

CRP on Dryland Systems

Sustainable intensification of smallholder agricultural systems in East Shewa, Ethiopia

Report on formation and operation of Innovation Platform

Introduction:

One of the major reasons for low levels of uptake of improved technologies by smallholder farmers especially in Africa is the failure of agricultural research and development to develop and promote interventions that are tailored to address the complex local farming system problems with due consideration to local knowledge and requirements as well as biophysical and socio-economic constraints and opportunities. Current approach to agricultural research is often described as sectoral and fragmented with little or no consideration to the systems and involvement of relevant stakeholders. Hence, strengthening the linkages and interaction between multiple stakeholders has been considered as key to improved effectiveness of agricultural research and developmental efforts. The technology generation to be relevant and adopted should take into consideration among other things tradeoffs and synergies in the system, household resources and needs, input and output markets and policy environment. This calls for a paradigm shift in the R&D approaches towards more demand driven innovation systems approach which serves as a framework that guides multi-institutional learning to better understand what to change and influence in order to improve the performance of the systems.

Innovation Platform (IP) is the functional aspect of the agricultural innovation system. It defines the operating principles and guidelines for stakeholders with diverse interests to come together to analyse the problem and develop solutions. This approach when adopted in technology generation is expected to lead to generation of technologies that are relevant to local conditions and are acceptable to local communities. It is defined as an action research approach for investigating and facilitating the organization of multi-institutional, multi-disciplinary actors (including researchers) to innovate more effectively to achieve a shared. It comprises of a set of individuals and organizations working together around a developmental challenge with due consideration to end user concerns, requirements and capacities. It brings together stakeholders from research, extension, policy, and markets to work with end users in developing solutions which when applied solve the problem for mutual benefit. It further strengthens the linkages and promotes interaction between ARD actors and helps develop solutions that benefit all the players. However, forming and operating such platforms is not straightforward and to date no clear guidelines or protocols on how to identify and involve different kinds of stakeholders in constructive problem-solving exercises are available.

The CRP on dryland systems has adopted this as the approach to address the complex problems that the smallholder farmers are facing using a systems approach that brings together various actors to work in a way that maximizes synergies. In the East Shewa action site, we have formed an innovation

platform involving various stakeholder groups with interest in improving the smallholder agriculture and local environment. The members made met at regular intervals and made extensive deliberations on the challenges that the smallholder farmers in the target areas are facing and identified options available to address the same. The identified options were taken up by the members for implementation as per the work plans agreed upon. Below is the summary of IP discussions that include agreed work plans and progress made in implementing the work plans as captured in the proceedings of the IP meetings. The information in these reports and experiences gained from operating the IP will form the basis for developing appropriate guidelines to form and operate IPs.

IP meeting 1

Date and time of the meeting: 18th June 2014 @ 9:00 Am

Objective: Form an innovation platform with partners willing to work together and contribute to the sustainable intensification of agricultural systems in the dryland systems action sites

Venue: Ziway, Haile Resort

Members Present: International Development Enterprise (IDE), Ethiopian Institute of Agriculture (Melkassa ARC), Oromia Agricultural Research Institute (Adamitulu ARC), CGAIR centers (ILRI and ICRISAT), Adami Tullu Pesticide Company, Bureau of Agriculture (BoA), Non-Governmental Organizations (NGOs) (RCWDO and SEDA), Microfinance offices, Kebele Offices, Development Agents (Das) and Farmers (See Annex 2)

Members Apologies: (Dr. Assefa Teha?? or None)

Session 1: Presentation about the existing situation

Stakeholder meeting was officially opened by Dr. KPC Rao, ICRISAT-Ethiopia country representative. In the opening session, two presentations one by ICRISAT-Ethiopia and the other by IDE representatives were made. The first presentation by Dr. KPC Rao entitled “*System for integrated landscape development*” highlighted the strong interaction of rainfed agriculture and people livelihood, especially smallholder farmers and the associated constraints of rainfed agriculture. It also highlighted the differences in the performance of agriculture amongst various regions in the world especially Asia and East Africa and countries within East Africa and the high yield gap between what is potentially possible and that currently achieved.

Problems related to land degradation, soil fertility, soil water, and market opportunity were mentioned as major causes for existing yield gap. In order to tackle those problems, the adoption and use of improved technologies and innovative methods of extension system are required to enhance the systems productivity. One of the examples cited for integrated systems interventions is the integrated watershed management approach. Integrated watershed management is one of the approaches to achieve better utilization of resources and bring an impact on the livelihood of smallholder farmers. Kothapally watershed which is the most popular watershed in India was taken as an example in his presentation. In line

with this, Dr. KPC mentioned that ICRISAT-Ethiopia has planned to establish similar watershed in Ethiopia to bring positive impact on livelihood of smallholder farmers; and currently, in collaboration with IDE, ICRISAT-Ethiopia has started on-farm trials on crop management at twenty farmers' fields in Haleku Gulenta and Dodicha kebeles. Finally, he stated that the objective of stakeholder meeting is to bring relevant partners to a single platform and collaboratively perform different activities that help smallholder farmers improve their livelihoods. Mr. Olani Wirtu, IDE representative, presented on going activities of IDE project "*On-farm productive water development and management (OPWDM)*". This project mainly initiated to address the constraints caused by high rainfall variability and associated crop failure. In-situ water conservation such as soil bunding, trench with improved farming practices, and construction of farm ponds were the main intervention activities in this project. With the help of those practices, high value crops such as mango as well as vegetables crops such as onion and red paper were established in the project sites Dodicha and Haleku gulenta kebeles. He also noted that the project brought significant impact on livelihood of the people involved.

During the discussion that followed the presentations, Mr. Fiti Ademe, EIAR representative, stated about the importance of community based integrated watershed management by mentioning the activities being conducted by Melkassa ARC. In this activity, different soil and water conservation practices such as tied ridging, in-situ water harvesting, farm land soil conservation structures, and application improved agricultural technology including crop and forage as well as beekeeping were integrated and how they contributed to increasing soil water and farm productivity. Mr. Abu Korsa and Abo Neme, Farmers representatives, also noted the benefit obtained from soil conservation practices and use of improved crop technologies, Mango and coffee seedling in their farm lands after working collaboratively with IDE.

Session 2. General discussion

The second part of stakeholder meeting focused on discussions among participants on how to create common platform that help identify the existing problems and bring solutions. In this session, various points were made by the participants;

Mr. Amdemariam Jaeh, Pesticide company representative, stated that the farming system of Adamitulu and Ziway areas were livestock based long year ago but now changed to cropping system. In line with cropping system, pest infestation is very common problem in the areas. In this regard, what is the future plan of ICRISAT project to intervene this problem?

Dr. KPC Rao: ICRISAT-Ethiopia is not a project but it has tried to create a platform that bring various stakeholders to common place in order to carry out various problem solving research and/or development activities through mobilizing the society. In this regard, intervention in terms of pest management can be considered to be integrated in different activities initiated by stakeholders.

Mr. Kedir wako, Adamitulu Agricultural Research Center's Director, elaborated why farmers not adopt and use improved agricultural technologies. He suggested that, besides affordability, improved agricultural technologies should be packed in integrated manner in terms of improved crop varieties, livestock breeds, forage species etc. he also assured that ATRC plays its role to contribute its part in this aspect. Similarly, Mr. Olani expressed his worries about how to use agricultural technologies already released from different research centers in an integrated manner and how all stockholders work together to ensure sustainable productivity and make significant impact on the livelihood of the society.

Dr. KPC Rao: Identification of the constraints and potentials of the area have to be the first task to be done. This has to be done through baseline surveys, analysis of secondary data (climate, crop production etc.), focus group discussions and other research methods. Based on the findings, appropriate technologies (crop varieties, improved breeds, soil and water conservation practices etc) are identified, tested and evaluated and proven ones are delivered to farmers. To achieve this, we have to establish a common platform that brings all relevant stakeholders together and work on problem oriented research and/or development activities. That is why this stakeholder meeting is organized by ICRISAT-Ethiopia.

Dr. Abule Ebro, ILRI Representative mentioned that Adamitulu and ziway areas are a focused area by many organizations including ILRI, and many research works were done and are being done in the area of crop and livestock production. Thus, this type of stakeholder

meeting is timely and important not only to link various stakeholders together and share experiences but also to get information about existing situation. Similarly, Mr. Mohammed Amano, Bureau of Agriculture representative, besides stating the importance of stakeholder meeting, he elaborated the current government strategies in the area of scaling up of agricultural technologies. In order to achieve government objectives, he said, we have to work together.

Mr. Yinebeb Dida, mentioned about the existing agricultural inputs constraints like agricultural inputs (improved seeds and fertilizers) and the limited access to microfinance. He also appreciated ICRISAT-Ethiopia on-farm maize-pigeonpea intercropping activities which are being conducted in collaboration of IDE in 20 farmers' fields in Haleku gulenta and Dodicha districts. Similarly, Mr. Zeleke mentioned that Adamitulu ARC is conducting maize-pigeonpea intercropping demonstration research on farmers' fields. In this regards, KPC Rao elaborated the importance of pigeonpea in terms of food, feed, soil fertility enhancement (provide almost equivalent of 20-25 kg of N) and also in supplying fuelwood. Even though this activity is currently limited on two sub watershed (Haleku gulenta and Dodicha), the lessons will be extrapolated to others in the future. He also assured that ICRISAT-Ethiopia is very much interested to work with Adamitulu ARC on pigeonpea crop.

Overall, all participants have agreed to work together and address the constraints faced by the farmers in the two target locations by sharing their knowledge, experiences, resources and by participating in implementation of the activities that are mutually agreed upon.

Other issues raised include how to establish system based on demand-supply and value chain approaches to bring significant change and add value in the area. In this discussion, Adamitulu BoA informed that nursery sites have been established and various tree species have been existed in nursery sites. However, there is transportation limitation to supply the seedlings to the target groups. While NGO, SEDA is also producing local tree crops (mango and avocado) to distribute to farmers. IDE informed that there is closed area being rehabilitated in Dodicha kebele. Based on this information, Establishment of tree plantation was proposed by participants for upcoming seasons and task force of ICRISAT-Ethiopia, Bureau of Agriculture and IDE represented by Mr. Ermias Alemu, Mohammed Amano and

Yinebeb Dida respectively, was established to assess the site for tree plantation and put this task on the ground. Meanwhile, Adamitulu ARC assured to give transportation facility to successful implementation of any activities including tree seedlings.

Pond based fishery activities was also proposed by the participants. Since it requires detail study about duration of water availability and water quality, it was put as long term plan. Besides, Ziway fishery research centers will be consulted in future.

Below are the list of activities that the group has agreed to imitate during the crop season June-September 2014.

List of actions to be accomplished in future

Part I. Crop and natural resource management activities

- **Tree planting in closed area:** A technical team led by ICRISAT-Ethiopia, Bureau of Agriculture and IDE was established to accomplish the task through assessing:
 - The farmer interest
 - Members of community in closed area
 - Type of tree species existed in nursery sites
 - The status and the area of closed area

***Responsible Institutions:** ICRISAT-Ethiopia (Mr. Ermias Alemu), Adamitulu JK BoA (Mohammed Amano) and IDE (Yinebeb Dida)*

***Due date:** July 4, 2014*

- **Purchase and distribute improved haricot bean variety to target farmers**
 - Identify gender balanced group of farmers
 - Purchase and distribute improved seeds

***Responsible Institution:** ICRISAT-Ethiopia*

***Due date:** Jun 30, 2014*

- **Establishing on-station Maize-pigeon pea intercropping trials in Adamitulu ARC**

***Responsible Institutions:** ICRISAT-Ethiopia and Adamitulu ARC*

- **Installing gauges to monitor water resource**

***Responsible Institution:** ICRISAT-Ethiopia*

Part II. Capacity building training needs

Farmers

- Practical training on soil and water conservation
- Knowledge exchange/Experience sharing visits

Development agents (DAs)

- Agronomic practices
- Practical training on Apiculture
- Monitoring and evaluation training

Areas for training:

- Utilization and promotion of agricultural technologies
- Improved practices that fit well into the local conditions
- Value chain analysis

Finally, Dr. KPC Rao closed the session with a remark “we need to work as a consortium, and we have to implement what we have agreed upon”

Annex 1. Group photo: Participants of stakeholder meeting



Annex 2. List of participants and their address

S/ N	Name	Institution	E-mail address	Telephone No
1	Kedir Wako	OARI, Adamitulu ARC	Kedir2015@gmail.com	0916580022
2	Zelege Asaye	OARI, Adamitulu ARC	Zeleges2@gmail.com	0911345253
3	Jewaro Godana	Dodicha kebele office		0911810289
4	Abu Neme	Dodicha (DA)		0913791211
5	Dale Bedhane	Haleku Gulenta kebele office		0919606134
6	Aman Shuba	Haleku Gulenta (DA)		0916001583
7	Geriba Bona	Dodicha cooperative		0921364917
8	Abu Korso	Dodicha farmer's representative		0922637312
9	Hailu sofawo	Rift valley Children and Women Development Organization(RCWDO)	Qaldha2@gmail.com	0911383688
10	Fitih Ademe	EIAR, Melkassa ARC	fitihademe@gmail.com	0911376034
11	Alemayhu Eshete	IDE	A_eshete@ide.org.et	0938078129
12	Olane Wirtu	IDE	O_wirtu@ide.org.et	0912188792
13	Dr. Abule Ebro	ILRI	a.ebro@cgiar.org	0916820289
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15	Abu Tona	Haleku Gulenta farmer's representative		0926662472
16	Tilmo Jema	SEDA	Tijema39@gmail.com	0911992597
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19	Yinebeb Dida	IDE	Edilawe2014@gmail.com	0919649219
20	Wolde Zewdie	Busa Gonofa Microfinance	waldbgzway@gmail.com	0934098169
21	Dr.KPC Rao	ICRISAT-Ethiopia	k.p.rao@cgiar.org	011 6172544
22	Ermias Alemu	ICRISAT-Ethiopia	E.Alemu@cgiar.org	0921689634
23	Gizachew Legesse	ICRISAT-Ethiopia	G.Legesse@cgiar.org	0911312827

IP meeting 2

Date and time of the meeting: 10 December 2014 @ 900AM

Venue: Haile resort, Ziway, Ethiopia

Objective: To agree on working as a team, discuss and agree on operating guidelines, review the progress made during Kiremt crop season and develop work plan for conducting baseline surveys.

Member stakeholders participated: International Development Enterprise (IDE), Ethiopian Institute of Agriculture (Melkassa ARC), Oromia Agricultural Research Institute (Adamitulu ARC), CGAIR centers (ICRISAT), Bureau of Agriculture (BoA), SEDA, Non-Governmental Organizations (NGOs), Microfinance, Kebele Offices, Development Agents (DAs) and Farmers Representatives (**See Annex for list of participants**)

A consortium with various stakeholder organizations was initiated during the first meeting held on 18th June 2014 at Haile Resort in Ziway and the purpose and objectives of forming the consortium were presented. The meeting was attended by the representatives of the organizations listed below.

- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
- International Development Enterprise (IDE)
- Ethiopian Institute of Agricultural Research (Melkassa ARC)
- Oromia Agricultural Research Institute (Adamitulu ARC)
- International Livestock Research Institute (ILRI)
- Admitullu Pesticide Company
- Bureau of Agriculture (BoA)
- Valley Children and Women Development Organization (RCWDO)
- Serve Ethiopia Development Association (SEDA)
- Microfinance offices,
- Kebele Offices
- Representatives of Farmers

During the meeting, the participants in general agreed and expressed their commitment to work together for the development of agriculture in Ziway area through the consortium to be coordinated by ICRISAT-Ethiopia. The participants felt that this will help in harnessing the synergies between various ongoing initiatives in the region and also develop plans for further strengthening the ongoing work. The consortium partners discussed and agreed on the overall objectives for the consortium and also developed a set of core values to be followed by all members. Below are the details of the agreements reached.

Goal and objectives:

The overall goal of the consortium is to develop a scalable model to improve the productivity, profitability and sustainability of smallholder farming systems in dryland areas of Ethiopia in general and East Shewa in particular. This will be achieved through the following objectives.

- Critical assessment and identification of needs and requirements of smallholders with due consideration to gender differences and roles
- Develop, test and promote best-bet strategies to facilitate the empowerment of marginal farmers and women in particular.
- Enhance capacity through provision of access to information, exchange of experiences, learning about new technologies, improving work and living conditions, and nutrition
- Explore opportunities for further strengthening the work through development of new projects and initiatives

Team core values:

- The participation in the consortium is purely voluntary
- The consortium partners seek to have a positive and lasting impact in the target area and beyond
- Together the team will work towards achieving a single, common goal – improving the productivity, profitability and sustainability of smallholder farming systems
- The consortium work will be guided by the end users (farmers) so that it provides optimal solutions that truly help them to succeed and improve their livelihoods
- All partners recognize and acknowledge the contributions by the members and their organizations appropriately
- The consortium will work towards enabling the farming community to do better through technical backstopping and facilitation but not by providing free inputs and other unsustainable support
- All members are responsible for their own costs either from their own resources or through arrangement with consortium/nonconsortium partners

Review of progress made

The table below summarizes the progress made against the activities planned for implementation during 2014 kiremt crop season.

Table: Planned activities for implementation by the consortium members during the period June – December 2014 and progress made

Main Activity	Organizations Responsible	Supporting organizations	Progress made
Tree planting in closed area	ICRISAT-Ethiopia IDE-Ethiopia	Bureau of Agriculture Adami Tullu Agricultural	Completed. BoA has supplied more than 5000 seedlings and the same were planted in the

		Research Station	enclosed area. The establishment rate was recorded.
Supply of improved haricot bean variety to target farmers	ICRISAT-Ethiopia	IDE - Ethiopia	About 30 farmers received the seed and all of them got good harvest and promised to return the seed. Special attention was paid to achieve proper gender balance.
Establishing on-station Maize-pigeonpea intercropping trials in Adamitulu ARC	ICRISAT-Ethiopia	Adamitulu ARC	On-station trial was established, measurements on LAI and NDVI were made three times during the crop season, maize was harvested and pigeonpea is growing. There was a delay in planting thr crops which affected their performance.
He Establishing on farm trials to assess the role of pigenpea as an intercrop and to stabilize the conservation structures	ICRISAT-Ethiopia	IDE-Ethiopia	20 farmers tested the intercropping option with pigeonpea. Maize is harvested and pigeonpea is still in the field. In general the feedback is good but more formal assessment need to be done.
Installing necessary gauges to monitor various processes including rainfall, runoff, erosion etc.	ICRISAT-Ethiopia		Raingauges to measure rainfall and simple scales to measure the water level in the farm ponds were installed and regular measurements were made. The raingauges were provided by NMA
Construct checkdams	IDE-Ethiopia	ICRISAT-Ethiopia	A check dam was constructed with active participation of the community. The community was supported with implements.
Identify capacity building needs of farmers and implement them	ICRISAT-Ethiopia	All	Women thrift groups wanted some training in book keeping and accounting which is arranged during March/April 2015 dry period.

Capacity development of Developmental agents (DAs)	ICRISAT-Ethiopia	All	Some areas for capacity development based on the expressed needs were identified but no formal training is conducted.
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Baseline Surveys:

The steps identified to conduct baseline surveys are:

- Develop a survey instrument (ICRISAT to take lead)
- Identify households for baseline survey (BoA to provide the list of households in the two Kebeles with the name and sex of the household and ICRISAT will select the HH through random process)
- Identify and train enumerators. iDE, BoA and ARC were tasked to identify a group of sincere people to conduct the surveys and ICRISAT to train them
- Conduct surveys: Surveys are to be completed by end of December and ICRISAT and iDE have the responsibility to supervise and ensure quality

It was agreed that the surveys will be completed by end of December or early January including data entry. The supervisors should check the entries on daily basis and do necessary follow up on wrong entries.

Some issues discussed:

- a. Busa Gonofa Microfinance Company: The microfinance in collaboration with IDE has been doing different activities mainly providing input credit to rainfed agriculture to small holder farmers. They have been studying feasibility and interests of farmers. Data on the purpose of the loan and repayment would help in understanding the capital requirements of the farmers. Microfinance has agreed to consider compiling the required information.
- b. Priority areas for intervention as identified by farmers' representatives: Farmers' representatives in the meeting were asked to rank areas where they need the stakeholders group to have their interventions. Their ranking is as given below.
 - Market and credit
 - Capacity building

- Fertilizer rate identification and uses of inputs in general
 - Integration of agriculture and livestock integration
- c. What aspects of the farming system needs better training and how?
- Saving and credit utilization
 - Experience exchange (visit to other successful areas)
 - Create awareness on agricultural technologies utilization (improved seed, fertilizer, land preparation and improved agronomic practices)
 - Use of some technologies like Bee hives
 - Plant population adjustment
 - Show by practice on farms
- d. How can we reach more farmers for capacity building?
- Demonstration through model farmers (train some model farmers then they will train others in their areas)
 - Train Development Agents (DAs), extension officers and other professionals
 - give trainings to farmers at different seasons
- e. Tentative plans by the stakeholders for 2015 kiremt season:
- Work on the baseline survey (it guides us to immediate actions)
 - Discuss with BoA and FTC
 - Train those farmers who didn't get any training
 - Use short rain season (Belg season) to produce green matter or cover crop
 - Fruit grafting
 - Possibilities to get plastic sheet to seal water harvesting ponds
 - Conduct study on how to reduce water seepage in the water harvesting ponds

Annexure:

Lists of participants

S/ N	Name	Institution	E-mail address	Telephone No
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5	Jewaro Godana	Dodicha kebele office		0911810289
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7	Dale Bedhane	Haleku Gulenta kebele office		0919606134
8	Aman Shuba	Haleku Gulenta (DA)		0916001583
9	Abu Nugusie	Dodicha farmers' representative		
10	Dedu Bese	Farmer		0921360279
11	Abera Assefa	EIAR, Melkassa ARC	aberaassefa@gmail.com	0911044135
12	Alemayhu Eshete	IDE	A.eshete@ide.org.et	0938078129
13	Abu Tona	Haleku Gulenta farmer's representative		0926662472
14	Teshite Guye	SEDA	tguye.seda@gmail.com	0916821447
15	Teshale Fikadu	IDE	Tfikadu5@gmail.com	0912184575
16	Wolde Zewdie	Busa Gonofa Microfinance	waldbgziway@gmail.com	0934098169
17	Dr.KPC Rao	ICRISAT-Ethiopia	k.p.rao@cgiar.org	011 6172544
18	Ermias Alemu	ICRISAT-Ethiopia	E.Alemu@cgiar.org	0921689634
19	Gizachew Legesse	ICRISAT-Ethiopia	G.Legesse@cgiar.org	0911312827

IP meeting 3

Date and time of the meeting: 2nd April 2015 @ 9:00 Am

Venue: Ziway, Haile Resort

Objective: To review the progress and plan activities for June-September 2015 season

Members Present: International Development Enterprise (IDE), Ethiopian Institute of Agriculture (EIAR), Oromia Agricultural Research Institute (Adamitulu ARC), CGAIR centers (ICARDA and ICRISAT), Bureau of Agriculture (BoA), Non-Governmental Organizations (NGOs) (SEDA), Microfinance offices (Busa Gonfa), Dodicha farmers' cooperative, Kebele Offices (Dodicha & Haleku), Development Agents (DAs) and Farmers (See Annex 2)

Session 1: Review of ongoing activities

ICRISAT-Ethiopia

The third stakeholder meeting was officially opened by Dr. KPC Rao, ICRISAT-Ethiopia country representative. He also presented a paper entitled '*System for Sustainable Intensification*' in order to highlight the concept and practices of sustainable intensification in terms of arresting land degradation and restoring degraded soil; soil and water conservation and improving utilization; soil fertility enhancement; diversification of agricultural operations; improving access to market and credit; integrating agriculture with other income activities; diversification of livestock especially small ruminants. In this regards, the two kebeles, Haleku and Dodicha, are selected for conducting research on sustainable intensification under dryland system program with the aim of developing model for sustainable intensification.

He also presented the status of ongoing activities which was accomplished by ICRISAT-Ethiopia at two kebeles. Amongst them, baseline survey, analysis of historical climate data, developing climate, land use and elevation maps, on-station and on-farm maize pigeonpea trails and provision of improved haricot bean are the major activities conducted on 2014 cropping season. Besides, he also addresses the activities to be done upcoming rainy season.

Mr. Ermias, ICRISAT-Ethiopia presented preliminary household baseline survey result in order to get some input from the participants. Various comments were forwarded to be included in final report such as including the reasons for yield differences among crops, expressing animal constraints by animal species, consistently use the type of animals, and using appropriate terminologies for expressing the issues. Regarding market information, market infrastructure, collective action, storage problem, involvement of broker were suggested by participants to be considered in the future while preparing questionnaire.

ICARDA-Ethiopia

Representatives from ICARDA-Ethiopia presented their activities both in rainfed and irrigated dryland systems programs. Both crop and livestock, especially small ruminants based activities were involved in experimental trials

There are four crop based trails in rainfed dryland system program:

- Participatory variety selection for chickpea: Five chickpea varieties were used as ground mother and mother trials.
- Participatory variety selection for cowpea
- Participatory variety selection for Lentil
- Demonstration of Mung bean, Pigeonpea, Buck wheat and Dekeko

Additionally, in irrigated dryland system program, two activities were presented which was focusing on food and fodder crops, and horticultural crops. Food and fodder crops adaptation studies was conducted with the objective of introducing and popularizing the cultivars of food and forage crops in the irrigated lowlands for system diversification and intensification. Test crops used in this study includes Chickpea, wheat and barley as food crops and alfalfa, lablab and cow pea as forage crops. In horticultural crop studies, participatory variety selection of sweet potato and demonstration of banana varieties are the major activities done by ICARDA in dry land areas.

Other activities are related to integration of crop and livestock system. This activity is focusing on enhancing the profitability of agricultural system by harnessing synergy between crop and small ruminant production. The main objective of this activity is to improve the livelihood income of farmers through creating appropriate market linkage.

Adamitulu Agricultural Research center (ATARC)

ATARC informed that they have identified a thematic area which is going to be focused on the upcoming cropping season in Dodicha and Haleku kebeles. Two proposals was developed and approved in national research review process which is focusing on evaluation of forage crops on farmers' fields. These are:

- Evaluation Napier grass and alfalfa on the marginal land area
- Evaluation of forage legumes for dairy cows

iDE - Ethiopia

iDE – Ethiopia also presented their ongoing activities, which is being conducted in Haleku and Dodicha Kebeles. On-farm productive water development and management is one of the activities that is conducted with aim of demonstrating, testing and scaling up of insitu

water conservation measure and practices. Drip irrigation was installed in 15 farmer's field. The materials were supplied by government office with technical support from IDE. In this activity, some horticultural crops like mango and avocado are used as test crop in farmers' fields. According to the result, this activity has brought positive impact on farmers' agricultural practices, shifting from traditional to improved agricultural practices. Besides these activities, demonstration of pigeonpea was also conducted with ICRISAT-Ethiopia. In collaboration with Bosa gonfa microfinance, they also establish a system for farmers to get access to input credit services. Finally, they informed that they develop new research activity which will be done in collaboration with ICRISAT-Ethiopia:

- Sustaining agricultural and rural livelihood through adoption of appropriate technologies and practices.

SEDA

According to representatives from SEDA, SEDA is one of non-governmental organization that conducts developmental activities in Adamitulu JK, Dugda and Ziway dugda districts with the aim of sustaining agriculture to improve livelihood of farmers. Some of the activities being carried out by SEDA are:

- Area closure
- Bee hives
- Backyard horticultural crop cultivation
- Identification of efficient water management (in collaboration with IWMI)
- Providing capacity building training for farmers and Das
- Supply small ruminant (Planned to conduct in future)
- Fattening (Planned to conduct in future)
- Promoting moringa trees (Planned to conduct in future)

Adamitulu Bureau of Agriculture (BoA)

Representatives from BoA also presented their activities which are being conducted in Adamitulu JK district. Those are:

- Soil and water conservation practices
- Area closure
- Water harvesting
- Tree plantation
- Breed small ruminants (Planned to conduct in future)

Bosa Gonfa Microfinace

Bosa Gonfa Microfinance are currently working with non-governmental Organizations like iDE and Christian Chatolic. According to the representative, they are focusing on loan based activities related to :

- Small ruminants fattening
- Irrigation farming
- Input supply for rainfed farming

Session 2: Activities and work plan for 2015 cropping season

After completing the discussion on ongoing activities, representatives from partners' institutions have proposed activities which will be implemented during the upcoming cropping season. The activities are summarized in the table below.

Activities	Responsible Organizations	Supporting organization	Timeline
Area closure and Tree plantation <ul style="list-style-type: none"> • Site selection & assess the status of closed area • Identify the members of farmers, and their interest and willingness • Identify multipurpose tree • Identify high quality forage species 	BoA, iDE, SEDA and Kebele chair person	ICRISAT-Ethiopia	April 20,2015
Conservation of soil and water resources <ul style="list-style-type: none"> • Evaluating the efficiency and profitability of the existing soil and water conservation technologies • Ex-ante assessment of productivity, profitability and sustainability of technologies 	IDE, SEDA, and BoA	ICRISAT-Ethiopia	????
Introduce efficient water use system <ul style="list-style-type: none"> • Develop and implement a business model for pumping water from farm pond and streams • Collect haricot bean seeds given to farmers last year and distribute it to new farmers. 	ICRISAT-Ethiopia ICRISAT	 IDE	???? May 30, 2015

Soil fertility management <ul style="list-style-type: none"> Introducing short maturing pulse crop (mung bean) during belg season Evaluating the value and profitability of cover/pulse crop (mung bean) Develop contingency plan with farmers Establishing on farm and on station trials to assess the role of pigeonpea as an intercrop and to enhance soil fertility 	ICRISAT-Ethiopia		March to May, 2015
Diversification of livestock system <ul style="list-style-type: none"> Enhancing the profitability of agricultural system through integration of crop and livestock production system Improving local breeds Improving feeding of small ruminants Identifying improved forage crops for livestock feed <ul style="list-style-type: none"> Evaluation Napier grass and alfalfa on the marginal land area Evaluation of forage legumes for dairy cows 	ICARDA and ATARC		????
	ATARC		June 2015
Evaluation of on farm Irrigated farming practices <ul style="list-style-type: none"> Sustaining agricultural and rural livelihood through adoption of appropriate technologies and practices. 	iDE		Within years
Value addition activities <ul style="list-style-type: none"> Introduction of Bee hives technology 	SEDA		???
Capacity building <ul style="list-style-type: none"> Provide capacity building training to Das and farmers 	ICRISAT-Ethiopia		Within years

Preparation summary report about loan related activities (at least 5 years): <ul style="list-style-type: none"> • Loan given to NGOs • Loan given to GOs • Loan given to individual farmers or others 	Bosa gonfa Microfinance		April, 2015
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Finally, Dr. KPC Rao closed the session with a request to all partners to implement the activities as planned and collect the required data to enable critical analysis of the interventions on systems performance.

Annex 1. Group photo: Participants of stakeholder meeting



Annex 2. List of participants and their address

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