This report covers the period 15 July 2017–30 June 2018.

The project made considerable progress towards achieving the four main objectives as summarised below:

**Objective 1:** Diagnosis of key institutions, system linkages and coordination, technical, and institutional capacity gaps, and review of the OFSP evidence base to identify gaps and leverage points for system strengthening.

*Main progress:*

- A system diagnostic study (SDS) to identify system gaps and leverage points for system strengthening was jointly designed and conducted by CIP, Mekelle University, and International Food Policy Research Institute in October–December 2017.
- Conducted a stakeholder workshop on 11–12 January 2018 to present preliminary findings of the SDS for validation.
- Final SDS report incorporating feedback from stakeholders prepared and shared with stakeholders.
- During the stakeholder validation workshop, stakeholders jointly developed regional system strengthening plans (SSPs) based on the findings of the SDS. The SSPs were integrated into project work plan for year 2 that was prepared jointly by project partners through regional stakeholder review and planning workshops conducted in each of the target regions in May 2018.

**Objective 2:** Technical capacity of the Bureau of Agriculture and Natural Resources Development (BoANRD), Bureau of Agriculture and Rural Development (BoARD), Bureau of Health (BoH), South Agricultural Research Institute (SARI)/Tigray Agricultural Research Institute (TARI), Agricultural, Technical, and Vocational Education Training Colleges (ATVETs), farmer training centres (FTCs), and other stakeholders in the OFSP value chain strengthened to promote and implement sustainable OFSP technologies and services to smallholder farmers.

*Main progress:*

- Established OFSP multiplication plots at nine FTCs and distributed 160,000 foundation planting materials to the FTCs for further multiplication.
- Strengthened the capacity of FTCs for OFSP demonstration and multiplication by setting up drip irrigation system at three FTCs in SNNPR. Disseminated 100,000 OFSP cuttings to households (HH) in three target woredas from FTC multiplication sites.
- Provided furniture and other materials to 10 FTCs to improve storage of training materials.
- The capacity of TARI/SARI to produce foundation seed improved. TARI has signed a contract to supply 500,000 clean foundation materials to institutional buyers for 2018/19 Meher rain

season planting.

- Facilitated public–private sector partnership in pre-basic/foundation OFSP and potato seed multiplication and production between Mekele Agricultural Research Centre tissue culture lab and the Tigray Biotechnology Centre of TARI.
- Conducted meetings with the nutrition case team of the Ministry of Agriculture and Natural Resources (MoANR) to identify potential areas for collaboration and leverage points for institutionalisation of OFSP in the ministry’s programs and plans. Shared CIP-developed OFSP manuals for mainstreaming into the training manual and facilitator guide on nutrition-sensitive agriculture (NSA) developed by the ministry for use by ATVETs and FTCs.
- Conducted cooking demos that include OFSP dishes at 12 health posts, reaching 768 people, led by the BoH with technical backstopping from CIP, Eгна LeEгна (ELE), and Women Association of Tigray (WAT).
- Convened a regional annual stakeholder sweetpotato seed demand and supply linkage forum, led by BoA in each target region.
- Facilitated three ATVETs in Tigray (Wukro, Shire, and Maichew) integrate OFSP training materials into their training curriculum. An agreement was reached with Wolayta Sodo ATVET in SNNPR to do the same in year 2 of the project.
- Trained 29 woreda and regional BoA experts and five ATVET instructors in OFSP nutrition, agronomy, post-harvest management, seed system, OFSP harvesting and post-harvest management, processing and utilisation, marketing and entrepreneurship, monitoring and evaluation, and helping adults to learn at Sodo ATVET college.
- In Tigray, trained nine ATVET instructors, 10 woreda BoA experts, and three regional BoA officers on OFSP nutrition, agronomy and pest management, seed system, post-harvest management, and utilisation. A copy of the training manual *Everything you want to know about sweetpotato* was also provided to each participant.
- In Tigray, trained 19 BoH, two health college instructors, five WAT woreda focal persons, and one regional BOARD staff in OFSP nutrition and utilisation; a training manual on OFSP was provided to each participant.
- In Tigray, trained 140 development agents (DAs) from project woredas on benefits of OFSP and healthy diets, sweetpotato agronomy, seed conservation, and post-harvest management.
- Trained 140 health extension workers (HEWs), health officers, DAs, and Women Army Group leaders on how to process and prepare different OFSP recipes to increase HH demand for OFSP.
- OFSP recipes integrated into cooking demos conducted at 10 health centres in the two target regions. A total of 1,691 people (1,082 females, 398 males, and 211 children) from project target areas were reached through cooking demos at health posts led by trained HEWs.

**Objective 3:** Evidence, best practices, and lessons on using OFSP to improve food security and nutrition documented and disseminated at national, subnational, and local levels.

*Main progress:*

- Designed advocacy/communication tools, including one project brief, one evidence brief, one policy brief, one factsheet, and three case studies. These were disseminated to stakeholders at different regional, national, and international fora.
- Organised two field days and site exchange visits for members of woreda and regional platforms and stakeholders.

- Conducted annual regional stakeholder project review and planning workshops in Tigray on 8 May 2018 and SNNPR on 9 May 2018 to review project progress and share lessons and experiences, and jointly plan activities for year 2 of project implementation.

**Objective 4:** Evidence-based advocacy strengthened to influence policies and programming in support of OFSP as part of healthier diets.

*Main progress:*

- CIP and partners presented three research papers and one poster at the National Nutrition Programme review meeting held at Hilton Hotel, Addis Ababa, on 20–21 December 2017. The papers/poster were mainly based on evidence generated by previous and current Irish Aid-funded OFSP projects with the following titles:
  - Multi-sectoral efforts and coordination for better nutrition: a preliminary finding from systems diagnostic study on implementation challenges and opportunities for NSA interventions in Ethiopia.
  - Impact pathways linking orange-fleshed sweet potatoes to child and household nutrition outcomes: A cluster randomized effectiveness study in rural Ethiopia.
  - The impact of school nutritional campaigns on Scaling Up Nutrition-Sensitive Agriculture in Tigray region, Ethiopia.
  - Kitchen gardens for improved nutrition: Evidence from the cultivation of sweetpotato, potato and other nutritious crops in rural Tigray, Ethiopia (poster).
- CIP staff in Tigray actively participated in a 2-day Tigray Region Nutrition Programme Planning review meeting on 4–5 January 2018 in Wukro town.
- Evidence, lessons, and impacts of OFSP intervention from the previous Irish Aid-funded project and the preliminary findings of the SDS were disseminated to stakeholders during the stakeholder validation workshop (11–12 January 2018) through joint presentations by CIP, Mekelle University, and University of Wisconsin-Madison.
- CIP staff also attended two platform workshops organised by Seqota Declaration of the Federal Ministry of Agriculture and Rural Development OFSP in Mekelle on 22–24 March 2018 and in Bahir Dar on 1–3 May 2018, aimed at to share evidence and lessons on nutritious dense crops.
- As part of an effort to institutionalise OFSP in the training curriculum of ATVETs, CIP shared its experiences and lessons from implementing OFSP interventions with trainees at the Nutrition Sensitive Agriculture Technical Update training for agriculture college instructors organised by Save the Children in Maichew Town on 5 May 2018.

### **Project management update**

During the period being reported, the project conducted an inception workshop in July–August 2017 to launch the new project, review lessons from the previous project, define new partner roles and responsibilities in the new project, and jointly develop partner work plans and budgets.

The project signed sub-grant agreements with the following government and NGO partners:

- BoANRD—SNNPR
- BoARD—Tigray
- BoH—Tigray

- TARI
- ELE
- WAT
- Mekelle University

In implementing its activities, the project collaborated closely with the following CIP-led projects operating in SNNPR:

- Sustained Diet Quality Improvement by Fortification with Climate-smart, Nutrition-Smart Orange-fleshed Sweetpotato (Quality Diets for Better Health) (2017–2021), funded by the European Union
- Emergency Response with Potato and Sweetpotato among drought-affected farmers in Ethiopia (2016-2018), funded by the U.S. Agency for International Development/Office of U.S. Foreign Disaster Assistance

## 1. INTRODUCTION

This report presents an update on progress made towards the implementation of the project “Strengthening Institutional Systems for Scaling-Up OFSP for Improved Nutrition and Food Security in Tigray and SNNPR, Ethiopia”, led by the International Potato Center (CIP) with funding from Irish Aid. The project was programmed to be executed from 15 July 2017 to December 2018. The project is being implemented in collaboration with government and non-governmental organisation (NGO) partners and targets 10 woredas—5 in Tigray and 5 in the Southern Nations Nationalities Peoples Region (SNNPR) respectively. The project aims to strengthen institutional capacities and processes of government systems at national and subnational levels to support scaling up of production and consumption of vitamin A-rich orange-fleshed sweetpotato (OFSP) in Tigray and SNNPR.

The project was designed to focus primarily on strengthening government systems to enhance institutionalisation of OFSP for impacts at scale leveraging on the achievements of the previous CIP-led, Irish Aid-funded project, “Scaling out Sweetpotato and Potato-Led Interventions to Improve Nutrition and Food Security in Tigray and SNNP Regions, Ethiopia”. This technical report presents an update of the progress of implementation of planned activities for the first project year covering the period 15 July 2017 to 30 June 2018. It focuses on accomplishments at project activity, output, and outcome levels.

The report is structured by project objectives and activities as listed in the project proposal and work plan for year 1. The principal activities implemented during the reporting period included the following: regional stakeholder inception workshops; selection of project target woredas and kebeles; implementation of a system diagnosis study (SDS) and validation workshop; establishment of OFSP multiplication demonstration (demo) plots at selected farmer training centres (FTCs); infrastructure development for FTCs; and conducting cooking demos. Additionally, the project initiated engagements with the Nutrition Case Team of the Ministry of Agriculture and Natural Resources (MoANR) to advocate for integration of OFSP into the ministry’s programmes and plans broadly and specifically to facilitate mainstreaming of CIP-developed OFSP training materials in the nutrition-sensitive agriculture (NSA) training manual and facilitator guide that the ministry has been developing. The project also developed advocacy tools and participated in different platform meetings at regional and national levels to disseminate evidence and lessons generated from operational research, including at the National Nutrition Program II review meeting. All of these project activities are discussed in more detail below.

## 2. GOAL AND OBJECTIVES OF THE PROJECT

### 2.1 GOAL

The overall goal of the project is to contribute to improved nutritional status and food security among vulnerable populations in SNNPR and Tigray regions of Ethiopia through the strengthening of agriculture and health systems and through institutional development.

### 2.2 OBJECTIVES

The project has four objectives:

- Diagnosis of key institutions, system linkages and coordination, technical and institutional capacity gaps, and review of the OFSP evidence base to identify gaps and leverage points for system strengthening.

- Technical capacity of the Bureau of Agriculture and Natural Resources Development (BoANRD); Bureau of Agriculture and Rural Development (BoARD); Bureau of Health (BoH); Southern Agricultural Research Institute/Tigray Agricultural Research Institute (SARI)/(TARI); agricultural, technical, and vocational education training colleges (ATVETs); FTCs; and other stakeholders in the OFSP value chain strengthened to promote and implement sustainable OFSP technologies and services to smallholder farmers.
- Evidence, best practices, and lessons on using OFSP to improve food security and nutrition documented and disseminated at national, subnational, and local levels.
- Evidence-based advocacy strengthened to influence policies and programming in support of OFSP as part of healthier diets.

### 3. PROJECT STAFF AND INTERVENTION AREAS

#### 3.1 PROJECT STAFF

Project staff, their roles, time dedicated to the project, and duty station are shown in Table 1.

**Table 1. CIP project staff and their time allocation**

| Role                           | Number | Time Contribution (%) | Post of Duty            |
|--------------------------------|--------|-----------------------|-------------------------|
| Project manager                | 1      | 100                   | Addis Ababa             |
| Project coordinator for Tigray | 1      | 100                   | Mekelle                 |
| Agronomist                     | 1      | 100                   | Hawassa                 |
| Accountant                     | 1      | 50                    | Addis Ababa             |
| Drivers                        | 2      | 100                   | Mekelle and Addis Ababa |

#### 3.2 SELECTION OF PROJECT INTERVENTION WOREDAS AND KEBELES

In consultation with the BoANRD (SNNPR) and BoARD (Tigray) and the BoH in the two target regions, 5 intervention woredas each in Tigray and SNNPR (a total of 10 woredas) were selected from the 10 intervention woredas in each region from the previous project. The selection of the intervention woredas for this system strengthening project was based on the two criteria below, listed in order of importance:

- Previous CIP–Irish Aid project intervention woredas where the OFSP intervention was most successful. This was chosen to build on that success.
- The proximity of project woredas to one another, with a possibility of selecting a contiguous block (to reduce transaction costs such as transport).

Likewise, in consultation with pertinent woreda sector office staff of agriculture and health, two intervention kebeles were selected from each of the intervention woredas, based on two criteria:

- Previous CIP–Irish Aid intervention kebeles that demonstrated most success in OFSP work from the previous project.
- Availability of FTCs at the kebele with sufficient land and access to irrigation for setting up OFSP multiplication demo plots and infrastructure to support cooking demos both at FTCs and health posts.

On the basis of these criteria, 10 woredas and 20 kebeles (2 in each woreda) were selected (Table 2).

**Table 2. Project intervention woredas and kebeles**

| Region | Zone         | Woreda         | Kebeles                    |
|--------|--------------|----------------|----------------------------|
| SNNPR  | Wolaita Sodo | Damot Gale     | Buge, Gacheno              |
|        |              | SodoZuriya     | Warazelasho, HumboLarena   |
|        |              | Humbo          | AmpoKoyssha, GututoLarena  |
|        | Sidama       | Boricha        | AldadaDela, Shondoliwo     |
|        |              | Loka Abaya     | Sala Kewado, DanshaGambela |
| Tigray | Southern     | Raya Azebo     | Bala, Tsgea                |
|        | South–East   | Enderta        | Chelekot, Dedeba           |
|        | Central      | Qolla Tembien  | Agbe, Shekateklie          |
|        | Central      | TanquaAbergele | Adiha, Behgasheka          |
|        | East         | Hawzen         | Debrebrhan, Hatset         |

## 4. ACTIVITY PERFORMANCE AND ACHIEVEMENTS

### 4.1 REGIONAL STAKEHOLDER INCEPTION WORKSHOPS

In collaboration with project partners, CIP conducted regional inception workshops in the two regions to launch the new project in Hawassa and Mekelle (Fig. 1). The objectives of the workshops were to (1) jointly review project achievements and lessons from the previous project and identify ways lessons learnt can be integrated into the programming of the new project; (2) officially launch the new project and present to partners an overview of the project, including its objectives, rationale, and implementation approach; and (3) discuss with project partners their new roles and responsibilities and develop their year 1 work plans.



**Figure 1. Inception workshop participants in (A) Mekelle and (B) Hawassa; (C) group work at the workshop.**

For the SNNPR region, the inception workshop was conducted in Hawassa on 28–29 July 2017. In the Tigray region, a similar inception workshop was conducted on 19–20 August 2017, at Axum Hotel in Mekelle. Some 87 participants (42 in Hawassa, 45 in Mekelle) attended the regional inception workshops. Participants of the workshop included BoA and BoH officials at kebele, woreda, zonal, and regional levels; NGO partners; TARI and SARI; regional universities (Mekelle and Hawassa universities); and instructors from ATVETs and health colleges. Two presentations were given during the workshop, one presentation was on the main achievements, challenges, and lessons learnt from the previous 3-year “scaling out” project, and the second provided an overview of the new project. The second presentation articulated the envisaged partner roles in the new project, which were further discussed in the plenary and group discussions that followed. Participants also discussed possible collaboration to institutionalise sweetpotato production and consumption in their organisations’ work, the target community, and beyond. Participants raised the following comments and suggestions:

- The project should focus on coordination, between and within organisations, to promote NSA concepts.
- At the kebele level, a collaboration between the BoA and BoH was good; CIP should build on that approach.
- Decisionmakers should be included in all awareness-creation workshops and training.
- The new project should focus on ways to enhance the commitment of leaders to strengthen the NSA strategy.
- Currently, agriculture extension package includes activities related to promoting the production of nutritious bio-fortified crops, such as OFSP. This is one of the steps that shows the government's commitment to the institutionalisation of biofortified crops.
- The new project should focus on establishing and strengthening OFSP agronomic and cooking demos at FTCs.
- More focus should be given to capacitating woreda BoA experts and instructors at agricultural colleges.
- More focus should be given on capacity building of grassroots institutions such as women development groups.
- To increase adoption of OFSP, more work should be done on behavioural change at the community level.
- BoH has a number projects working on food-based nutrition activities, such as SURE and Seqota Declaration. CIP should work together with these programmes to integrate OFSP into them.
- There is a regional nutrition task force and a nutrition steering committee. CIP and its partners should use this platform for policy advocacy and institutionalisation of good agricultural practices for OFSP.
- In urban areas, awareness of the benefits of OFSP is increasing. But there is a shortage of OFSP roots in the market, and more work is needed to increase the supply of OFSP to urban markets.

During the workshop in Mekelle, Axum Hotel displayed value-added products such as bread and different local foods prepared from OFSP were included as part of the workshop lunch meal.

The project was designed with sequential linear thinking—that is, the system diagnosis analysis (project objective 1) would be completed first and form the basis for the development of a system strengthening plan (SSP) and partner work plans. However, CIP project management decided to tweak this approach considering the delayed start to the project. To be able to develop project partner work plans that respond to system strengthening needs, and to begin project implementation immediately, the SSP was conducted in two stages: a quick preliminary diagnosis and a more formal, comprehensive research-based analysis.

The first stage was conducted during the regional stakeholder inception workshops. CIP designed a checklist of questions to solicit for key institutional bottlenecks in the health–agriculture sectors which the project should address. This information was sought at various levels, from research institutes and in training institutions. Information on potential strategies to address these were also discussed in the regional stakeholder inception workshops. Participants in the workshops were organised into groups and responded to the questions on the checklist through a group exercise. Each group shared its output in plenary for discussion and comments.

This exercise enabled the joint identification of priority institutional bottlenecks and leverage points for the agriculture–health sectors by participating stakeholders. Strategies to address these

were also identified and discussed. This participatory stakeholder diagnosis enabled concrete and relevant activities to be formulated which then formed the basis for the development of partner work plans for year 1. CIP staff then followed up with the partners after the workshop to finalise the draft work plans and budgets. Participants further prioritised activities to fit the available budget; some of the activities will be considered in year 2 of the project.

In addition, the output of the participatory system diagnosis during the inception workshops was key to informing the design and focus of stage two of the SDS. This was a more formal, comprehensive, and robust research-based diagnosis using qualitative key informant interviews. That stage of system diagnosis will be reported in subsequent sections of the report.

## 4.2 FORMALISING PARTNER SUB-GRANT AGREEMENTS

Project partner draft work plans and budgets for year 1 (July 2017–April 2018) were designed during the inception workshop. CIP staff followed up with each partner afterward to finalise the work plans and budgets and signed sub-grant agreements (SGAs) with the partners (Table 3).

**Table 3. Project implementing partners with signed SGAs**

| <b>Tigray Project Partners</b>    | <b>SNNPR Project Partners</b> |
|-----------------------------------|-------------------------------|
| TARI                              | SARI (agreement pending)      |
| BoARD–Tigray                      | BoANR–SNNPR                   |
| BoH–Tigray                        | Egna LeEgna (ELE)             |
| Women Association of Tigray (WAT) |                               |
| Mekelle University                |                               |

## 4.3 PROGRESS BY OBJECTIVES

### 4.3.1 *Objective 1: Diagnosis of key institutions, linkages, capacities, and OFSP evidence base to identify gaps and leverage points for system strengthening*

**Co-design and co-implement diagnostic study of key institutions, existing stakeholder platforms, capacity needs, and systems linkages using participatory methodologies and review of existing evidence.**

The first stage of the system diagnosis was conducted through participatory system diagnostic analysis conducted jointly by stakeholders during the regional stakeholder inception workshops. The results from such diagnosis informed the design and focus of the second stage comprehensive SDS. To conduct the SDS, CIP developed the terms of reference and contracted Mekelle University School of Public Health, Department of Nutrition and Dietetics. The contracting of a local university for this assignment enabled the establishment of local capacity for designing and implementing similar system diagnostic studies. To this end, Mekelle University, CIP, and the Agriculture for Nutrition and Health CGIAR Research Program (led by the International Food Policy research Institute) co-developed the methodology and tools for the study. Checklists for in-depth key informant interviews with qualitative questions around key themes were designed and used for face-to-face interviews with 94 key informants from agriculture and health sectors at kebele, woreda, zonal, regional, and federal levels; training institutions such as ATVETs and health science colleges; development partners; higher learning institutions; and community-level institutions (e.g. FTCs and health posts). Interviews were also conducted in the selected intervention kebeles and woredas. The fieldwork for the study was conducted in October–December 2017, and a draft report of the findings was produced and shared with stakeholders.

Some of the findings of the study on the implementation challenges and constraints for NSA (and OFSP specifically) are as follows:

- Although the Government of Ethiopia (GoE) designed excellent policy and strategy documents on NSA, there is limited technical capacity for implementation by sectors at all levels. Capacity-building efforts are given haphazardly and are not tailored to meet specific capacity needs.
- There is limited understanding of the respective roles and responsibilities of each sector at the different levels in implementing NSA interventions.
- Attention is given to NSA in the NSA strategy, in agriculture and health extension package, and training materials of training institutions. However, NSA is not included in the reporting system and is not evaluated regularly.
- The agriculture sector focuses primarily on increasing agriculture production and productivity, whereas the health sector pays more attention to nutrition-specific interventions.
- Nutrition is considered as an objective in the annual plans and activities of agriculture and health sectors, but it is not supported by a budget allocation from the government. Funding for nutrition activities is mainly donor dependent and is the first to be abandoned when funding is limited.
- There is a general lack of common understanding and knowledge on NSA, bio-fortified crops in general (and OFSP in particular) by agriculture and health experts in these two sectors and in training institutions.
- Limited awareness by government sectors at all levels and development partners of OFSP is one of the main constraints to institutionalisation.
- Other constraints to OFSP institutionalisation identified are:
  - Lack of access to planting material
  - Available OFSP varieties have traits not preferred by farmers and consumers. Notably, they are susceptible to drought stress and have low dry matter content, especially compared with traditionally grown white-fleshed sweetpotato.
  - Lack of empirical evidence on the effectiveness of OFSP interventions, particularly in the Ethiopian context
  - Absence of training materials
  - Absence of nutrition counselling sessions by health extension workers (HEWs)
  - The crop was only introduced to a few kebeles and no wider coverage
  - Lack of demos on OFSP at FTCs
  - Lack of awareness and knowledge on OFSP, its nutrition value, and efficacy in addressing malnutrition by decisionmakers, particularly members of zonal/woreda command posts and steering committee members at kebele level
  - Underdeveloped markets for OFSP
  - Lack of joint planning, monitoring, and evaluation by the agriculture and health sectors
- Poor communication skills of the agriculture and health experts at woreda and regional levels, development agents (DAs), and HEWs in delivering the right message during the counselling and education sessions also contribute to the poor linkage between agriculture and health.

### Conduct stakeholder workshop to validate findings of the SDS

To validate the preliminary findings of the SDS, a stakeholder workshop was organised and conducted on 11–12 January 2018, at International Livestock Research Institute (ILRI) campus, Addis Ababa. More than 44 participants (16 from SNNPR, 22 from Tigray, and 7 from Addis Ababa) attended. They represented agriculture and health officials from project intervention woredas, zonal, and regional government offices; NGO project partners; other stakeholders working on

agriculture–nutrition interventions (e.g., GIZ, FAO); universities and regional research centres; and donors (Irish Aid). The general objectives of the workshop were as follows:

- Present the preliminary findings of the SDS on the implementation of NSA (OFSP) to stakeholders for validation
- Develop an SSP (action plan) based on the bottlenecks and opportunities identified in the SDS. The goal is to strengthen the capacity of government systems for the institutionalisation of NSA interventions with OFSP as the entry point.
- Reflection and issues raised during the discussions include:
  - In all project areas, women army groups are actively participating in the demos and popularisation of OFSP in Tigray. Yet the SDS indicated that these groups' involvement in promoting OFSP was limited—why?
  - Some of the respondents included in the in-depth interview in Tigray were from non-intervention kebeles, or not the right ones to provide information about OFSP interventions. They did not know about OFSP activities, which is why some of the case studies included in the report do not reflect the actual reality on the ground.
  - The title (of the report) is too general. It needs to be made specific to OFSP and include the region in the title (since the SDS was done in the two regions).
  - There is lack of trust between the agriculture and health sectors regarding the implementation of NSA interventions. For instance, health sector staff promote fortification, whereas agriculture sector staff promote biofortification.
  - The report omitted community leaders, OFSP vine multipliers and root producers' cooperatives, and model farmers in the in-depth interview.
  - Most of the case studies are about Tigray; the final report should include cases from SNNPR too.
  - Budget allocation to OFSP is not a major problem. Rather, lack of leadership commitment and coordination among implementing sectors are the main challenges for the successful and effective implementation of OFSP interventions.
  - Most individuals included in the in-depth interview are agriculture and nutrition experts in their fields but do not know about OFSP and NSA. For example, in Wukro Agricultural College an animal science lecturer was interviewed but is otherwise unfamiliar with OFSP.
  - The final SDS report should be endorsed by decisionmakers in the two regions.
  - Recommendations mainly focused on weaknesses of the NSA linkage between agriculture and health sectors. Yet there are also strong experiences regarding the implementation of NSA in these two sectors. The report should capture those.

The feedback from the validation workshop and findings from the preliminary system diagnosis conducted during the inception workshops were used to revise the report, and a final comprehensive report was produced and shared with stakeholders.

At the validation workshop, CIP, jointly with the University of Wisconsin (a former implementing partner), made a presentation to stakeholders on the impacts and lessons from the previous project on OFSP.

### **Develop strategy (SSP) for addressing key gaps and leverage points for systems strengthening**

On the basis of both the draft SDS report findings, and the lessons gathered from the previous Irish Aid-funded OFSP project and other related projects, participants from each of the two target

regions developed a draft SSP to address the identified key gaps and leverage points. Using a participatory approach, participants in each region were organised into two groups of agriculture–health sectors and designed a plan for each sector in the region. The two sector groups in each region subsequently came together to discuss and combine their ideas to develop a regional SSP. Thus, from the workshop two regional SSPs were developed, identifying (1) the priority constraint, (2) proposed intervention to address the constraint, (3) specific activities to be conducted to strengthen the institutional constraint, (4) which organisation should lead the activity, (5) by when the activity should be done, and (6) the collaborators. The final SDS report that included among others the final regional SSPs was produced in March 2018. The SSPs and lessons from implementation of year 1 were integrated into the design of project partner work plans and budgets for year 2 (July 2017–March 2018) at regional project planning and review workshops conducted in May 2018.

#### ***4.3.2 Objective 2: Technical capacity of BoANRD, BoARD, BoH, SARI/TARI, ATVETs, and other stakeholders in the OFSP value chain strengthened to promote and implement sustainable OFSP technologies and services to smallholder farmers***

##### **Strengthening capacity of regional agricultural research institutes**

To enhance the capacity of TARI for production of high-quality foundation OFSP material, the CIP-Irish Aid project allocated a budget for the rehabilitation of the tissue culture (TC) lab of TARI for rapid vine multiplication. During the reporting period, TARI produced 500,000 clean foundation materials ready to be sold to institutional buyers such as GIZ–Nutrition Sensitive Agriculture project, REST, and Irish Aid-funded BoARD livelihood projects for distribution to farmers for Meher season planting and for dissemination to FTCs in the project areas for vine multiplication and root production. During the year, TARI sold 40,000 clean vine cuttings to five FTCs to establish OFSP vine demo multiplication plots in the five target woredas of Tigray.

In SNNPR, the project collaborated with the CIP-led EU-funded project in supporting SARI’s variety evaluation trials of nine new OFSP varieties (Fig. 2). During the reporting period, performance and adaptation root harvest yield measurement of each variety were determined. Both SARI and TARI continue to supply OFSP foundation materials to commercial and decentralised vine multipliers (DVMs), thereby ensuring that farmers have sustainable access to quality seed.



**Figure 2. Site of OFSP variety evaluation trials of nine new varieties.**

##### **Facilitate public-private sector partnerships in sweetpotato foundation seed multiplication and production**

Sweetpotato seed systems in Ethiopia are not well developed and face several challenges. Lack of farmers’ access to quality sweetpotato planting material is a major contributing factor to low productivity and production of sweetpotato and potato. To help in alleviating the seed supply

bottleneck, CIP, in collaboration with Tigray BoARD, facilitated the establishment of a collaboration between Tigray Biotechnology Tissue Culture Centre (Fig. 3), the largest privately owned in the country, and Mekelle Agricultural Research Tissue Culture Lab. As a result, the centre included the production of pre-basic and basic sweetpotato seed as part of their production line by sourcing breeder seed from Mekelle Agriculture Research Centre. Moreover, to address the problem of access to clean potato seed, the centre is developing the largest potato seed production in the country using aeroponic methods.



**Figure 3. Tigray Biotechnology Tissue Culture Centre vine multiplication greenhouse.**

### **Strengthen BOA lead annual stakeholder sweetpotato seed demand and supply linkage forum**

During the reporting period, one linkage forum workshop was conducted in each region to strengthen linkages and coordination between vine producers and institutional vine buyers. The intent of the forum was to plan and coordinate demand and supply of OFSP vines for the upcoming Meher rain season planting. In Tigray the workshop was held on 25 February 2018; 23 people participated (Fig. 4). The meeting was chaired by Ato Fisseha Bezabih, Deputy Head of the Regional BoARD, and several international and local NGOs participated including GIZ, Save the Children, International Fund for Agricultural Development, Food and Agriculture Organisation of the United Nations (FAO), Adigrat Catholic Secretariat, REST, Irish Aid-funded BoARD Livelihood project, and CIP. Five institutional buyers declared their budget allocation to purchase 3.25m OFSP cuttings from recognised seed multipliers.

In SNNPR the meeting was held on 27 March 2018; 33 participants attended. During the workshop, the institutional buyers such as World Vision, Catholic Relief, IMC, Concern, Plan Ethiopia, Save the Children, and FAO declared their OFSP seed demand for this year estimated at 23.05m cuttings. To meet this demand, multipliers should allocate an estimated 23 ha for vine multiplication, and SARI should produce 1.28m pre-basic cuttings. During the workshop, it was also reported that SARI (Hawassa Research Centre) has a capacity to multiply basic in 5 ha.

Table 4 summarises the outcomes of the annual stakeholder's consultation workshop. Table 5 gives data on the workshop's participants.

Other key points raised by the participants were:

- Regional BoARD and BoH should convince additional international and local NGOs to include bio-fortified crops such as OFSP as part of their annual work plan by allocating budget for OFSP-related activities;
- The regional BoARD needs to produce a consolidated OFSP demand forecast for each woreda and circulate to stakeholders for comments and consideration prior to the start of the upcoming rain season;
- Woreda offices of Agriculture and Rural Development need to allocate some amount of budget for the purchase of vine and include this activity in their annual work plan;
- The procurement of OFSP should start early to be delivered to each kebele before the second week of July 2018.

**Table 4. Summary outcome of the annual Stakeholders' Consultation Workshop on Sweetpotato Seed Demand and Supply Projection**

| Region          | Institutional Buyers                      | Estimated demand* | Potential DVMs  | Area allocated (ha or # of cuttings) <sup>†</sup> |
|-----------------|---|-------------------|---|---|
| SNNPR           | Wolayta zone                              | 15.00             | Jara Agro-industry                                      | 4.5 ha  |
|                 | FAO                                       | 4.40              | Ezra PLC  | 10.5 ha   |
|                 | World Vision                              | 1.50              | Muluneh Boru  | 6.0 ha  |
|                 | Catholic Relief                           | 1.50              | Agri-seed   | 7.0 ha  |
|                 | Save the Children                         | 0.25              | Simon Sitotaw   | 9.0 ha  |
|                 | IMC, Concern, Plan Eth.                   | 0.40              | Bridge  | 2.0 ha  |
|                 |   |                   | Lemlem seed coop.                                       | 3.0 ha  |
| <b>Subtotal</b> |   | <b>23.05</b>      |   | <b>42.0 ha</b>                                    |
| Tigray          | GIZ                                       | 2.70              | Mekelle Agricultural Research Centre Tissue Culture lab | 500,000   |
|                 | Save the Children                         | 0.10              | Tigray Biotechnology Centre                             | 300,000   |
|                 | REST                                      | 0.15              | Gash Reda mechanised farm in Raya Azebo                 | 1,500,000   |
|                 | BoARD Irish Aid-funded livelihood project | 0.30              | Model farmers in Enderta and Qola Tembien               | 350,000   |
|                 |   |                   | Elshaday Multipurpose farm in Wukro                     | 400,0000  |
|                 | <b>Subtotal</b>                           | <b>3.25</b>       |   | <b>3,250,000 cuttings</b>                         |
| <b>Total</b>    |   | <b>26.30</b>      |   |   |

\*Estimated demand for OFSP vines (in millions) for 2018/19 Meher.

<sup>†</sup>DVM for vine multiplication (in ha) or capacity to supply for Meher rain season.

**Table 5. Number of participants during the annual Stakeholders' Consultation Workshop on Sweetpotato Seed Demand and Supply Projection**

| Region       | Date (2018) | No. of Participants |          |           |
|--------------|-------------|---------------------|----------|-----------|
|              |             | Male                | Female   | Total     |
| SNNPR        | 27 March    | 30                  | 3        | 33        |
| Tigray       | 13 March    | 16                  | 5        | 21        |
| <b>Total</b> |             | <b>46</b>           | <b>8</b> | <b>54</b> |



*Figure 4. Annual OFSP seed demand and supply linkage workshop chaired by deputy head of Tigray. BoARD, Mekelle.*

### **Strengthen capacity of training institutions (ATVETs, FTCs, Health Colleges) and regional-level BoA and BoH to institutionalise OFSP and other nutrition-sensitive technologies**

The aim was to facilitate integration of OFSP training materials into the NSA training and facilitator guide developed by the Federal MoANR.

Through continuous advocacy efforts by CIP and partners in Ethiopia, the recently launched National NSA of the MoANR recognises OFSP as one of the bio-fortified crops for addressing malnutrition in Ethiopia. In line with this, the nutrition case team of the ministry has been developing a training manual and facilitator guide on NSA to be used by ATVETs and FTCs across the country. The manual and facilitator guide developed are meant to operationalise the NSA strategy revised by the ministry in 2017.

During the reporting period, a CIP team met with the nutrition case team of the ministry tasked with developing the NSA training manual. CIP shared seven of its OFSP training manuals on “Everything you ever wanted to know about sweetpotato” for integration in the government-developed NSA training manual and a facilitator guide.

#### **Facilitate integration of OFSP training materials in the ATVET training curriculum**

During the reporting period, CIP made significant progress towards facilitating the integration of OFSP training materials into the curriculum of ATVETs. The ultimate goal of this effort is to ensure that the pre-service training curriculum is tailored to equip DA graduates with knowledge and skills on sweetpotato production, management, and utilisation during their training. To this end, the Tigray BoARD wrote an official support letter to the regional ATVET office giving its backing to the integration of OFSP materials into the curriculum of the ATVETs. To kick-start this process, a 1-day meeting between CIP, Tigray BoARD, ATVET colleges, and TARI was held in Mekelle. Participating were the deans of the three ATVET colleges (Wukro, Shire, and Maichew); horticulture department heads of the ATVET colleges; horticulture instructors; and experts from regional BoARD, ATVET, TARI, and CIP. The objectives of the meeting were to (1) identify and agree on the level and how the CIP training modules should be included in the ATVET training modules; and (2) assign instructors from each ATVET to work on a revised curriculum based on agreed points; to finalise and submit draft, and final instructor training.

The workshop participants discussed and agreed on the level at which different OFSP modules should be integrated. The following topics were agreed to be included:

- OFSP nutrition under level one of applying of human nutrition

- OFSP agronomy and post-harvest management under level two in the courses
  - Horticultural stimulant and crops establishment
  - Horticultural crop harvesting
- OFSP pest and disease management under level three in the course: crop post-harvesting management
- OFSP processing under level three in the course: multiplication, processing, and storage of improved seed
- OFSP marketing and planning under level four in the course: the plan for propagation and marketing product

Three instructors from each college were selected to lead the revision of the identified teaching modules to integrate the OFSP materials. The selected instructors received a 5-day intensive theoretical and practical training in OFSP organised at Sodo ATVET College. The revised teaching modules were presented and discussed during a recently held annual project review and planning meeting in Mekelle in May 2018. The final modules that incorporate comments from the workshop have been produced, and the three agricultural colleges (Wukro, Shire, and Maichew) and the Tigray Regional ATVET office have officially endorsed the revised curriculum. Copies of the revised modules were provided to CIP and regional BoARD. Starting from next year, all ATVET colleges in Tigray will start to provide OFSP as part of the course for level one (nutrition and utilisation part), level two (agronomy and seed conservation) and level three (OFSP pest, diseases, and post-harvest management). In year 2 the project will follow the same approach in SNNPR to integrate OFSP training materials into the teaching modules of Wolayta Sodo ATVET.

### **Strengthened capacity of ATVET instructors and regional- and woreda-level B0A experts in OFSP agronomy, utilisation, and nutrition**

During the reporting period, the project translated the CIP-developed training manual “Everything You Ever Wanted to Know about Sweetpotato” into Tigrigna and Amharic languages. In collaboration with the CIP/EU-funded project, the project conducted an intensive 5-day trainer of trainers (ToT) course in various aspects of OFSP nutrition, agronomy, seed system, pest management, and utilisation to 34 people (3 women, 31 men).

The training participants included ATVET instructors from Shire, Wukro, Maichew, and Sodo ATVETs, regional and project woreda-level BoARD officers, and CIP staff. The training was held at Sodo ATVET College on 16–20 April 2018. This first round of training focused on sweetpotato agronomy-related topics:

- Origin and importance of sweetpotato
- Rationale of promoting OFSP
- Basic facts about health and nutrition benefits of OFSP to children and mothers
- Sweetpotato production and management, which include:
  - How to identify healthy planting materials
  - Selecting and preparing land for planting
  - Planting methods: when to plant and the production management needs
  - Intercropping sweetpotato with other crops to increase yields
  - How to preserve vine during dry season using Triple-S technology
  - Vine multiplication

- Pest and disease management
- OFSP recipe preparation
- Key aspects of sweetpotato harvesting and postharvest management:
  - When and how to harvest
  - How to prolong sweetpotato harvest
  - Managing fresh storage of sweetpotato roots
  - How to safely pack and transport fresh sweetpotato roots
  - Pre- and post-harvest curing

On 11–15 June 2018, the second round of ToT was conducted at Sodo ATVET College for the same participants who participated in the first round (Fig. 5). Training focused on the following new topics:

- OFSP harvesting and post-harvest management,
- Processing and utilisation
- Marketing and entrepreneurship,
- Monitoring and evaluation
- Helping adults to learn

Experts from SARI, instructors from Sodo ATVET ,and CIP, facilitated the training, which covered both theoretical and practical field-based aspects. The training manual “Everything You Ever Wanted to know About Sweetpotato”, translated into Amharic, was provided to each training participant so that they can use it as main training or course material. Trained participants from the TOTs are supposed to cascade down the training to regional and woreda BoARD experts and other ATVET instructors in year 2.



*Figure 5. OFSP ToT training participants during practical cooking demo training, Sodo ATVET, SNNPR.*

### **Establish OFSP demo and vine multiplication sites at FTCs**

To strengthen the capacities for government institutions for scaling up OFSP, the project originally planned to establish OFSP demo and vine multiplication sites at 10 FTCs, one in each target woreda (Figs. 6 and 7). During the reporting period, however, nine OFSP demo and multiplication plots were established at 9 selected FTCs (a 10th plot was eliminated due to lack of adequate land and water). Approximately 106,000 OFSP vine cuttings were distributed to the FTCs for further multiplication (Table 6). In Tigray, most of the vines were obtained from the Mekelle TC lab, and some were purchased from basic seed vine multiplier farmers. In SNNPR, vines were obtained from multiplier cooperatives. During the reporting period, 100,000 OFSP cuttings were produced from

three FTC demo sites and distributed from the FTCs to 330 HH at Damot Gale, Humbo (Fig. 8), and Sodo zuriya woredas in SNNPR.

During year 2 of project implementation, CIP, in collaboration with SARI and TARI, are planning to evaluate agronomic performance of new OFSP varieties at FTCs and collect relevant agronomic data during the demo. Farmer field days will be organised to create awareness of the new OFSP varieties. Farmers will have an opportunity to evaluate the new varieties and selected varieties will be recommended for release.



*Figure 7. OFSP demo plot at Chelekot kebele FTC, Tigray.*



*Figure 6. OFSP ToT training participants class training, Sodo ATVET, SNNPR*



*Figure 8. OFSP demo plot at Humbo Larena kebele FTC, SNNPR.*

**Table 6. Area under OFSP vines at demo plots at FTCs**

| Region       | Woreda           | Name of FTCs  | No. of OFSP Vines Distributed to FTCs for Further Multiplication | Size of Demo Plot(ha) |
|--------------|------------------|---------------|--|-----------------------|
| SNNPR        | Damot Gale       | Buge          | 14,000   | 0.25                  |
|              | Sodo Zuriya      | Humbo Larena  | 14,000   | 0.25                  |
|              | Humbo            | Gututo Larena | 14,000   | 0.25                  |
|              | Loka Abaya       | Sala Kewado   | 14,000   | 0.25                  |
|              | <b>Subtotal</b>  |               | <b>56,000</b>  | <b>1.00</b>           |
| Tigray       | Raya Azebo       | Bala          | 10,000   | 0.17                  |
|              | Hawzen           | Hatset        | 10,000   | 0.17                  |
|              | Tanqua Abergelle | Sheqa Teklie  | 10,000   | 0.17                  |
|              | Qolla Temben     | Adiha         | 10,000   | 0.17                  |
|              | Enderta          | Chelekot      | 10,000   | 0.17                  |
|              | <b>Subtotal</b>  |               | <b>50,000</b>  | <b>0.85</b>           |
| <b>Total</b> |                  | <b>9</b>      | <b>106,000</b>   | <b>1.85</b>           |

These OFSP demo sites will serve as training and learning sites for farmers in the intervention and non-intervention woredas on how to (1) multiply and conserve vines, (2) grow OFSP for roots, (3) utilise OFSP roots, and (4) conduct farmer field days and OFSP cooking demos.

### Strengthening capacities of FTCs for multiplication of OFSP foundation material

Access to irrigation is one of the key bottlenecks for sustainable vine multiplication in most of the project areas identified by stakeholders during the inception workshops. To address this problem, CIP collaborated with BoANRD in SNNPR to set up cost-effective, 500-m<sup>2</sup> drip irrigation systems at Sodo Zuriya and Damot Gale woredas on the intervention FTCs which had hand-dug wells for water supply (Fig. 9). During the reporting period, drip irrigation equipment was installed at three FTCs in SNNPR. The irrigation system is critical in supporting dry-season conservation of vines to ensure vine supply at the beginning of the main season.



**Figure 9. Drip irrigation demo at Buge kebele.**

### Infrastructure support for documentation of training materials at FTCs

Because OFSP was a new crop the project in the past years conducted several trainings aimed at building the capacity of agriculture and health extension officers in OFSP agronomy and nutrition. During these trainings participants were provided with training materials. However, in most target areas, the capacity was lost due to the high turnover of government staff, and it is very hard to get OFSP training manuals in most the project areas. During the reporting period, the project translated OFSP training manuals into Tigrigna and Amharic and distributed copies to 10 FTCs in project target kebeles. Furthermore, to systematise training manual documentation and handover system at FTCs, CIP, in collaboration with BoARD, designed a system of having OFSP training manuals registered in log book and handover to kebele-level DA coordinator in the presence of kebele administrators. In this way when they leave the kebele, the coordinator will assume the responsibility of handing over the manuals to the kebele administrator. To improve on documentation at the FTCs, the project provided 10 document registration log books and document placement glass shelves to 10 FTCs, 5 in Tigray and 5 in SNNPR (Fig. 10).



*Figure 10. OFSP training manual and document placement glass shelves provided to FTCs.*

### Training of BoARD experts and ATVET instructors on OFSP agronomy, post-harvest management, and nutrition

In collaboration with Tigray BoARD, the project conducted a 3-day training on OFSP agronomy, post-harvest management, and nutrition for 22 participants (9 ATVET instructors, 10 woreda BoARD experts, and 3 regional BoARD officers) on 16–18 March 2018, at Zemarias Hotel (Table 7 and Fig. 11). The training focused on the following topics:

- Origin and importance of sweetpotato
- Rationale of promoting OFSP
- Basic facts about OFSP and health and nutrition benefits to children and mothers
- Sweetpotato production and management, which include:
  - How to identify healthy planting materials
  - Selecting and preparing land for planting
  - Planting methods: when to plant and the production management needs
  - Intercropping sweet potato with other crops to increase yields
  - How to preserve vine during dry season using Triple-S technology

- Vine multiplication
- Pest and disease management

During the training participants were provided with the training manual translated into Tigrigna for their future use. In year 2 of the project, the trainees from this training are expected to cascade the training to other woreda experts and DAs from project target woredas and kebeles.

**Table 7. Number of OFSP agronomy, post-harvest management, and nutrition training participants organised by Tigray BoARD**

| Description                       | Number of participants |          |           |
|-----------------------------------|------------------------|----------|-----------|
|                                   | Male                   | Female   | Total     |
| ATVET (Maichew, Wukro, and Shire) | 7                      | 2        | 9         |
| Woreda BOA experts                | 8                      | 2        | 10        |
| Region BOARD                      | 1                      | 2        | 3         |
| <b>Total</b>                      | <b>16</b>              | <b>6</b> | <b>22</b> |



*Figure 11. Participants of OFSP agronomy, post-harvest management and nutrition training participants organised by Tigray BoARD, Mekelle.*

### Training of existing BoH and health colleges instructors and other staff on OFSP nutrition and utilisation

During the reporting period, CIP–Irish Aid project, in collaboration with Tigray BoH, organised a 1-day training on OFSP nutrition and utilisation for 31 participants (two health college instructors, 20 woreda BoH experts, four regional BoH officers, and five WAT staff). The training was held in Wukro Fiseha Hotel on 20 March 2018. WAT conducted a cooking demo during the training workshop (Fig. 12 and Table 8). The training covered the following topics:

- Malnutrition trend in Tigray
- Causes of malnutrition
- Signs of macro- and micro-nutrient deficiency malnutrition, and cost of malnutrition
- Why promote sweetpotato?
- Role of OFSP in human health and nutrition
- The factors influencing nutrition and agronomic benefits of OFSP
- Processing OFSP root while retaining the beta-carotene content
- Processing and utilisation of OFSP and how to prepare different OFSP recipe dishes
- What are the challenges to sweetpotato utilisation
- Advocating for OFSP

The participants were served different OFSP dishes during lunch.



*Figure 12. OFSP nutrition and utilisation training participants in Tigray.*

**Table 8. OFSP nutrition and utilisation training of participants in Tigray**

| Description   | Number of Participants |           |           |
|---|------------------------|-----------|-----------|
|   | Male                   | Female    | Total     |
| Dr. Tewelde Health College and Aduwa Health College | 0                      | 2         | 2         |
| Woreda BOH experts                                  | 12                     | 8         | 20        |
| Region BOH  | 1                      | 2         | 3         |
| WAT   |                        | 5         | 5         |
| Region BOARD  |                        | 1         | 1         |
| <b>Total</b>  | <b>13</b>              | <b>18</b> | <b>31</b> |

### **Strengthened the capacity of existing kebele level DAs on OFSP agronomy, utilisation, and nutrition**

As part of the system-strengthening and institutionalisation plan, the project conducted a 3-day cascade training on OFSP nutrition, agronomy, seed conservation, post-harvest management, and utilisation to 140 DAs (54 women, 86 men)—that is, 20 DAs from the 10 target project kebeles and 120 DAs from 64 non-target kebeles in 5 target woredas in Tigray (Table 9). The training covered the topics:

- Origin and importance of sweetpotato
- Rationale of promoting OFSP

- Basic facts about OFSP and health and nutrition benefits to children and mothers
- Sweetpotato production and management, which include:
  - How to identify healthy planting materials
  - Selecting and preparing land for planting
  - Good planting techniques: when to plant and the production management needs
  - Intercropping sweetpotato with other crops to increase yields
  - How to preserve vine during dry season using Triple-S technology
  - Vine conservation and Triple-S (root conservation in sand; then re-sprouting for planting material)
  - Vine multiplication
  - Pest and disease management
  - Managing viruses and pests (especially weevil),
  - Key aspects of sweetpotato harvesting and postharvest management are:
    - when and how to harvest
    - good harvesting techniques,
    - how to prolong sweetpotato harvest
    - managing fresh storage of sweetpotato roots
    - how to safely pack and transport fresh sweetpotato roots
    - pre- and post-harvest curing
  - The challenges to sweetpotato production and consumption in Tigray

This training also included a PowerPoint presentation and practical field demo on OFSP agronomy, including planting at Elshaday OFSP farm in Wukro town, followed by group discussion to exchange experiences among trainees and to bring all participants on board. The practical field demo and group discussion were mainly aimed at demonstrating how to plant OFSP for root production and vine multiplication, including technical aspects of planting techniques, within- and between-row spacing, and management practices after planting. At the end of the group discussion and demo, participants felt they had fully grasped the basic concepts of land preparation, spacing, and management, and the nutritional value of OFSP. Additionally, the training was supported by a cooking demo organised by WAT which focused mainly on preparation of different sweetpotato dishes. Participants tested different foods prepared from sweetpotato. Finally, each participant was given a training manual (soft and hard copy) on “Everything you ever wanted to know about sweetpotato” translated into Tigrigna and a recipe booklet on different OFSP recipes prepared by TARI. (See Figs. 13 and 14 as well.)

**Table 9. OFSP agronomy and number of participants trained**

| Woreda           | No. of Kebeles              |                                 | No. of Participants         |           |           |                                 |           |            |
|------------------|-----------------------------|---------------------------------|-----------------------------|-----------|-----------|---------------------------------|-----------|------------|
|                  | Target intervention kebeles | Non-target intervention kebeles | Target intervention kebeles |           |           | Non-target intervention kebeles |           |            |
|                  |                             |                                 | Male                        | Female    | Total     | Male                            | Female    | Total      |
| Qolla Tembien    | 2                           | 12                              | 3                           | 1         | 4         | 16                              | 7         | 23         |
| Tanqua Abergelle | 2                           | 11                              | 2                           | 2         | 4         | 13                              | 8         | 21         |
| Hawzien          | 2                           | 14                              | 1                           | 3         | 4         | 16                              | 12        | 28         |
| Enderta          | 2                           | 13                              | 2                           | 2         | 4         | 13                              | 12        | 25         |
| Raya Azebo       | 2                           | 14                              | 2                           | 2         | 4         | 18                              | 5         | 23         |
| <b>Total</b>     | <b>10</b>                   | <b>64</b>                       | <b>10</b>                   | <b>10</b> | <b>20</b> | <b>76</b>                       | <b>44</b> | <b>120</b> |



*Figure 13. Deputy head of Tigray BOARD attending in the cooking demo and lunch event, at Wukro ATVET training centre.*



*Figure 14. Participants at training at Wukro ATVET in Tigray.*

### **Institutionalisation of OFSP recipes and cooking demos at kebele-level health extension systems**

One of the major challenges for institutionalisation of OFSP in the agriculture and health extension system is limited technical knowledge on sweetpotato utilisation and weak collaboration amongst nutrition promoters. In this new project the major role of the NGO partners, ELE and WAT, is to use their experience in preparing OFSP recipes and conducting cooking demos to provide technical backstopping to the BoH and BoANR, and to integrate OFSP into their regular cooking demos and other health and agriculture extension activities. To this end, during the reporting period CIP, in collaboration with ELE, WAT, BoARD, and BoH, organised a training on conducting cooking demos

that integrate OFSP for 140 HEWs and health officers (34 males, 106 females).

The training focused on OFSP processing and utilisation, specifically on how to:

- Prepare sweetpotato flour
- Prepare OFSP puree
- Cook different sweetpotato dishes (bread, enjera, chapati/kitta, porridge, and sweetpotato juice from root and leaves)
- Substitute OFSP in common recipes

The aim of the training was to familiarise HEWs, health officers at health posts, agricultural extension workers, and Women Army Group leaders on how to process and prepare different OFSP recipes to increase consumption of OFSP dishes by local communities. The training and cooking demos were led by the BoH at health posts, with technical backstopping from ELE in SNNPR and WAT in Tigray. In addition, trainees were provided with nutrition posters and training manuals to aid nutrition community outreach activities (Fig. 15).



*Figure 15. Cooking demos training at a health post in Tigray.*

A total of 1,831 people (1,188 females, 432 males, and 211 children) attended cooking demos organised at 20 health centres (Table 10). During the demos participants learnt about the health and nutrition benefits of OFSP, tasted different OFSP-based dishes, and learnt how to prepare them. Learning materials such as recipe books, flyers, and brochures were distributed to HEWs, agricultural extension workers, and Women Army Group leaders for continued use in their communities.

To facilitate institutionalisation, the OFSP cooking demos at the health posts were aligned to the regular cooking demos that the BoH conducts. Accordingly, CIP, ELE, and WAT worked closely with the BoH in the respective regions to plan the schedule/calendar for cooking demos so that OFSP dishes are included in the regular cooking demos at the health posts. To facilitate better collaboration between the BoANR and BoH, officials from both sectors were invited to participate in the cooking demos at health posts and field days at FTCs, which also enhances linkages between the two sectors.

**Table 10: Number of people reached through cooking demos and training**

| Region | Date of Training & Cooking Demo Conducted | Topic of Training  | Participants |        |          |       |
|--------|---|--|--------------|--------|----------|-------|
|        |   |  | Male         | Female | Children | Total |
| SNNPR  | 14–17 Dec. 2017                           | OFSP nutrition and utilisation training to DAs, HEWs, and Women Army Group leaders   | 9            | 21     |          | 30    |
|        | 25–29 Dec. 2017                           | Number of people reached through 16 cooking demos at 10 health centres/posts   | 271          | 662    |          | 933   |
|        | Subtotal                                  |  | 280          | 683    |          | 963   |
| Tigray | 8–10 Dec. 2017 and 19 March–12 April 2018 | OFSP nutrition, cooking demo, and utilisation training to HEWs and Women Army Group leaders in 10 health centres in Raya Azebo, Enderta, Hawzien, Kolla Tembien, and T/Abregelle | 25           | 85     |          | 110   |
|        |   | No. of people reached through 12 cooking demos at 10 health centres in Raya Azebo, Enderta, Hawzien, Kolla Tembien, and T/Abregelle  | 127          | 420    | 211      | 758   |
|        | Subtotal                                  |  | 152          | 505    | 211      | 868   |
| Total  |   |  | 432          | 1,188  | 211      | 1,831 |

#### **4.3.3 Objective 3: Evidence, best practices, and lessons on using OFSP to improve food security and nutrition documented and disseminated at national, subnational, and local levels**

One of the project objectives was to achieve strong institutional policy support for NSA and increase adoption of biofortified foods to address malnutrition and food insecurity at scale. To achieve this objective, the project used a three-pronged approach focusing on these four areas:

- Synthesise evidence on OFSP impacts, lessons, and best practices from previous and on-going OFSP projects in Ethiopia.
- Organise field days and site exchange visits for members of regional platforms and stakeholders.
- Organize bi-annual stakeholder project review and learning workshops to review project

implementation and share lessons.

- Provide technical backstopping to woreda BoA and BoH officials in the 10 target woredas to facilitate the integration of evidence and lessons into government plans.

This requires regular planning and exchange meetings to share information and knowledge and ensure complementarity, exploit potential synergies, and create ownership. In line with this, the following activities were implemented during the reporting period.

### **Synthesise evidence on OFSP impacts, lessons, and best practices from previous and on-going OFSP projects in Ethiopia**

During the reporting period, the project organised two field days and site exchange visits for members of woreda and regional platforms and stakeholders. The objectives of field days were to:

- Create awareness about OFSP production, management, and processing among farmers and experts, and to influence policies and programming in support of OFSP as part of healthier diets.
- Show woreda experts and model farmers the efforts made by research institutes and private sectors in producing disease-free quality OFSP planting materials through TC laboratory, which includes processions under greenhouse, net house, and field level.
- Learn and share best agronomy practices as well as different dishes prepared using OFSP by host health posts model farmers.
- To discuss the major challenges in institutionalising OFSP with in the on-going government agriculture and health extension system.

In Tigray, field days and site visits were held on 31 March 2018. The event was attended by 42 people (31% women), which included deputy heads of regional BoANR and BoH heads, TARI, regional ATVETs, WAT, project woredas administration head, project woreda office of BoARD heads, project woreda office of BoHs heads, and model farmers. Participants visited OFSP demo and leaning site at FTC of Chelekot kebele in Enderta woreda (Fig. 16), TARI bio-technology laboratory, and Mekelle Agricultural Research tissue culture lab. The field day gave participants a chance to observe efforts done to capacitate FTC and HEWs to institutionalise OFSP within the on-going government village-level extension system related to appropriate OFSP production, vine multiplication, and conservation using Triple-S technology, and post-harvest strategies, processing, and storage. The model farmers and extension workers at Chelekot FTC shared their achievements, such as practices for sustainable OFSP vine multiplication and vine conservation, documentation of training materials, institutionalisation of OFSP cooking demos in the agriculture and health extension systems, capacity building to systematise the training manual documentation, and institutionalising OFSP cooking demos within the health extension system to participants of the events (Fig. 17).

Participants shared experiences and lessons on various OFSP-related topics. Deputy heads of BoA and BoH appreciated the project progress and efforts made towards institutionalisation of OFSP at FTCs, health centres, and health extension systems. They described the field events as “showcasing new knowledge” and that they successfully learnt lessons based on experiences in the field. The OFSP field day for SNNPR was conducted on 21–22 February 2018, and participants visited FTCs in Sodo Zuriya (Humbo larena kebele) and Damot Gale (Bugge kebele) woredas. A total of 124 participants (72 males, 52 females) participated, including:

- Project woreda and kebele administrators
- Regional BoH head and nutrition experts

- Regional BoANR horticultural crops directorate director extension and nutrition experts
- Regional BoA head, horticultural crop experts
- Project kebele DAs
- Model farmers

At both field days a set of OFSP advocacy materials (evidence briefs, factsheets, brochures, leaflets) developed by CIP were distributed to participants.



*Figure 16. OFSP field day visit at TARI and Chelekot FTC.*



Figure 17. OFSP field day participants and cooking demo at Chelekot health centre.

Table 11. Number of participants who attended experience sharing field days organised

| Region | Site visited   | Participants                                   | No. of participants |        |       |
|--------|--|--|---------------------|--------|-------|
|        |  |  | Male                | Female | Total |
| Tigray | 1.Chelekot kebele:<br>* FTC-OFSP demo<br>* Institutionalisation of OFSP with the health centre and HEWs<br>* OFSP backyard garden<br>2.Tigray Biotechnology Center<br>3.Mekelle Agricultural Research Center Tissue Culture laboratory | Tigray BoH deputy head, Tigray BoA deputy head | 2                   |        | 2     |
|        |  | Regional BoA and BoH experts                   | 5                   |        | 5     |
|        |  | Project woreda BoA and BoH                     | 8                   | 2      | 10    |
|        |  | Project woreda administrators                  | 3                   | 2      | 5     |
|        |  | Researchers from TARI                          | 2                   |        |       |
|        |  | Regional ATVET                                 | 1                   |        | 1     |
|        |  | Tigray Biotechnology Centre                    | 1                   |        | 1     |
|        |  | WAT regional office                            | 1                   | 2      | 3     |
|        |  | WAT project woreda coordinators                |                     | 3      | 3     |
|        |  | Model farmers                                  | 6                   | 4      | 10    |
|        | Subtotal   |  | 29                  | 13     | 42    |
| SNNPR  |  | Project woreda and kebele administrations      |                     |        |       |
|        |  | Regional BoH head and nutrition experts        |                     |        |       |
|        |  | Regional BoANR                                 |                     |        |       |
|        |  | DAs  |                     |        |       |
|        |  | Model farmers                                  |                     |        |       |
|        | Subtotal   |  | 72                  | 52     | 124   |
| Total  |  |  | 101                 | 65     | 166   |

### Organise at least three bi-annual stakeholder project review and learning workshops to review project implementation and share lessons

During the reporting period, the project conducted regional annual stakeholder project review and planning workshops in each target region. In SNNPR the meeting was held on 8 May 2018, and in Tigray the event was held on 9 May 2018 (Fig. 18). The objectives of the workshops were to (1) review the annual achievements of the project, challenges met, and lessons learnt, and (2) jointly develop work plans and budgets for year 2 of project implementation.

In SNNPR the workshop was attended by 18 participants and 27 in Tigray (Table 12). Participants were drawn from project partners, including TARI, WAT, BoH, BoA in Tigray, and SARI, ELE, and BoA in SNNPR. The workshop discussed project achievement, challenges, and lessons learnt during the first year of project implementation and subsequently developed partner work plans and budgets for year 2. In Tigray drafts of the revised ATVET modules that incorporate OFSP materials were presented by instructors from Wukro, Maichew, and Shire ATVETs for comments by participants.

Some reflections that came out during discussions are summarised below:

- The training activities organised by CIP and Tigray BoARD enhanced knowledge, skill, and attitude of experts about the nutrition and health benefits of OFSP as well as the agronomic practices of the crop. However, continuous training and awareness creation to the community are needed since the skill on vine conservation and multiplication is now with few farmers and DAs.
- The agronomy and post-harvest training, as well as the experience-sharing visits organised by the project, enhanced participants of the event to focus more on further scaling out of the crop in their project areas.
- There is still limited knowledge on sweetpotato agronomy, post-harvest management, and utilisation. More investment in capacity building and technical assistance is required to have a common understanding on the crop.
- There is a need for practical experience-sharing visits to facilitate farmer-to-farmer knowledge exchange.
- Health centres need to give more orientation to pregnant women about the health and nutrition benefits of OFSP consumption when they visit the centres for a regular check-up.
- More investment, follow-up, technical back-stopping, and longer time (5–6 years) is needed to institutionalise OFSP within the agriculture and health extension systems. In addition, project partners should jointly and continuously convince woreda/district authorities to allocate budget and ensure that FTCs, health centres, DAs, and HEWs include OFSP activities in their annual work plans.
- There was a serious shortage of vines. Participants suggested that each FTC in each intervention kebele multiply its own vines to meet local demand. In this regard, the BoARD should strengthen OFSP demonstration and multiplication at FTC level.
- Linking the post-harvest training with practical demonstration of OFSP dishes was greatly appreciated. Participants highly appreciated and liked the bread prepared from OFSP, which showed that there are potential feasible utilisation options for OFSP.
- A special project is needed to commercialise OFSP value chain by sensitising and enhancing commercial investors to engage in OFSP root production for market. Also needed is to create linkages with surrounding smallholder OFSP out-growers in urban areas through contract farming arrangements, contributing to more awareness and increase in the benefits of OFSP. But there is a shortage of OFSP roots in the market and hence a need to increase the

production to supply OFSP to urban markets. Moreover, it will be crucial to strengthen the partnership with private sector entrepreneurs to process OFSP so that it can be used in making feasible nutritious products. For this to be sustainable, there is a need for a consistent supply of raw materials (i.e. fresh roots).

- Strengthening linkages in both the OFSP seed and root chain still requires attention. More advocacy and sensitisation on NSA interventions, particularly bio-fortification is needed.



*Figure 18. Participants of annual stakeholder project review and planning workshop, Mekelle.*

**Table 12. Participants in the annual review and planning meeting in SNNPR and Tigray**

| Region       | Date Held (2018) | # of Participants |          |           |
|--------------|------------------|-------------------|----------|-----------|
|              |                  | Male              | Female   | Total     |
| SNNPR        | May 8            | 17                | 1        | 18        |
| Tigray       | May 9            | 25                | 2        | 27        |
| <b>Total</b> |                  | <b>42</b>         | <b>3</b> | <b>45</b> |

### **Provide technical backstopping to woreda BoA and BoH officials in the 10 target woredas to facilitate the integration of evidence and lessons into government plans**

To strengthen the collaboration and synergies between the BoH and BoA, and to enhance institutionalisation of OFSP in agriculture and health systems, CIP staff in both SNNPR and Tigray, BoA, and BoH jointly provided technical backstopping support to woreda- and kebele-level BoA and BoH staff working at FTCs and health centres. During the regular field-monitoring visits, the team from CIP, BoA, and BoH jointly documented good practices, evidence, lessons, and challenges for system-strengthening and institutionalisation. They jointly advocated for the integration of OFSP in programmes, plans, and budgets of government and other NGOs. As a result of these joint efforts, several NGOs have included OFSP in their programmes and projects and are also using CIP-developed OFSP technical materials (e.g. manuals, recipe books, and other information, education and communication materials). Additionally, the project managed to foster collaboration between BoH and BoA as woreda agriculture office and health office staff have begun joint supervision of OFSP activities at health posts and FTCs.

#### ***4.3.4 Objective 4: Evidence-based advocacy strengthened to influence policies and programming in support of OFSP as part of healthier diets***

##### **Engage with multi-sectoral nutrition-agricultural platforms for sharing evidence and lessons**

During the reporting period, as part of the project's advocacy efforts, CIP staff attended six platform meetings to share evidence and lessons at national and subnational levels.

CIP and partners submitted three research papers for oral presentation and one for poster presentations at the National Nutrition Program review meeting held at the Hilton Hotel on 20–21 December in Addis Ababa (Fig. . The papers were mostly based on research evidence generated from operational research conducted in the previous and on-going Irish Aid-funded OFSP project. The titles of the papers and poster as follows:

- Multi-sectoral efforts and coordination for better nutrition a preliminary finding from systems diagnostic study on implementation challenges and opportunities for nutrition-sensitive agriculture interventions in Ethiopia.
- Presentation of Impact pathways linking orange-fleshed sweet potatoes to child and household nutrition outcomes: A cluster randomized effectiveness study in rural Ethiopia.
- The impact of school nutritional campaigns on Scaling Up Nutrition-Sensitive Agriculture in Tigray region, Ethiopia.
- Kitchen gardens for improved nutrition: Evidence from the cultivation of sweetpotato, potato and other nutritious crops in rural Tigray, Ethiopia (poster).

In Tigray CIP staff actively participated in a 2-day Tigray Region Nutrition Program Planning review meeting on 4–5 January 2018 in Wukro town.

In addition to the aforementioned meetings, CIP disseminated evidence, lessons, and impacts from operational research done in the previous and on-going OFSP projects and findings of the SDS to stakeholders at the stakeholder validation workshop held on 11–12 January 2018.

CIP also attended two platform workshops organised by Seqota Declaration team of the Federal MoANR in Mekelle on 22–24 March 2018, and in Bahir Dar on 1–3 May 2018, aimed at sharing evidence and lessons on nutritious-dense crops. During these two platform meetings, CIP staff presented the evidence, lessons, impacts, and challenges of previous CIP-led OFSP interventions in Tigray and SNNPR. Additionally, as part of an effort to institutionalise OFSP in the curriculum of ATVETs, CIP shared evidence and lessons on bio-fortified OFSP crops at the Nutrition Sensitive Agriculture Technical Update training for agriculture college instructors, organised by Save the Children, in Maichew Town on 5 May 2018 (Fig. 19).

CIP staff from the Tigray and SNNPR offices participated in a 1-day Field to Table event organised by CultivAID, an Israeli NGO, in collaboration with Tigray Development Association at Kalamino multipurpose farm on 19 May 2018. At this event CIP displayed roots of new, high dry matter OFSP varieties that are under evaluation, and supplied 100 kg of OFSP root to event organisers to serve to participants at lunch.



*Figure 19. Participants of stakeholder validation workshop held in Addis Ababa.*



*Figure 20. CIP presentation on experiences in promotion of biofortified crops to Nutrition Sensitive Agriculture Technical Update training for Agriculture college instructors organised by Save the Children in Maichew Town.*

### **Establish and operate Joint Advisory Committee of BoA/BoH and other national stakeholders for oversight of CIP/EU/IA agriculture-nutrition projects and coordination of advocacy effort**

To facilitate coordination of activities between the CIP–Irish Aid-funded project and two other CIP-led OFSP projects implemented in SNNPR (the EU-funded project and the Emergency Response project funded by the U.S. Agency for International Development/Office of U.S. Foreign Disaster Assistance), joint planning and review meetings were held by CIP management teams from the three projects. The meetings are held every quarter, and during the reporting period two review meetings were held, one in August and one in November 2017. The two meetings enabled project teams to share lessons and experiences and to identify potential areas of complementarity across the projects to avoid duplication of efforts. For instance, the EU project used the sweetpotato recipe book developed by the Irish Aid project for its nutrition promotion activities. The Irish Aid project used manuals translated into Amharic with funding from the EU project for its ToTs. Additionally, the meeting noted that both projects were working to capacitate ATVETs. And it was agreed that the Irish Aid project should emphasise how the training materials on OFSP can be institutionalised into the regular ATVET training programmes. Also, sweetpotato training manuals developed under the Emergency Response project were used for training during ToTs and field days at FTCs in the Irish Aid project. The manuals will be provided as a resource to ATVETs and FTCs to facilitate institutionalisation of sweetpotato in their training programmes. More important, the EU project is supporting SARI in its evaluation of improved OFSP varieties high in dry matter content. When released, these varieties will be promoted through linked activities in the Irish Aid and Emergency Response projects, including demos at FTCs.

### **Consolidate evidence base on OFSP in Ethiopia and develop advocacy and demand creation materials and tools (policy briefs, fact sheets, brochures, etc.)**

During the reporting period, CIP engaged an external consultant (communications specialist) to design communication or advocacy tools such as evidence briefs, policy briefs, factsheets, and case studies to use for advocacy to increase awareness of and investments in OFSP by government, donors, and other stakeholders. The consultant was provided with evidence, best practices, and lessons which were documented in project reports, research reports, and published scientific papers. The advocacy materials were disseminated to stakeholders, including government officials and policymakers. To this end, using the evidence, experiences, and lessons generated from the previous Irish Aid-funded OFSP projects in Ethiopia and other CIP-led OFSP projects in Ethiopia and other sub-Saharan Africa countries, the project compiled eight advocacy tools. These tools comprised one evidence brief, one factsheet on biofortification, one policy brief, one flyer, and four case studies/success stories. These advocacy materials were disseminated to stakeholders at the stakeholder validation workshop, the Sweetpotato for Profit and Health Initiative workshop, the EU stakeholder workshop on 2 October 2017, and at other project meetings.

## **5. MONITORING AND EVALUATION**

During the reporting period, CIP staff in Mekelle and Hawassa, in collaboration with partner staff, conducted regular monthly field monitoring visits and provided technical backstopping to government partners. In year 1 of project implementation, the project made significant progress in meeting the set target milestones (see Annex 1).

## **6. CHALLENGES ENCOUNTERED**

During the reporting period, the project faced several challenges that affected implementation:

- At the beginning of the project, there were delays in signing of SGAs with implementing

partners, resulting in the delayed start of project activities (some activities started as late as November 2017).

- Like most other CGIAR centers in Ethiopia, CIP does not have a host country agreement (HCA) with the GoE. Instead it is hosted by ILRI, which is the only CGIAR center with an HCA with the GoE. Without its own HCA, it was difficult for CIP to convince other government departments, most notably the BoH SNNPR, to sign an SGA with CIP, as they demanded to see CIP's operating licence (similar to that of NGOs that the departments are used to partnering with). Attempts to provide ILRI's HCA and CIP's hosting agreement were not enough to convince the government officials. Although the project failed to secure a formal agreement with the regional BoH official, the project is implementing activities with the full cooperation of BoH officials in the target woredas. Moreover, the BoH at region level is engaged in the project through their formal agreement with ELE, one of the project partners. Thus, the BoH activities are being led by CIP and ELE.
- The project could not sign an agreement with SARI. SARI still had uncleared fund balance from the previous project phase, a situation that was created by challenges in the institute's accounting system. By the time these challenges were sorted, time left for implementation did not warrant the pursuit of an agreement with SARI, given that project deliverables may not be achieved. High turnover of staff in the BoANRD–SNNPR and BoARD–Tigray has affected implementation of the activities they were supposed to lead.
- In the project's effort to capacitate FTCs through the establishment of OFSP multiplication plots, limited access to land and irrigation was a major constraint in both target regions.
- The regional BoANRD–SNNPR and BoARD–Tigray staff have been heavily engaged in meeting and community mobilisation for dry-season irrigation campaigns. Because of this, the project could not implement some of the activities as per the scheduled work plan.
- At some of the FTCs, sweetpotato multiplication was difficult due to invasion of multiplication plots by livestock.
- OFSP sweetpotato multiplication at Hatset FTC in Hawzien woreda was highly affected by frost in November–January 2018.

## 7. LESSONS LEARNED

During the reporting period, several lessons were learnt that will be used to inform the remainder of the intervention in year 2 and beyond. These include:

- The project invested resources in designing and translating training materials into local languages for use in the agriculture and health extension systems. However, we learnt from feedback by agriculture and health experts that visual aids such as videos can be more effective as training materials, particularly at the woreda and kebele levels where literacy rates are quite low. Accordingly, in future the project will forge partnerships with initiatives such as the Digital Green that have technical expertise in developing video materials for training at local levels.
- While it is important to strengthen technical capacities of relevant government systems to facilitate scaling up of OFSP, this has to be complemented with efforts to strengthen marketing systems for nutritious OFSP varieties to ensure increased and sustained adoption. Strengthening the entire OFSP value chain becomes critical for successful institutionalisation and scaling up of the crop.
- At the policy level, potato and sweetpotato are recognised in the horticulture and NSA strategies of the MoANR. However, because of the prioritisation of cereals, these two crops do

not receive enough attention and prioritisation that are commensurate with the key role they play in the food and nutrition security of a significant population in the country. To increase the attention paid to potato and sweetpotato at the policy level, and to facilitate efforts towards institutionalisation of the two crops, there is need for the joint development by CIP and MoANR of a stand-alone national potato and sweetpotato strategy aligned to the existing relevant MoANR strategies.

- One of the major constraints to wider adoption of OFSP is the limited varietal base. Only two varieties have been released, but they are less preferred by farmers and consumers due to their low dry matter content and susceptibility to drought. Continued investments in improving the OFSP varietal base to enhance their competitiveness and meet farmer- and consumer-preferred traits is needed.
- Lack of awareness on OFSP by government officials and experts at all levels of government is one of the impediments for institutionalisation of the crop. Accordingly, there is need to put more effort in evidence-based advocacy to increase awareness and prioritisation of the crop in government programmes, plans, and strategies.

## 8. LOOKING FORWARD

On the basis of the lessons learnt from its first year of implementation, the project identified several priority focus areas for system strengthening that should be further developed in the next year and beyond to fully achieve the institutionalisation goal of the project. These include:

- Focus on strengthening marketing systems of nutritious OFSP varieties to ensure increased and sustained adoption of OFSP by more commercially oriented resourceful farmers who can consistently produce larger volumes of quality OFSP to meet the market demand. Given the perishable and bulky nature of the crop, focus on commercial OFSP production should be given to peri-urban farmers who are closer to urban markets. Market development for OFSP will be critical in creating the income incentive for farmers to adopt OFSP and also increase their willingness to pay for vines. This point is key to sustaining the currently volatile OFSP seed system that is largely dependent on institutional buyers.
- Private sector engagement and investments in processing feasible, commercially viable OFSP products should be encouraged to increase demand.
- Introduction, evaluation, release, and promotion of new competitive, high dry matter, climate-resilient OFSP varieties suitable for diverse Ethiopian agro-ecologies are critical next-steps.
- Jointly with the Federal MoANR, develop a national potato and sweetpotato strategy linked to other related government strategies, plans, and programmes to ensure institutionalisation of OFSP at national level.
- Continued evidence-based advocacy to raise awareness on OFSP among policymakers and other stakeholders to enhance mainstreaming of OFSP on government agriculture and health sector systems and increased investment in OFSP.

## ANNEX 1: SUMMARY ACHIEVEMENTS VERSUS TARGETS

| Description   | Intervention Logic   | Indicators of Achievement (OVI) Outputs  | Achieved in year 1 (1 July 2017–30 June 2018)   |
|---|--|--|---|
| <b>Goal:</b> Contribute to improved nutritional status and food security among vulnerable populations in SNNPR and Tigray regions of Ethiopia through the strengthening of agriculture and health systems and through institutional development |  | Food security and nutrition indices in target areas  |   |
| <b>Project purpose:</b> Strengthen institutional capacities and processes among key stakeholders at national and sub-national levels to support scaling up of production and utilisation of vitamin A-rich OFSP.                                |  | <ul style="list-style-type: none"> <li>Numbers of HH cultivating micronutrient-rich sweetpotato varieties in target woredas.</li> <li>Area under cultivation with micronutrient-rich sweetpotato varieties.</li> <li>Consumption of micronutrient-rich sweetpotato and potato varieties marketed and processed.</li> </ul> |   |
| <b>Expected results</b>   |  |  |   |
| Result 1: Diagnosis of key institutions, system linkages, and coordination, technical, and institutional capacities, and OFSP evidence base conducted and key gaps and leverage points for system strengthening identified.                     | System diagnostic study design and methodology documented and related data collection tools prepared   | System diagnostic study methodology document and related data collection tools   | <ul style="list-style-type: none"> <li>Prior to the assessment system diagnostic study methodology document and related data collection tools developed</li> <li>Participatory system diagnosis conducted and a final report produced. System gaps and leverage points identified and used in designing relevant partner work plans for years 1 and 2, as well as the comprehensive SDS.</li> <li>Stakeholders jointly developed an SSPs based on the findings of the SDS. The SSPs are integrated into year 2 partner work plans and budgets which were designed at project review and planning workshop.</li> </ul> |
|   | System diagnostic report documenting findings on the diagnosis of key institutions, system linkages, and coordination, technical, and institutional capacity gaps and leverage points in existing policies and strategies at different levels and evidence and lessons from past nutrition-sensitive nutrition interventions produced. | System diagnostic report.  |   |
|   | SSP is identifying key gaps and leverage points for system strengthening jointly developed and validated by stakeholders.  | <ul style="list-style-type: none"> <li>System SP available to all stakeholders</li> <li>At least 2 scientific publications co-authored with project partners</li> </ul>  |   |
| Result 2: Strengthened technical and institutional capacity of BoA, BoH, SARI/TARI, ATVETs, and   | Training plan for addressing key gaps identified in SSP developed.   | Training plan for target woredas developed and available to all stakeholders   | <ul style="list-style-type: none"> <li>Training plan for target project partners and woredas are identified and included in the partner annual work plan of year 2.</li> </ul>  |

| Description  | Intervention Logic   | Indicators of Achievement (OVI) Outputs  | Achieved in year 1 (1 July 2017–30 June 2018)  |
|--|--|--|--|
| other stakeholders for promotion and implementation of sustainable OFSP technologies and services to smallholder farmers | Training manuals for 'learning by doing' ToT of agriculture and health training institutions (ATVETs, FTCs, health colleges, and woreda BoH and BoA officials) on technical aspects OFSP agronomy, utilisation, and nutrition and institutional aspects developed. | Training manuals developed and available   | <ul style="list-style-type: none"> <li>• CIP has technical training manuals on sweetpotato for field staff and communities ("Everything You Ever Wanted to Know about Sweetpotato"). This manual was translated into Tigrigna and Amharic languages and made available to regional-, woreda-, and kebele-level agriculture and health extension offices.</li> <li>• OFSP modules integrated into curriculum of 3 ATVETs agricultural colleges (Wukro, Maichew, and Shire), and in agriculture (FTC) and health extension materials for HEWs and health centres.</li> <li>• Activity has been suspended because established multiplier groups ceased OFSP multiplication due to lack of market.</li> <li>• Established OFSP demo plots at 9 FTCs which are multiplying and disseminating vines to farmers in neighbouring communities by project. During the reporting period, 100,000 OFSP cuttings produced at 3 FTC demo sites were distributed to 330 HH in Damot Gale, Humbo and Sodo Zuriya woredas in SNNPR.</li> <li>• 13 instructors (9 ATVET and 2 health collage instructors from Tigray and 2 ATVET instructors from SNNPR) trained and cascade down the training to woreda agriculture and health officers.</li> <li>• Trained 171 (13 regional and woreda BOA staff, 140 DAs, 26 health officers, and 5 WAT staff in Tigray) on OFSP agronomy and nutrition.</li> <li>• Assessment of capacities, scope, and delivery modalities for OFSP done as part of the comprehensive SDS.</li> <li>• OFSP demo plots established at 9 FTCs jointly by CIP and BoA. OFSP vines disseminated to 330 farmers in neighbouring kebeles from the FTCs.</li> <li>• Cooking demos that integrate OFSP dishes conducted at 20 health posts jointly by BoH, BoA WAT, and ELE.</li> </ul> |
|  | OFSP modules adapted and translated into local languages for integration into curriculum of ATVETs, health colleges, FTCs, and in agriculture and health extension materials.  | OFSP modules available   |  |
|  | At least 5 vine multiplier groups established and formally registered with the cooperative office, their capacities strengthened and linked to root producers.   | At least 5 vine multiplier groups established and officially registered as formal cooperatives   |  |
|  | OFSP demonstration and multiplication sites established at 10 FTCs in the 10 target woredas.   | 10 FTCs multiplying and disseminating vines to farmers in neighbouring communities by project end  |  |
|  | At least 100 instructors from ATVETs, Health Colleges, and FTCs trained as primary facilitators on OFSP agronomy, utilisation, and nutrition.  | 100 instructors trained and cascade down the training to woreda agriculture and health officers  |  |
|  | At least 20 woreda agriculture and health officers trained in OFSP agronomy, utilisation, and nutrition.   | 20 woreda agriculture and health officers trained.   |  |
|  | Capacities, scope, and delivery modalities of current training programs at agriculture and health training institutions (ATVETs, Health Colleges, and FTCs) assessed.  | Assessment report documenting the capacities, scope, and delivery modalities of at least 18 training institutions (ATVETs, Health Colleges, and FTCs). |  |

| Description   | Intervention Logic  | Indicators of Achievement (OVI) Outputs  | Achieved in year 1 (1 July 2017–30 June 2018)  |
|---|---|--|--|
|   | Demos on OFSP multiplication and distribution and nutrition education cycle (planning, implementation, learning cycle) jointly implemented by project partners. | Demos of OFSP multiplication and distribution and nutrition education cycle implemented in the 10 target woredas.  | <ul style="list-style-type: none"> <li>• 10 project woredas include OFSP as part of their annual work plan, and budget for capacity building and vine purchase covered by NGOs such as GIZ, REST, Save the Children.</li> <li>• 3 ATVET colleges in Tigray (Maichew, Wukro, and Shire) integrate OFSP training materials into the ATVET teaching modules.</li> <li>• CIP serves the MoANR with OFSP training manuals for integration into the ministry-developed NSA training manual and facilitator guide.</li> <li>• Federal MoANR developed a draft NSA training and facilitator training manual. OFSP is integrated into that manual that will be used by the agricultural extension system nationally.</li> </ul> |
|   | OFSP recognised as a key food security and nutrition crop and integrated into government strategies, programmes, plans, and budgets.                            | <ul style="list-style-type: none"> <li>• At least 6 of the target woredas include OFSP in their strategies, programmes, plans, and budgets by project end.</li> <li>• OFSP included in programmes, strategies, annual plans, and budgets of the regional BoA and BoH in the two target regions.</li> </ul> |  |
|   | OFSP modules integrated into training curriculum of agriculture and health training institutions.   | <ul style="list-style-type: none"> <li>• At least 10 training institutions (ATVETs, health colleges, and FTCs) integrate OFSP into their training curriculum by project end.</li> <li>• At least 1 OFSP module is integrated into the agriculture and health extension package by project end.</li> </ul>  |  |
| Result 3: Evidence, best practices and lessons on using OFSP to improve nutrition and health documented and disseminated at national, subnational, and local levels | Evidence on OFSP impacts, lessons, and best practices from previous and on-going OFSP projects in Ethiopia and other countries synthesised.                     | At least 3 synthesis reports documenting OFSP impacts, lessons, and best practices produced.   | <ul style="list-style-type: none"> <li>• Evidence and lessons synthesised in 8 advocacy materials: 1 policy brief, 1 evidence brief, 1 factsheet on biofortification, 1 flyer, and 4 success stories.</li> <li>• Two stakeholder annual project review, learning, and planning workshops conducted.</li> <li>• Operational survey on production and consumption of OFSP conducted jointly by the Irish Aid and CIP-OFDA projects. Data are currently analysed and a report will be produced in year 2.</li> <li>• Evaluation trials of new improved OFSP varieties jointly established by SARI through joint funding from CIP–Irish Aid- and EU-funded projects.</li> </ul>  |
|   | Stakeholder workshops to review implementation progress and share lessons conducted bi-annually.  | At least 3 stakeholder review and learning workshops conducted by project end.   |  |
|   | Operational research on production and consumption of OFSP and impacts on nutrition and health conducted in collaboration with other CIP-led OFSP projects.     | At least 2 operational research papers produced.   |  |
| Result 4: Evidence-based advocacy strengthened to influence policies and programming in support of OFSP as part of healthier diets.                                 | Evidence and lessons on OFSP shared among stakeholders at national and sub-national levels.   | <ul style="list-style-type: none"> <li>• Evidence and lessons from OFSP interventions shared with stakeholders in at least 10 multi-stakeholder platform meetings at national, regional, and woreda levels.</li> <li>• At least 6 field days and 2 exchange visits</li> </ul>                              | <ul style="list-style-type: none"> <li>• Evidence and lessons from OFSP interventions shared with stakeholders at 6 multi-stakeholder platform meetings (1 national, 4 regional, and 1 woreda levels).</li> <li>• 2 field days and exchange visits (one in each region) organised for members of woreda, and regional</li> </ul>   |

| Description | Intervention Logic  | Indicators of Achievement (OVI) Outputs  | Achieved in year 1 (1 July 2017–30 June 2018)  |
|-------------|---|--|--|
|             |   | <ul style="list-style-type: none"> <li>organised for members of national and sub-national platforms and other stakeholders.</li> <li>Existing OFSP advocacy materials reviewed, and revised advocacy materials (policy or evidence briefs, factsheets, highlights, brochures, leaflets, videos) prepared and shared with stakeholders.</li> </ul>  | <ul style="list-style-type: none"> <li>stakeholders.</li> <li>Evidence and lessons synthesised in 8 advocacy materials including 1 policy brief, 1 evidence brief, 1 factsheet on biofortification, 1 flyer and 4 success stories.</li> <li>Jointly with the MoANR, CIP is developing a national potato and sweetpotato strategy paper that will be completed in year 2 of the project.</li> </ul> |
|             | Promotion and utilisation of nutritious and biofortified OFSP is integrated into regional government and NGO agriculture and nutrition strategies and planning processes. | <ul style="list-style-type: none"> <li>Roadmap for institutionalization of good practice OFSP and nutrition-sensitive interventions by BoA and BoH developed.</li> <li>At least one agriculture and one nutrition strategy or plan by GoE promote nutritious and biofortified crops.</li> <li>At least six OFSP champions identified in key institutions in BoA, BoH, and other stakeholders at federal and regional levels to advocate for OFSP in their institutions and in relevant platforms.</li> <li>At least two additional projects promoting OFSP by government or NGOs in the two regions.</li> <li>20 targeted kebeles reached through collaboration between BoH and BoA and other project stakeholders.</li> </ul> | <ul style="list-style-type: none"> <li>National potato and sweetpotato strategy jointly developed by CIP and MoANR will be ready in year 2.</li> <li>4 organisations in Tigray promoting OFSP by including it as part of their project activities.</li> <li>20 targeted kebeles reached through collaboration between BoH and BoA and other project stakeholders.</li> </ul>                       |



The International Potato Center (known by its Spanish acronym CIP) is a research-for-development organization with a focus on potato, sweetpotato, and Andean roots and tubers. CIP is dedicated to delivering sustainable science-based solutions to the pressing world issues of hunger, poverty, gender equity, climate change, and the preservation of our Earth's fragile biodiversity and natural resources.

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CIP is a member of CGIAR.

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