

Report on the first stakeholder workshop on “Unlocking the potential of rainfed agriculture in Ethiopia for improved rural livelihoods”

The first stakeholder workshop on the project “Unlocking the potential of rainfed agriculture in Ethiopia for improved rural livelihoods” was held on the 27th and 28th of April 2010 at the conference hall of ARARI, Bahir Dar, Ethiopia (See Annex I for workshop program).

A total of 45 people from ICARDA, BOKU, EIAR, ARARI, SG-2000, Bureau of Agriculture & Rural Development (BoARD), North Gonder Zone office of Agriculture and Rural Development (ZoARD), Gonder Zuria (Maksegnit) Wereda office of Agriculture and Rural Development (WoARD), Gonder University, North Gonder Sustainable Natural Resources Management Project (SNRMP), Sustainable Water Harvesting & Institutional Strengthening in Amhara (SWHISA), GTZ, Ethiopia Water Harvesting Association (EWHA), Gonder Soil Laboratory, Gonder Agricultural Research Center, and Adet Agricultural Research Center were invited for the workshop. However, only 33 participants have attended the workshop (See Annex II for participants list).

The workshop was started by the welcoming and opening speech of ARARI’s Director General representative, Ato Ermias Abate. Introduction on the project was presented by Dr Rolf Sommer where he talked about the project technical details, project rationale, project goal, project purpose, project outputs, project area, major activities done so far, and goal of this stakeholder workshop. Results on the socioeconomic survey and biophysical characterization of the watershed were presented by researchers from Gonder. All the presentations, especially the socioeconomic result, gave a clear picture of the watershed and helped in guiding the development of interventions for the watershed. An insight into the Regional Research System was also presented by Ato Ermias Abate where he talked about establishment; organizational structure; man power & budget; vision, mission & goal; research areas; major achievements so far; and experience on FREGs of ARARI.

On the afternoon of the first day innovative ideas, which provoked discussion on the possible areas of intervention, were presented by ICARDA, BOKU and ARARI scientists on topics indicated in the table below.

No	Title	Presenter
1	Socio-economics survey of Gumara-maksegnit water shed	Yonnas Worku
2	Gumara-Maksegnit Watershed Bio-physical characterization Report	Hailu Kindie
3	Animal-drawn conservation-tillage planters/implements, and broad-bed-makers for water-logged	Dr. Rolf Sommer
4	Unlocking the potential of rainfed agriculture in Ethiopia for improved rural livelihoods –Promising adapted, high-yielding, pest/disease/drought tolerant varieties	Dr. Stefania Grando
5	Fertilizer-requirements and crop management in different soils of Ethiopia	Dr. Geletu Bejiga
6	Water Harvesting / Supplemental Irrigation	Dr. Feras Ziadat
7	Soil and Water Conservation Practices	Dr. Feras Ziadat
8	Watershed Modeling	Prof. Andreas Klik
9	Communal nursery for useful shrubs and grass	Tatek Dejenie

On day two, based on the insight obtained from the socioeconomic survey result report and innovative ideas presented, participants were grouped into two groups to discuss on three thematic areas. The groups were mandated for identify intervention areas and based on that plan the 2010 possible interventions. The three thematic areas set for the group discussion are:

Theme I: Combating land degradation and watershed modeling

- Land conservation activities
- Reforestation
- Watershed modeling

Theme II: Water harvesting (WH) and supplemental irrigation (SI)

- WH
- SI

Theme III: Land productivity

- Crop improvement
- Crop management
- Conservation tillage

Ahead of the group discussion template for guiding the group discussion was developed and distributed to the groups. Theme one and two were discussed by Group I and theme three by Group III. Theme two was not discussed in detail due to lack of critical mass experienced in water harvesting. Each group has identified intervention areas and presented to all

participants for approval. Besides developing interventions, each group also identified focal person and team members for each intervention suggested (See Annex III for the intervention).

Minutes of the workshop including questions and answers raised during discussion are included in Annex IV.

After through discussion on the planned activities the workshop was concluded with thanks remark by Dr. Rolf Sommer.

Annex I. Workshop program

ICARDA-ARARI-EIAR-BOKU-SASAKAWA Project
**Unlocking the potential of rainfed agriculture in Ethiopia
 for improved rural livelihoods**
 Stakeholder Workshop, 27-28 April 2010, Bahir Dar; Location: ARARI

Tuesday, 27 April 2010, morning – “Current State”

Time	Topic	Responsible scientists (presenter in bold letters)	Details & comments	Chair person	Rapportour
8:30-9:00	Registration				
9:00 -9:10	Welcoming & opening address	Ermias A.			
9:10-9:30	Introduction of participants				
9:30-9:40	Introduction to the project	R. Sommer & W. Bayu		Dr. Stefania G	<i>F. Ziadat</i>
9:40-10:40	Report: Maksegnit Watershed characterization	H. Kindie , W. Bayu, Yonas W., T. Dejen, K. Jembere, F. Ziadat, B. Yitaferu		“	“
	a) PRA	Yonas Worku		“	“
	b) bio-physical	H. Kindie		“	“
10:40-11:00	Coffee/Tea break		<i>Organizers</i>		
11:00-11:45	Report: Watershed modeling	A. Klik , B. Yitaferu, F. Ziadat, G. Desta, A. Al-Wadaey		“	“
11:45-12:05	Insights into the Regional Research System (<i>FREG should be part of presentation</i>)	Ermias A		“	“
12:05-12:30	Insights into the regional extension system	Tesfaye Mengiste		“	“
12:30-13:25	Lunch break		<i>Organizers (Azewa hotel)</i>		

Tuesday, 27 April 2010, afternoon – “Innovation Technologies”

13:25-13:30	Introductory comments	W. Bayu & R. Sommer		<i>Dr. Geletu B.</i>	<i>Birru Y</i>
13:30-14:00	Water harvesting in small ponds & Supplemental irrigation	T. Oweis , F. Ziadat, G. Desta, SG-2000		“	“
14:00-14:15	Promising high-yielding, pest/disease/drought tolerant varieties	S. Grando , G. Bejiga, S. Kemal		“	“
14:15-14:30	Fertilizer-requirements & crop management for such varieties	G. Bejiga , S. Grando, R. Sommer, S. Kemal, W. Bayu		“	“
14:30-14:45	Animal-drawn conservation-tillage planters/implements, and broad-bed- makers for water-logged conditions	R. Sommer , W. Bayu, T. Dejen, K. Jembere, T. Debele, SG-2000		“	“
14:45-15:00	Overall discussion			“	“
15:00-15:30	Coffee/Tea break				
15:30-16:15	Contour tillage practices & Erosion- protection grass-buffer strips, Land conservation by vegetative & structural means	F. Ziadat , S. Kemal, H. Kindie , A. Klik , H-P. Nachtnebel		“	“
16:15-16:30	Communal nursery for useful grass and shrub species	Tatek D.		“	“
16:30-16:45	Multi-use cactus and fodder shrubs	F. Karajeh		“	“
16:45-18:00	Wrap-up discussion ‘Innovation technologies’			<i>Rolf S.</i>	<i>F. Ziadat</i>
19:00	Dinner		<i>Organizers (Tana Hotel)</i>		

Wednesday, 28 April 2010 – “daytrip”

8:30	Innovation planning				
8:30-12:30	- Group work				
12:30-1:30	Lunch				
1:30-3:30	- Report & discussion on group work			<i>Rolf S.</i>	
3:30-4:00	Wrap up				

Annex II. Participants list and address

Project: “Unlocking the potential of rainfed agriculture in Ethiopia for Improved rural livelihoods”

Stakeholder workshop participants

27-28 April 2010, Bahir Dar, Ethiopia

Venue: ARARI

No	Name	Institution	Profession	E-mail
1	Hailu Kendie	Gonder ARC	Soil & water Researcher	Universalm99@yahoo.com
2	Solomon Abegaz	Gonder ARC	Livestock breeding	Soabgu96@yahoo.com
3	Tesfaye Wossen	Gonder ARC	Agronomy	Tesfaye_Wossen@yahoo.com
4	Ambachew Getnet	Gonder ARC	Forestry	awbachewg@yahoo.com
5	Endalkachew Abebe	G/zuria oARD	Soil & Water Eng	endalkabebe@yahoo.com
6	Tatek Dejene	ARARI	Forestry	tejenie@yahoo.com
7	Dr. Selamyihun Kidanu	SWHISA	IME	Selamyhun@yahoo.com
8	Shitahun Mulu	BoARD	Livestock	Shitesh98@yahoo.com
9	Selamawit Yohannes	G/zuria oARD	Soil & Water Eng	Selamyos@Gmail.com
10	Tiringo Yilak	G/zuria oARD	Plant science	--
11	Dr. Birru Yitafaru	ARARI	Sustainable Land Management and Soil & Water Research Director	birru_yitafaru2002@yahoo.com
12	Dr. Gizaw Desta	ARARI	Soil & water Researcher	desta.gizaw@yahoo.com
13	Dr. Yigzaw Dessalegn	ARARI	Horticulture	yigzawdessalegn@yahoo.com
14	Degsew Melak	DOARD	Head	Degsewm@yahoo.com
15	Dr. Fikirte Shewatatek	GARG	DVM	Fafikir@yahoo.com
16	Ezgihaye G/mangun	G/zuria oARD		
17	Prof. Hans-Peter Nachtnebel	BOKU	Hydrology & water management	Hans_peter_nachtnebel@boku.ac.at
18	Prof. Andreas Klik	BOKU	Prof.	Andreas.klik@boku.ac.at
19	Dr. Rolf Sommer	ICARDA		R.Sommer@CGIAR.ORG
20	Dr. Feras Ziadat	ICARDA		F.ziadat@cgiar.org
21	Dr. Stefania Grando	ICARDA	Barley Breeding	S.GRANDO@CGIAR.ORG
22	Dr. Geletu Bejiga	ICARDA	Chickpea & lentil breeder	g.bejiga@cgiar.org
23	Kehali Jembere	Gonder soil lab	Soil chemist	jkehali@yahoo.com
24	Tadesse Demissie	Gonder soil lab	Soil surveyor	-
25	Anteneh Abewa	Adet ARC	Soil & water researcher	Antenehabewa@yahoo.com
26	Dr. Teshome Tessema	ARARI	Forestry	Teshome_tessema@yahoo.com
27	Mulugeta Alemayehu	ARARI	Public relation	almulugeta23@yahoo.com
28	Yonas Worku	Gonder ARC	Socio economics	Worku.Yonas@yahoo.com
29	Eseye Taye	Agr. Dep	Forestry	-
30	Zewdu Ayalew	ARARI	Post harvest technology	Zewduayalew@yahoo.com
31	Yenus Ousman	Gonder Univ.	lecturer	Ekram.ousman6@gmail.com
32	Ermias Abate	ARARI	Horticulture	Ermiasabate@yahoo.com
33	Dr. Wondimu Bayu	ICARDA	Agronomist	Wondimubayu@yahoo.com

Annex III. Intervention areas identified by each group & approved by all participants

Group I: Combating land degradation & watershed modeling (Theme I)

Activity 1. Land conservation
Activity 2. Watershed modeling
Activity 3. Reforestation

Output(s)

- Watershed is characterized (biophysical and socio-economic)
- Identify hotspot for soil erosion using the biophysical characterization results
- Implement some soil and water conservation practices on selected farmers field with the participation of farmers
- Enrichment planting for degraded land (integrating into the existing soil and water conservation structures)
- Preparation for implementing mobile nursery (fodder, forest and fruit trees) for the watershed
- Hydro-meteorological database established
- Monitoring system operated (precipitation and discharge gauging stations)

Addressing which farmer's priorities (PRA results)?

- Natural resources degradation

Activity 1. Land conservation activities

Focal point Researcher

- Hailu Kindie (GARC) / Feras

Focal point Extension

- Endalkachew Abebe (G/Zuria, BOARD)

Focal point Farmer/Community

- Belete (Community)

Team

1. Hailu Kindie (GARC)
2. Endalkachew Abebe (G/Zuria, BOARD)
3. Eseye Taye (ZOARD)
4. Degsew Melak (ZOARD)
5. Dr. Birru Yitaferu (ARARI)
6. Dr. Gizaw Desta (ARARI)

7. Prof. Andreas Klik (BOKU)
8. Prof. Hans Peter Nachtnebel (BOKU)
9. Dr. Feras Ziadat (ICARDA)

Activities

- Biophysical and socio-economic characterization of the watershed – Mid June, 2010
- Determine hotspot areas (soil erosion within the watershed) – End of May, 2010
- Identify and contact involved farmers based on hotspot areas and assess existing soil conservation interventions – Mid June, 2010
- Identify suitable interventions and willingness of farmers for implementation – End of June, 2010
- Implement some biological soil conservation measures – Mid July, 2010
- Implementation of physical soil conservation (planning, design and layout, construction) and arrange for field days (farmer to farmer learning, sharing of experiences in other watersheds) – End of February, 2011
- Investigate the possibility and the need to introduce micro-credit system for soil and water conservation – End of March, 2011
- Planning to implement monitoring system or methods for soil conservation practices – End of September, 2010

“Layout” of the activity/innovation/experiment

Indicators of success (“measurable”)

- Complete biophysical and socio-economic characterization of the watershed
- Implemented soil and water practices on selected farmers field

Work plan and Schedule

SN	Activity	2010								2011			
		May	J	J	A	S	O	N	D	J	F	M	April
	Biophysical and socio-economic characterization of the watershed												
	Determine hotspot areas (soil erosion within the watershed)												
	Identify and contact involved farmers based on hotspot areas and assess existing soil conservation interventions												
	Identify suitable interventions and willingness of farmers for implementation												

Materials

- Images and DEM - \$ 2000
- Soil analysis - \$ 4000
- Labor or wage - \$ 2000
- Fuel and lubricants - \$ 1000

- Field work for verification of hotspot sites and suitable intervention - \$ 1000
- Field work for implementing soil conservation (seedlings, labor, perdiem, fuel,) - \$ 1000
- Field work for physical measures and field days - \$ 2000

Budget

Total budget = \$ 13 000 (excluding international travel)

Activity 2. Watershed Modeling

Focal point Researcher

- Hailu / Andreas

Focal point Extension

- Endalkachew Abebe

Focal point Farmer/Community

- Fasil (Development agent in the kebele)

Team

1. Hailu Kindie (GARC)
2. Endalkachew Abebe (G/Zuria, BOARD)
3. Selamawit Yohannes (G/Zuria, BOARD)
4. Eseye Taye (ZOARD)
5. Tadesse Demessie (Gonder Soil lab)
6. Dr. Birru Yitaferu (ARARI)
7. Dr. Gizaw Desta (ARARI)
8. Prof. Andreas Klik (BOKU)
9. Prof. Hans Peter Nachtnebel (BOKU)
10. Dr. Feras Ziadat (ICARDA)
11. Dr. Wondimu Bayu (ICARDA, Bahir Dar)

Activities

- Calibration of sensors for rainfall and runoff – Mid of May, 2010 (Wondimu and Rolf to follow up the purchase of instruments as soon as possible)
- Identification and installation of gauging stations for precipitation – Mid of May, 2010
- Design and construction of runoff gauging station for the outlet (Design and layout– Peter) - End of May, 2010
- Installation of runoff/discharge sensors for the outlet– End of May, 2010
- Identification of gauging stations for runoff /discharge for sub-watersheds– End of June, 2010
- Installation of gauging stations for runoff /discharge for sub-watersheds– End of November, 2010
- Data collection and analysis for hydro-met data (existing meteorological data) – End of June, 2010
- Data collection and analysis for hydro-met data, runoff and sediment in the watershed – Continuous during the project period
- Set up and run the model – End of January, 2011

- Training course on using the model – February/March, 2011 (Jointly with the annual meeting)

“Layout” of the activity/innovation/experiment

Indicators of success (“measurable”)

- The monitoring system is operational
- The model is set up and ready for calibration

Work plan and Schedule

SN	Activity	2010								2011			
		May	J	J	A	S	O	N	D	J	F	M	April
	Biophysical and socio-economic characterization of the watershed												
	Determine hotspot areas (soil erosion within the watershed)												
	Identify and contact involved farmers based on hotspot areas and assess existing soil conservation interventions												
	Identify suitable interventions and willingness of farmers for implementation												

Materials

- Rain gauge, flow meters, water level, flow velocity, turbidity, automatic weather station - \$ 15 000
- Stones, concrete, wood, gabion, iron metal , labor, perdiem, fuel for construction of outlet- \$ 8000
- Purchasing daily weather data - \$ 2000
- Data collection (runoff, sediment, rainfall) - \$3,000
- Sample analyses: sediment concentration and water and sediment analysis (N, P and OM) - \$2000
- Set up of the model – contribution from BOKU
- Training the model - \$ 1500
- PhD and MSc training (need discussion)

Budget

Total budget = \$ 31500 (excluding international travel, and PhD and MSc training)

Activity 3. Reforestation

Focal point Researcher

- Ambachew Getnet (GARC)

Focal point Extension

- Selamawit Yohannes (G/Zuria, DOARD)

Focal point Farmer/Community

- Setegn

Team

1. Ambachew Getnet (GARC)
2. Tatek Dejene (ARARI)
3. Selamawit Yohannes (G/Zuria, DOARD)
4. Esey Taye (Zone, ZOARD)
5. Dr. Feras Ziadat (ICARDA)
6. Hadera Kahsey (GARC)
7. Dr. Teshom Tesema (ARARI)

Activities

- Maintenance of existing structures – End of May, 2010
- Establishing enrichment plantation – End of June, 2010
- Introducing mobile nursery and training – End of June, 2010

“Layout” of the activity/innovation/experiment

Indicators of success (“measurable”)

- Existing structures are maintained and enrichment plantation is complete
- Farmers are trained on establishing and using mobile nursery

Work plan and Schedule

Materials

- Seeds of different species - \$500
- Nursery materials - \$1,000
- Labor, per diem, fuel, follow up the maintenance by farmers - \$3,000

Budget

Total budget = \$4,500

Group I: Water harvesting (WH) and supplemental irrigation (SI) (Theme II)

Output(s)

- Appropriate areas and farmers for WH selected
- 2-3 ponds are installed and operational

Addressing which farmer's priorities (PRA results)?

- Poor Irrigation management

Team members for implementation

Focal point Researcher

- Theib Oweis / Gizaw

Focal point Extension

- Endalkachew Abebe

Focal point Farmer/Community

- Sintayehu

Team

1. Dr. Theib Oweis (ICARDA)
2. Dr. Gizaw Desta (ARARI)
3. Endalkachew Abebe (G/Zuria, Woreda)
4. Muuz (GARC)
5. Prof Andreas Klik (BOKU)
6. Prof Hans-Peter Nachtnebel (BOKU)
7. Dr. Selamyihun Kidanu (SWHISA)

Activities

- Identification of suitable sites and farmers for runoff collection – end of June, 2010
- Designing the systems (one with pump and one without pump) – end of July, 2010
- Construction of the systems – end of March, 2011
- Training of farmers to operate and maintain the system – end of January 2011

“Layout” of the activity/innovation/experiment

Indicators of success (“measurable”)

- The WH/SI systems are running and operational

Work plan and Schedule

Materials

- Field visits - \$1,000
- Consultant for the design - \$3,000
- Excavation, lining, pumps, tank – (will be decided by the focal point)
- Training of trainers and the farmers (will be decided by the focal point)

Budget

Will be decided later

Group III. Land productivity (Theme III)

Project outputs addressed by the planning

Output 3. Integrated water harvesting/supplemental irrigation system that is suitable and affordable to farmers developed, tested, fine tuned and applied by local communities in the target area.

Output 5. Methodology and application for assessing water productivity before and after the project implementation and the consequences of improved system performance on people and downstream users.

Major crops grown in the watershed:

Rainfed crops: tef, sorghum, faba bean, bread wheat, chickpea, barley

Upstream: bread wheat, barley, faba bean, tef, sorghum, potato

Downstream: tef, chickpea, sorghum, bread wheat, lentil

Irrigated crops: Garlic, potato, onion, pepper

Production constraints/Farmers priorities in the watershed (according to the PRA result)

Late onset of rain

Terminal moisture stress

Declining soil fertility

Insect pests (stalk borer, shoot fly, cut worms, grass hopper, aphids)

Diseases

Lack of improved crop varieties

Innovations/Experiments Developed

A. Downstream of the watershed

Considered commodities: sorghum, bread wheat, chickpea

Intervention 1. Sorghum variety adaptation

Verities: 5-6 varieties including the local variety

Design: Randomized complete block replicated thrice on one farmer's field

To be done in two sets: Set I: To be planted in May on flat

Set II: To be planted in July on BBF

Fertilizer: use the blanket recommendation (46 P₂O₅ & 41 N kg/ha)

Each set to be done on one farmer's field,

Time table

Site selection: First week of May.

Seeds to be collected from Sirinka & Nazret.

Focal persons/Responsible persons

Tesfaye Wossen from Gonder ARC

Team members

1. Mele Tilahun (GARC)
2. Teferi Alem (GARC)
3. Tiringo Yilak (WoARD)
4. Asfaw Azanaw (GARC)
5. Yonas Worku (GARC)
6. Tegegne Mebratu (ZoARD)
7. Fasil Mekuanent (DA)
8. Dr Yigzaw Desalegn (ARARI)
9. Dr. Stefania Grandio
10. Dr. Rolf Sommer

11. Dr. Geletu Bejiga

12. Dr. Wondimu Bayu (Project coordinator)

Budget: to be worked out

Materials required: to be worked out

Intervention 2. Bread wheat participatory variety selection and suitability for double cropping

Varieties: 10+ varieties (include UG-99 resistant materials requesting from EIAR)

Design: Randomized complete block replicated in three farmers fields using farmers as replication. To be planted using BBF. The blanket fertilizer recommendation for vertisols will be used.

Chickpea variety Dz-1011 or Dz-104 will be used as a secondary crop. Chickpea will be planted in September immediately after harvesting wheat.

Time table

Site selection: First week of May

Planting: onset of rain

Planting material collection: May

Dr. Geletu is responsible for getting the UG-99 resistant varieties. Wondimu should coordinate the searching of these varieties.

Focal persons/Responsible persons

Tesfaye Wossen from Gonder ARC.

Team members

1. Mele Tilahun (GARC)
2. Teferi Alem (GARC)
3. Tiringo Yilak (WoARD)
4. Asfaw Azanaw (GARC)
5. Yonas Worku (GARC)
6. Tegegne Mebratu (ZoARD)

7. Fasil Mekuanent (DA)
8. Dr Yigzaw Desalegn (ARARI)
9. Dr. Stefania Grando
10. Dr. Rolf Sommer
11. Dr. Geletu Bejiga
12. Dr. Wondimu Bayu (Project coordinator)

Budget: to be worked out

Materials required: to be worked out

Intervention 3. Demonstration on chickpea early planting

Varieties: Arerti, Habru, Natolii (resistant to ascochyta and wilt)

Design: single plot with a plot size of 10 m x 10 m. Replicate the demonstration plot on three farmers fields.

Planting method: use ridge and furrow made with traditional plow.

Planting: Mid August

Time table

Site selection: First week of May

Planting material collection: May

Focal persons/Responsible persons

Tesfaye Wossen from Gonder ARC.

Team members

1. Getachew Tilahun (GARC)
2. Molla Fentie (GARC)
3. Asfaw Azanaw (GARC)
4. Yonas Worku (GARC)
5. Tiringo Yilak (WoARD)
6. Tegegne Mebratu (ZoARD)
7. Fasil Mekuanent (DA)
8. Dr Yigzaw Dessalegn (ARARI)

9. Dr. Stefania Grando
10. Dr. Rolf Sommer
11. Dr. Geletu Bejiga
10. Dr Wondimu Bayu (Project coordinator)

Budget: to be worked out

Materials required: to be worked out

B. Upstream of the watershed

Considered commodities: faba bean, food barley

Intervention 1. Faba bean participatory variety selection

Varieties: Degaga, Wolkie, Holleta including local check

Design: Randomized complete block replicated in three farmers fields using farmers as replication. The blanket fertilizer rate (100 kg DAP/ha) will be used.

Time table

Site selection: First week of May

Planting material collection: May

Focal persons/Responsible persons

Tesfaye Wossen from Gonder ARC.

Team members

1. Getachew Tilahun (GARC)
2. Molla Fentie (GARC)
3. Asfaw Azanaw (GARC)
4. Yonas Worku (GARC)
5. Tiringo Yilak (WoARD)
6. Tegegne Mebratu (ZoARD)
7. Fasil Mekuanent (DA)
8. Dr Yigzaw Dessalegn (ARARI)

9. Dr. Stefania Grando
10. Dr. Rolf Sommer
11. Dr. Geletu Bejiga
12. Dr Wondimu Bayu (Project coordinator)

Budget: to be worked out

Materials required: to be worked out

Intervention 2. Food barley participatory variety selection

Varieties: 6+ materials including local check (consider introductions from ICARDA -Tilla, Bentu, Desta-Dr. Geletu will communicate Dr. Birhane for the varieties).

Design: Randomized complete block replicated in three farmers fields using farmers as replication. The blanket fertilizer rate will be used.

Planting time would be June or July

Time table

Site selection: First week of May

Planting material collection: May

Focal persons/Responsible persons

Tesfaye Wossen from Gonder ARC

Team members

1. Mele Tilahun (GARC)
2. Teferi Alem (GARC)
3. Tiringo Yilak (WoARD)
4. Asfaw Azanaw (GARC)
5. Yonas Worku (GARC)
6. Tegegne Mebratu (ZoARD)
7. Fasil Mekuanent (DA)
8. Dr Yigzaw Desalegn (ARARI)
9. Dr. Stefania Grando
10. Dr. Rolf Sommer
11. Dr. Geletu Bejiga

12. Dr. Wondimu Bayu

Budget: to be worked out

Materials required: to be worked out

Indicators of success (measurable”)

Agronomic data (biological yield, grain yield, etc) by researchers, farmers’ evaluation, farmers’ acceptance.

Suggestions for next season

Next season plan should include the following:

Lentil variety evaluation

Zero tillage & tillage equipments

Double cropping using drained water conserved in ponds. Water balance study could be done on this activity. This activity could be done by MSc student next year.

Potato variety selection

Compare contour tillage with farmers’ practice.

Integrated soil fertility management (compost, farmyard manure, commercial fertilizers)

Proposed tentative time for conducting next season planning

Tentative time for next year’s planning is proposed to be third week of January.

Annex IV: Minutes of the workshop

Stakeholders Workshop

Morning session

Introduction to the project – Rolf Sommer

Discussion: No questions

Report: Maksegnit watershed characterization – PRA – Yonas Worku

Discussion

Q: what are the reasons for health problem?

A: lack of health post, lack of pure water, lack of awareness

Q: source of income of families of farmers

A: depends on the area of land holding, number of livestock and honeybee

Q: criteria for poor irrigation system

A: poorly constructed canals, shortage of water, limited crop types, traditional schemes, during rain the water lost for runoff and during the dry season the water is very little

Q: how the watershed was selected

A: based on requirements of the project and to be representative of the Nile valley area, accessibility, variability of rain and other factors

Q: there is conflict between land degradation increase and productivity increase?

A: production is increased not productivity (by using more land (forests), improved species, and fertilizers) but natural resources are degraded

Q: Recommendation for implements to improve productivity.

A: closed area and plantation of species of forage crops

Q: How many women within group of researchers and farmers?

A: No women in researchers group, farmers we have 15 women

Report: Maksegnit watershed characterization – bio-physical – Hailu Kindie

Discussion

Appreciation of the hard work (Rolf)

Q: what are the bio-physical information collected?

A: the data sheet was shown and all data collected was explained, crop species are recorded and will be good to compare it after few years.

Report: watershed modelling – Andreas

Discussion

There is an obvious need to estimate the effect of soil and water conservation practices on soil loss and runoff (Feras)

Q: need to study the impact of soil and water conservation at small scale

A: we need watershed to represent large area but we will study the effect on smaller scale.

Q: what need to be done immediately and by whom

A: need to measure discharge need stable river bed, we need to look at stable river bed, build bridge and install instruments and to install rain gauges, need to form team and start with the outlet of the main watershed and progressively go to the sub-watersheds. The problem is to get the instruments to Ethiopia (logistic). Need to follow up with purchasing and shipping the instruments to Ethiopia. Need also to start installation on the ground and prepare for the installation.

Team member: Hailu, Birru, Gizaw, Selamyhun, Ahmed, Peter, Feras

Team leader: 'Andreas

Logistic follow-up: Rolf

Insight into the regional research system –

Discussion

Q: what are the achievements in soil and water conservation (SWC)

A: many aspects related to SWC need development and assessment. Recommendation for SWC at regional and national levels. Specific results on physical and vegetative means of SWC.

Comment: FREG could be an addition to participation work within the project rather than alternatives