

**ICARDA-Ethiopia Project "Unlocking the potential of rainfed agriculture
in Ethiopia for improved rural livelihoods", 2nd Annual Planning
Workshop, 1-3 February 2011, Bahir Dar
----- Summary -----**

The 2nd annual planning workshop on ICARDA Ethiopia Rainfed project entitled “Unlocking the potential of rainfed agriculture in Ethiopia for improved rural livelihoods” was held from 1-3 February 2011 at ARARI’s meeting hall in Bahir Dar, Ethiopia (See Annex I for workshop program).

A total of 36 people from ARARI, ICARDA, BOKU, EIAR, SG-2000, Bureau of Agriculture (BoA), North Gonder Zone Office of Agriculture (ZoA), GIZ-SLM, BoA-SLM, Sustainable Water Harvesting & Institutional Strengthening in Amhara (SWHISA), Gonder Soil Laboratory, and Gonder Agricultural Research Center attended the workshop (See Annex II for participants list).

The workshop started with a welcoming address of Dr. Fentahun Mengistu (Director General of ARARI), Dr. Theib Oweis (IWLMP director of ICARDA), Professor Hans-Peter Nachtnebel (BOKU), Dr. Tolessa Debele (EIAR), Dr. Geletu Bejiga (ICARDA-Ethiopia office), and Ato Berecha Turi (SG-2000).

Dr. Fentahun Mengistu presented insights into the Regional Agricultural Research System. He indicated that duties of ARARI are technology/knowledge generation and demonstration, popularization, and pre-scaling out of promising technologies, as well as technology starter multiplication. ARARI has five research directorates namely the Soil & Water Management Research Directorate, Crop Research Directorate, Livestock Research Directorate, Forestry Research Directorate and Agricultural Mechanization and Food Science Research Directorate. Dr. Fentahun also highlighted research results and ongoing research activities under each directorate.

Ranges of experiences from different institutions were presented by scientists from ARARI (Indian experience), GIZ-SLM Project, EIAR, SG2000, and ICARDA, which provoked discussion on the possible areas of intervention. Dr. Birru Yitafere, Soil & Water Management Research Director of ARARI, had visit India in 2010 and presented the Indian experience on watershed management research. He covered the following topics in his presentation:

- Water harvesting strategies at the foothills of the Himalaya
- Water harvesting system at downstream farmlands at Dheradun
- Staggered grass bunds for slowing down runoff velocity and holding back sediments
- Hydrological evaluation of Conservation Bench Terraces (CBT) in the Himalayan Foothills
- Comparison of low cost runoff water harvesting structures/techniques
- Watershed research activities at ICRISAT research station
- Harvesting water from runoff and drained water sources
- Some salient results of the watershed management
- Drivers of the success of the watershed management
- Adarsha Watershed at Kothapally (On-farm research)
- Use of sunken pit to hold sediments and percolate runoff water whereby its added value is recharging of nearby collection tanks
- Sediment and runoff measurement instruments
- Research facilities in the process of watershed management studies
- Some irrigation water management on harvested water

Mr Endeg Dires from BoA presented insights into the GIZ-SLM Project in the Amhara Region. He described the institutional arrangement and details of what SLM envisages to do in the Gumara-Maksegnit watershed. He has presented components of the Sustainable Land Management intervention in the Amhara region to curtail what he said the alarming soil erosion taking place in the region. He indicated that the overall objective of the SLM project is to improve the livelihood of land users and communities through the implementation of SLM activities in the framework of community based watershed development plans.

Mr. Kassaye Negash shared EIAR's experience on pre-scaling up of crop technologies in the Amhara Region. Pre-scaling up of crop technologies has been conducted in different places in the Amhara region with the objectives of reaching different potential agro-ecologies, production areas and regions that have limited access to available technologies; to trigger both the formal and informal seed systems in these areas for those adaptable technologies; to create functional linkage among the different actors in the Research-Extension-Consumption continuum; and to enhance impacts and benefits of proven crop technologies. In 2009 Tef, faba bean, chickpea, lentil, and common bean varieties with their full packages were scaled out in five weredas to 3446 farmers. In 2010 more efforts were made to reach more weredas. Malt barley, highland maize, sorghum, rice, tef, faba bean, chickpea, lentil, and common bean varieties with their full packages were scaled out in 24 woredas reaching 5245 farmers.

Mr. Berecha Turi, from SG2000, presented SG2000's experience on water harvesting and utilization project in Ethiopia. He covered the following topics:

- Major project components,
- Procedures followed to implement water harvesting (WH) & dairy project,
- Harnessing water for development (underground water, river diversion, rain water collection, family drip system, advantages, drawbacks & impacts), and the way forward.

Dr. Theib Oweis, the Integrated Water & Land Management Program Director of ICARDA, presented concepts of Supplemental irrigation and water harvesting for improved productivity of rainfed systems in dry areas.

Following the provocative experience sharing presentations Dr. Rolf Sommer, Project coordinator from ICARDA, gave a brief introduction about the project, by highlighting project technical details, project rationale, project goal, project purpose, project outputs, project area, and goal of the project. Dr Wondimu Bayu, National Project Officer, presented status report on the activities executed in the year 2010. He presented the status of each activities planned under the land conservation, watershed modeling, water harvesting & supplemental irrigation, and land productivity themes. He also mentioned that lack of vehicle has been the greatest challenge in implementing planned activities in the year.

In the morning session of day two, detailed results of the 2010 interventions were presented by the respective researchers from the Gonder Agricultural Research center. Hailu Kindie of Gonder research center presented detailed results of the biophysical characterization work, i.e. different maps of the watershed displaying elevation, erosion hotspot areas, soil bulk density, soil organic matter and exchangeable phosphorus content, soil pH, etc. Ambachew Getnet presented results on the selection of tree/shrub species for the rehabilitation of degraded lands in the Gumara-Maksegnit watershed. He indicated that species like *Gravillea rubusta*, *Acacia abyssinica*, *Cordia africana* and *Casuarina equisetifolia* had the highest initial survival rate. Results of the variety adaptation study on bread wheat and food barley were presented by Melle Tilahun. The varieties *Tay*, *Bolo* and *Kubsa* of bread wheat

and *Estayish* and *Misrach* of food barley were selected by both farmers and researchers as the most promising varieties. Result of the variety adaptation on faba bean was presented by Getachew Tilahun. Farmers favored *Moti*, *Wolkie* and *Degaga* varieties. Menale Wondie, from ARARI, presented preliminary results on the spatial mapping of major land cover types of the Gumara-Maksegnit Watershed using SPOT image.

Subsequently, planning of new research activities for the year 2011 started. Plans were made following the three thematic areas identified in 2010 (Figure 1). Planned research activities are summarized in Annex III. Two MSc students and one PhD student, who recently started their field work within the project, presented the status and plan of the following research topics.

- Mapping of land use and land cover using multi-temporal and multi-spectral satellite images of Gumara-Maksegnit watershed (MSc research)
- Prediction of soil attributes for environmental applications using DEM and remote sensing techniques at Gumara-Maksegnit Watershed (MSc research)
- Impact of rainwater harvesting and soil conservation structures on surface runoff and sediment yield from an agricultural watershed (PhD research)

Finally, the workshop was concluded with thanks remark by Dr. Rolf Sommer.

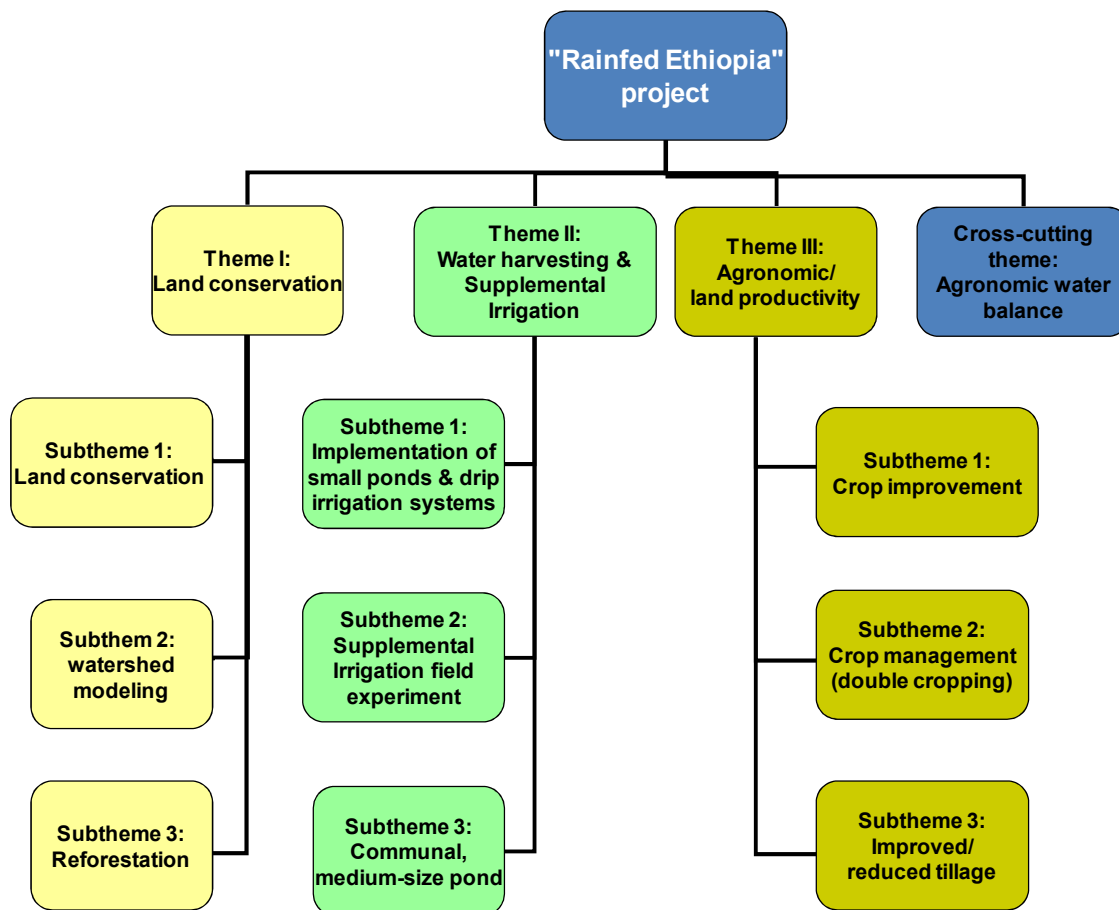


Figure 1. Thematic areas

Annex I. Workshop program

Time	Topic	Responsible scientists	Chair person	Rapporteur
Tuesday, 1 Feb. 2011				
9:00-9:30	Registration			
9:30 -9:40	Welcoming address	Fentahun M.		
9:40 -9:50	Opening address	Theib O.		
9:50-10:00	Introduction of participants	Participants		
10:00-10:30	Insights into the Regional Agricultural Research System	Fentahun M.	Rolf S.	Gizaw D.
10:30-11:00	Indian experience in watershed research	Birru Y.	“	“
11:00-11:20	Coffee/Tea break	Organizers		
11:20-11:30	Group Photo			
11:30-12:00	Insights into the SLM project in the Amhara Region with particular emphasis to Gonder Zuria Wereda	Enideg D.	“	“
12:00-12:30	Discussion		“	“
12:30-14:00	Lunch break	Organizers		
14:00-14:30	Overview of technology scaling up interventions in the Amhara Region	Kassaye	Geletu B.	Hailu K.
14:30-15:00	SG-2000's experience on water harvesting	Berecha	“	“
15:00-15:20	Introduction & general status of the project	Rolf S.	“	“
15:20-15:40	Overview on the status of the 2010 project interventions	Wondimu B.	“	“
15:40-16:20	Coffee/Tea break	Organizers		
16:20-16:50	Overview on how to do WH &SI (technical aspects) & ICARDA's experience in Syria	Theib O.	“	“

Time	Topic	Responsible scientists	Chair person	Rapporteur
16:50-17:30	Discussion		“	“
Wednesday, 2 Feb. 2011				
Result evaluation session of the 2010 interventions				
9:00-9:25	Results of the biophysical characterization of the watershed	Hailu K., Feras Z., Birru Y.	Stefania G.	Sitot T.
9:25-9:45	Report on selection of different trees/shrubs species for rehabilitation of degraded land	Ambachew G.	“	“
9:45-10:10	Crop research results: Bread wheat, food barley, Sorghum	Mele T.	“	“
10:10-10:30	Crop research results: Faba bean, Chickpea	Getachew T.	“	“
10:30-11:00	Coffee/Tea break	Organizers		
11:00-11:20	Preliminary results of mapping the major land cover types of Gumara-Maksegnit watershed	Menale W.	“	“
11:20-11:50	Discussion		“	“
Planning session for 2011				
11:50-12:10	Soil & Water Conservation research plan	Hailu K./ Birru Y. (Feras Z.)	Berecha T.	Kibruyesfa S.
12:10-12:30	Discussion		“	“
12:30-14:00	Lunch break	Organizers		
14:00-14:20	WH & SI research plan	Hanibal, Muuz	“	“
14:20-14:40	Discussion		“	“
14:40-15:00	-Plan & status of PhD study "Impact of WH & soil conservation on surface runoff and sediment yield" -Watershed modeling research	Hailu K.,	“	“
15:00-15:20	Discussion		“	“

Time	Topic	Responsible scientists	Chair person	Rapporteur
15:20-15:40	Coffee/Tea break	Organizers		
15:40-16:00	Crop Research plan	Andualem, Getachew	Seid A.	Menale W.
16:00-16:20	Discussion		“	“
16:20-16:40	Soil & Water research plan	Sitot T.	“	“
16:40-16:50	Discussion		“	“
16:50-17:10	Farm implements research plan	Worku B.	“	“
17:10-18:00	Discussion & General Discussion		“	“
18:00-20:00	Dinner	Organizers		
Thursday, 3 Feb. 2011				
9:00-9:20	Plan and status of MSc study "Detailed Land Use and Land Cover mapping"	Kibruyesfa S.	Hans Peter N.	Hanibal L.
9:20-9:30	Discussion		“	“
9:30-9:50	Plan and status of MSc study "Prediction of Soil Attributes"	Nurhussen M.	“	“
9:50-10:00	Discussion		“	“
10:00-10:20	Forestry research	Ambachew G.	“	“
10:20-10:30	Discussion		“	“
10:30-10:55	Coffee/Tea break	Organizers		
10:55-12:30	Discussion by Theme I, II and III; final wrap-up		Rolf S.	Wondimu B.
12:30-14:00	Lunch	Organizers		

Annex II. List of Participants

No	Name	Institution	Profession	E-mail
1	Hanibal Lemma	Gonder ARC	Researcher, Agric. Water Mgmt	haniballemma@yahoo.com
2	Berecha Turi	SG2000	Coordinator	bereturi@yahoo.co.uk
3	Theib Oweis	ICARDA	Director	t.oweis@cgiar.org
4	Hans-Peter Nachtnebel	BOKU	Researcher, Professor	hans_peter.nachtnebel@boku.ac.at
5	Rolf Sommer	ICARDA	Soil Sc Researcher	R.Sommer@cgiar.org
6	Wondimu Bayu	ICARDA NPO	Agronomist	wondimubayu@yahoo.com
7	Geletu Bejiga	ICARDA	Plant Breeder, ICARDA-Eth	g.bejiga@cgiar.org
8	Tolessa Debele	EIAR	Soil Science, Director	tolessadebele@yahoo.com
9	Kassaye Negash	EIAR	Researcher, Plant breeder	kassayend@gmail.com
10	Andualem Tadesse	Gonder ARC	Research-Extension	andualemsosa@yahoo.com
11	Ambachew Getnet	Gonder ARC	Forester	ambachewg@yahoo.com
12	Worku Biweta	BAMRC	Researcher, Agric. mechan	workubiweta@yahoo.com
13	Baye Ayalew	Gonder ARC	Watershed technical assistant	bayeayalew@gmail.com
14	Mulugeta Alemayehu	ARARI	Public Relation, head	Almulugeta23@yahoo.com
15	Minale Liben	ARARI	Researcher, Agronomist	minaleliben@yahoo.com
16	Hadera Kahehay	Gonder ARC	Researcher, Forester	
17	Enideg Dires	Bureau of Agric.	Forester, SLM Coordinator	Enideg_1@yahoo.com
18	Kibruyesfa Sisay	Gonder ARC	Researcher, Forester	Kibru122@yahoo.com
19	Stefania Grando	ICARDA	Barley breeder	S.GRANDO@cgiar.org
20	Seid Ahmed	ICARDA	Legume pathologist	s.a.kemal@cgiar.org
21	Tadesse Demissie	Gonde Soil Testing Lab.	Soil Survey	
22	Muuz Gebretsadik	Gonder ARC	Agric. Water Mgmt	muuzgg@yahoo.com
23	Melle Tilahun	Gonder ARC	Cereal breeder	melletilahun@yahoo.com
24	Getachew Tilahun	Gonder ARC	Pulse breeder	tilahungech@yahoo.com
25	Nurhussen Mohammednur	Bure ATVET College	Instructor	nuramoha@gmail.com
26	Sitot Tesfaye	Gonder ARC	Soil Sc, researcher	Tekleabt2004@yahoo.com

27	Schuster Georg	BOKU	Researcher, Hydrolics	georg.schuster@boku.ac.at
28	Birru Yitaferu	ARARI	SWRD Director	Birru_yitaferu2002@yahoo.com
29	Strohmeier Stefan	BOKU	Researcher	Stefan.strohmeier@boku.ac.at
30	Hailu Kendie	Gonder ARC	Soil conservation Researcher	Universalme99000@yahoo.com
31	Gizaw Desta	ARARI	Researcher	desta.gizaw@yahoo.com
32	Muluken Tefera	N.Gonder Zone Office of Agric	SWC expert	
33	Tegegne Mebratu	N.Gonder Zone Office of Agric	Agronomist	
34	Menale Wondie	ARARI	Forestry, Researcher	menalewondie@yahoo.com
35	Belayneh Adugna	GIZ-SLM	Land Resource Mgmt	
36	Martin Keulertz	KCL	Researcher	Martin.keulertz@kcl.ac.uk

Annex III. Research Activities planned for the year 2011

Theme I: Combating land degradation & watershed modeling

Sub-theme 1. Land conservation

Sub-theme 2. Watershed modeling

Sub-theme 3. Reforestation

Output(s)

Watershed 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

Sub-theme 1. Land conservation activities

Focal point Researcher

Hailu Kindie (GARC), Feras Ziadat, ICARDA, Birru Yitaferu ARARI

Team

- Hailu Kindie (GARC)
- Endalkachew Abebe (G/Zuria, BOARD)
- Eseye Taye (ZOARD)
- Degsew Melak (ZOARD)
- Dr. Birru Yitaferu (ARARI)
- Dr. Gizaw Desta (ARARI)
- Prof. Andreas Klik (BOKU)
- Prof. Hans Peter Nachtnebel (BOKU)
- Dr. Feras Ziadat (ICARDA)

Activities

- Identifying priority areas for implementation (hot spots)
- Selection of relevant SWC interventions (Continuous contour stone & soil bunds, Trenches (50cm wide, 50cm deep, 3m long and spaced at 60cm), Eyebrow (semi-circular), micro-basins (made from soil and/or stones))
- Implementation, collaboration with Gonder Zuria Wereda (agricultural office) and SLM project
- Training of the Gonder Zuria Wereda (agricultural office) and SLM project on the project objectives and activities in relation to SWC
- Selection of cooperative communities/villages around hot spots.
- Implementation with full participation of farmers

- Collaboration on monitoring the SWC interventions
- Monitoring scheme-Field level
 - Simple monitoring system using erosion pins to assess the amounts of sediments captured on randomly selected structures (10% of the whole number) in selected fields.
 - Repeated measurements at the beginning, mid and end of rainy season.
- Use to assess impact at watershed level
- Monitoring scheme -Watershed level
 - SWC interventions will be implemented in one subwatershed & the other will be used as control.
 - Runoff and sediment from the two subwatersheds will be monitored using gauging stations.
 - The impact of SWC interventions at watershed level will be assessed using models.

Indicators of success (“measurable”)

Implemented soil and water practices on selected farmers field

Work plan

SN	Activity	J	F	M	A	M	J	J	A	S	O	N	D
1	Identifying priority areas for implementation (hot spots)	x											
2	Selection of relevant SWC interventions	x	x										
3	Implementation, collaboration with Gonder Zuria Wereda (agricultural office) and SLM project Implementation with full participation of farmers		x	x									
4	Training of the Gonder Zuria Wereda (agricultural office) and SLM project on the project objectives and activities in relation to SWC				x								
5	Selection of cooperative communities/ villages around hot spots.	x											
6	Monitoring scheme-Field level						x	x	x	x	x	x	x
7	Monitoring scheme -Watershed level						x	x	x	x	x	x	x

Budget

No	Group I, activity 1. Land conservation activities	Budget (USD)	Budget (Birr)
1	Second set of Satellite images and DEM	1500	24870
2	Soil conservation implementation - per diem	500	8290
3	Soil conservation implementation - materials	2000	33160
4	Soil conservation implementation - field day(s) & experience sharing	2000	33160
5	Fuel & lubricant	1000	16580
	Total	7000	116060

Sub-theme 2. Watershed Modeling

Focal point Researcher

Hailu, Andreas

Team

- Hailu Kindie (GARC)
- Endalkachew Abebe (G/Zuria, BOARD)
- Selamawit Yohannes (G/Zuria, BOARD)
- Eseye Taye (ZOARD)
- Tadesse Demessie (Gonder Soil lab)
- Dr. Birru Yitafaru (ARARI)
- Dr. Gizaw Desta (ARARI)
- Prof. Andreas Klik (BOKU)
- Prof. Hans Peter Nachtnebel (BOKU)
- Dr. Feras Ziadat (ICARDA)
- Dr. Ahmed AL-Wadaey
- Dr. Wondimu Bayu (National Project Officer)

Activities

- Calibration of sensors for rainfall and runoff – Mid of May, 2011
- Design and construction of runoff gauging station for the outlet - End of May, 2011
- Installation of runoff/discharge sensors for the outlet– Early June, 2011
- Installation of gauging stations for runoff /discharge for sub-watersheds– End of May, 2011
- Data collection and analysis for hydro-met data (remaining meteorological data) - End of June, 2011
- 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 –March/April, 2011

Indicators of success (“measurable”)

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

Materials

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

Work plan and Schedule

Activity	2011											
	J	F	M	A	M	J	J	A	S	O	N	D
Calibration of sensors for rainfall and runoff					x							
Design and construction of runoff gauging station for the outlet					x							
Installation of runoff/discharge sensors for the outlet						x						
Installation of gauging stations for runoff /discharge for sub-watersheds					x							
Data collection and analysis for hydro-met data (remaining meteorological data)		x										
Data collection and analysis for hydro-met data, runoff and sediment in the watershed						x	x	x	x	x	x	
Set up and run the model												
Training course on using the model				x	x							

Budget

No	Activities	Budget (USD)	Budget (Birr)
1	Water sensors, warehouse fee	200	3316
2	Automatic rain gauges (three) installation (+fencing)	400	6632
3	Automatic weather station installation (+fencing)	400	6632
4	Guarding of rain gauges and weather station, 18 months	700	11606
5	Gauging station construction – material + labor (subwatershed)	8078	133927
6	Gauging station sensor fencing - material	905	15000
7	Gauging station sensor fencing-labor	181	3000
8	Gauging station construction - per diem	733	12150
9	Gauging station construction - car, fuel	847	14050
10	Purchasing 2010 & beg. 2011 daily weather data	200	3316
11	Data collection (runoff, sediment, rainfall) - labor	3000	49740
12	Guarding of for gauging stations - labor	2600	43108
13	Analyses: sediment concentration, water & sediment analysis (N, P and OM) - lab service	2000	33160
14	"Infrastructure" for gauging station (guard house etc.)	300	4974
15	Silt extractor for gauging stations-labor	434	7200
16	Stationary	241	4000
17	Model training workshop	1500	24870
18	Modeling training course, PhD student	3000	49740
19	M.Sc student I (LUC) - lump sum	600	9948
20	M.Sc student II (GIS/soil charact.) - lump sum	600	9948
	Total	26919	446317

Sub-theme 3. Reforestation

Focal point Researcher

Ambachew Getnet (GARC)

Focal point Extension

Selamawit Yohannes (G/Zuria, DOARD)

Focal point Farmer/Community

Setegn

Team

- Ambachew Getnet (GARC)
- Selamawit Yohannes (G/Zuria, DOARD)
- Esey Taye (Zone, ZOARD)
- Dr. Feras Ziadat (ICARDA)
- Hadera Kahsey (GARC)
- Dr. Teshom Tesema (ARARI)

Activities

- Data collection on the activity started in 2010-selection of different trees/shrubs species for rehabilitation of degraded land
- Introducing mobile nursery and training – end of June, 2010

Indicators of success (“measurable”)

- Tree/shrub species surviving and doing well after two years of planting will be identified
- Farmers are trained on establishing and using mobile nursery

Materials

Nursery materials – (seeds, bamboo box, rtc)

Labor, per diem, fuel, follow up -

Work plan

Activity	2011											
	J	F	M	A	M	J	J	A	S	O	N	D
Selection of different tree/shrub species												
Maintenance of existing soil and water conservation structure			x	x	x							
Data collection and follow up	x	x	x	x	x	x	x	x	x	x	x	x
Summarizing results											x	x
Mobile Nursery												
Purchasing of inputs (seeds, bamboo box ,stationery materials ...)		x	x									
Giving Training for farmers				x	x							
Raising of seedlings				x	x	x	x	x				
Follow up			x	x	x	x	x	x	x	x	x	x

Budget

No.	Budget category	Amount	Rate	Total budget (Birr)
	Selection of different tree/shrub species			
1	Maintenance of existing soil and water conservation structures	140	25 Birr/man day	3,500.00
2	Data collection and follow up	22 days	105	2,310.00
3	Stationery	Lump sum		1,500.00
4	Fuel and oil	Lump sum		4,000.00
	Sub total			11,310.00
	Mobile nursery			
5	Seed purchase	Lump sum		1000.00
6	Compost/manure	4 qt	200 Birr/qt	800.00
7	Root trainer	20 pcs		5000.00
8	Bamboo box	20pcs	200	4000.00
9	Training/FREG	Lump sum		4500.00
10	Stationery	Lump sum		3500.00
11	Per diem	79 day		5000.00
12	Fuel, lubricant, car maintenance	Lump sum		9000.00
13	Telephone service			400.00
	Sub total			33,200.00
	Total			44510.00

Theme II: Water harvesting & supplemental irrigation

Output(s)

Appropriate areas and farmers for WH selected and 4-5 ponds are installed and operational.

Addressing which farmer's priorities (PRA results)?

Poor Irrigation management

Team members for implementation

Focal point Researcher

Hanibal Lemma, Theib Oweis, Gizaw Desta

Focal point Extension

Endalkachew Abebe (G/Zuria Wereda office of Agrc.)

Focal point Farmer/Community

Sintayehu

Team

- Hanibal Lemma
- Dr. Theib Oweis (ICARDA)
- Dr. Gizaw Desta (ARARI)
- Endalkachew Abebe (G/Zuria, Woreda)
- Muuz G/tsadik (GARC)
- Prof Andreas Klik (BOKU)

- Prof Hans-Peter Nachtnebel (BOKU)

- Dr. Selamyihun Kidanu (SWHISA)

Activities

Identification of suitable sites and farmers for runoff collection

Designing and construction of the systems

Training of farmers to operate and maintain the system –December 2011

Indicators of success (“measurable”)

The WH/SI systems are running and operational

Work plan

Activities	J	F	M	A	M	J	J	A	S	O	N	D
Site selection (first year only)	x											x
Pond construction (first year only)			x	x								
Pond maintenance (second year only)			x	x								
Meteorological data collection			x									
Determination of IR and scheduling			x	x	x							
Land Preparation				x	x							
Planting					x							
Weeding						x	x	x				
Harvesting									x	x		
Data Analysis and Report Writing	x	x	x								x	X

Budget

No.	Item	Budget (Birr)
	WH & SI, activity 1: installation	
1	Design & training of farmers - per diem for trainer	8290
2	Excavation, 5 sites - labor	16580
3	Lining, 5 sites, geo-membrane	3316
4	Pedal pump, 5x	5803
5	Drip Irrigation Systems, 5x main lines and drip lines, etc.)	58030
6	Tanks for drip system, 5x	10777
7	Pond & drip installation - car, fuel	16580
8	Pond & drip installation -per diem	22383
	WH & SI, activity 2: field experiment	
9	Material (seed, fertilizer, etc.)	12435
10	Soil analysis	8290
11	Field day	3316
12	Office material	2984.4
13	Compensation for crop failure (just in case)	9948
14	Experiment setup and surveying - car, fuel	16580
15	Experiment setup and surveying - per diem	22383
	Total	217695.4

Theme III. Land productivity

Sub-theme 1. Crop Improvement

Activity 1. Chickpea participatory variety selection on the vertisol of Gumara-Maksegnit watershed

Objective

- To select best adaptive and high yielding improved chickpea varieties through farmers participation.
- To demonstrate early planting of chickpea.
- To evaluate the effect of rhizobial inoculation on the productivity of chickpea Varieties: 5-6 varieties including the local variety.

Design

Seven chickpea varieties will be evaluated in split-plot design with rhizobial inoculation in the main plots and varieties in the subplots, replicated thrice on farmers' fields.

Focal persons/Responsible persons

Getachew Tilahun (Gonder ARC)

Team members

- Tesfaye Wossen (GARC)
- Tiringo Yilak (WoARD)
- Asfaw Azanaw (GARC)
- Yonas Worku (GARC)

- Tegegne Mebratu (ZoARD)
- Fasil Mekuanent (DA)
- Dr Yigzaw Desalegn (ARARI)
- Dr. Stefania Grando
- Dr. Rolf Sommer
- Dr. Geletu Bejiga
- Dr. Wondimu Bayu (National Project Officer)

Work plan

Activities	J	F	M	A	M	J	J	A	S	O	N	D
Site selection				x	x							
Seed and chemical preparation							x					
Land preparation						x	x	x				
Sowing								xxx	x			
Trail management									x	x	x	x
Field data recording								x	x	x	xx	xx
Monitoring and evaluation											xx	
Arranging and conducting field days											xx	xx
Report writing	x	xx										

Budget

No.	Item	Unit	Quantity	Unit Price (Birr)	Total cost (Birr)
1	Land rent	ha	0.3267		2250
2	Seed	Kg	24.75	13	311
3	Chemical (Apron star)	gm	300	1.25	375
4	Fuel & lubricant	Lit.	200	15	3000
5	Wage	Man day	50	35	1750
6	Office supplies	Lump sum			1500
7	Field days	Days	35	105	4800
8	Training	Days	16	105	3360
9	Per diem	Days	20	135	2700
	Total				20046

Activity 2. Pre-scaling up of improved (tef, food barley & bread wheat) varieties with their production packages at Gumara-Maksegnit watershed

Objective

To improve the livelihood of the watershed community through introducing improved crop production technologies

Methodology

Pre-scaling up of improved tef variety Quncho on 150 farmers and food barley variety Estayish on 40 farmers will be conducted. With tef each host farmer will plant 0.5 ha of land to the improved variety and with food barley each host farmer will plant 0.25 ha of land to the improved variety. Agreement will be reached with farmers to give the seed amount they were provided with to another farmer the

coming season. The activity will be done with FREG members. Training will be given to farmers, development agents and wereda experts. Production guides/leaflets will be prepared and provided to each trainee.

Expected output

- Farmers knowledge on new production packages will be enhanced
- Community-based seed system will be established
- Farmers income will increase
- Finally, farmers livelihood will be improved

Focal persons/Responsible persons

Andualem Tadesse (Gonder ARC)

Team members

- Tesfaye Wossen (GARC)
- Mele Tilahun (GARC)
- Teferi Alem (GARC)
- Tiringo Yilak (WoARD)
- Asfaw Azanaw (GARC)
- Yonas Worku (GARC)
- Tegegne Mebratu (ZoARD)
- Fasil Mekuanent (DA)
- Dr Yigzaw Desalegn (ARARI)
- Dr. Stefania Grando
- Dr. Rolf Sommer
- Dr. Geletu Bejiga
- Dr. Wondimu Bayu (NPO)

Work plan

Activities	J	F	M	A	M	J	J	A	S	O	N	D
Participant and Site selection		x	x									
Stake holder identification and networking				x								
Joint action planning				x	x							
Preparing inputs				x	x							
Preparing leaf lets				x								
Training					x	x						
planting							x					
Monitoring							x	x	x			
Field days								x	x			
Evaluation meeting										x		
Reporting and Documentation											x	x

Budget

No	Item	Budget (Birr)
1	Materials (seed, fertilizer, etc)	30093
2	Transport of inputs plus loading & unloading	10943
3	Farmers' training	10777
4	Office material	6632
5	Field day	5803
6	Experimental setup & monitoring-car, fuel	14922
7	Experimental setup & monitoring-per diem	6300.4
	Total	85470.4

Sub-theme 2. Crop Management

Activity 1. Rate determination on the combined use of compost and chemical fertilizer on the yield of bread wheat on vertisols in the Gumara-Maksegnit watershed

Focal persons/Responsible persons

Sitot Tesfaye (Gonder ARC)

Team

- Hanibal Lemma
- Dr. Birru Yetaferu (ARARI)
- Dr. Gizaw Desta (ARARI)
- Endalkachew Abebe (G/Zuria, Woreda)
- Muuz G/tsadik (GARC)
- Dr. Rolf Sommer (ICARDA)

Objectives

- To determine the optimum rate of chemical fertilizer and compost combination for wheat
- To see the effect of compost on the physicochemical properties of light vertisols
- To determine the amount of compost that substitute or complement chemical fertilizer

Methodology

Ten treatments (Control, 8 tone compost, 6 tone compost, 4 tone compost, 8 tone compost with 69 kg N and 23 kg P₂O₅, 8 tone compost with 34.5 kg N and 11.5 kg P₂O₅, 6 tone compost with 69 kg N and 23 kg P₂O₅, 6 tone compost with 34.5 kg N and 11.5 kg P₂O₅, 4 tone compost with 69 kg N and 23 kg P₂O₅, 4 tone compost with 34.5 kg N and 11.5 kg P₂O₅) will be studied in a randomized complete block design with three replications. The experiment will be done for three consecutive years on permanent plot. Size of the experimental plot will be 6m by 6m.

Work Plan

Activities	J	F	M	A	M	J	J	A	S	O	N	D
Compost preparation		x	x	x	x							
Site selection					x							
Land Preparation					x							
Planting						x						
Harvesting										x		
Data Analysis and Report Writing											x	x

Budget breakdown for 2011

No	Item	Unit	Quantity	Unit price (Birr)	Total Cost (Birr)
1	Research Input				
	Seed	Qt	2	500	1000
	Composting materials	Qt	5	1000	5000
	Pesticide	Lt	20	150	3000
	Land compensation	Lump sum			1000
2	Per diem				
	Researcher	Days	35	135	4725
	TA	Days	40	135	5400
	Driver	Days	40	135	5400
3	Fuel & Lubricants				

	Fuel	Lt	400	15	6000
	Lubricant	kg	10	50	500
4	Office Supplies				
	Printing paper	Ream	8	80	640
	Pen	Pack	1	200	200
	Toner	Number	1	1200	1200
	Notebook	Number	2	75	150
	Flash Memory (1GB)	Number	2	300	600
5	Field day	Lump sum			3000
6	Soil sample test	Lump sum			1500
7	Fencing the Experimental site	Lump sum			15000
	Total (Birr)				54315

Sub-theme 3. Improved tillage

Activity 1. On farm evaluation and demonstration of animal drawn moldboard & Gavin plows in the Gumara-Maksegnit watershed

Objectives

- To evaluate the technical performance of the moldboard and Gavin plows against the traditional plow.
- To evaluate the effect of the improved plows on soil infiltration and crop productivity.
- To assess farmers' evaluation on the system compatibility of the implement.

Design

The experiment will be done in randomized complete block design with three replications. Farmers' field will be used as replication. The experiment will be done on two soil types (vertisol and light soil). There will be four treatments. i.e., traditional plow, reduced tillage, Gavin plow, & Mold board plow.

Focal persons/responsible persons

Worku Biweta (B/Dar Agric Mech. & Food Sc RC)

Team members

- Zewdu Ayalew (ARARI)
- Dr. Rolf Sommer (ICARDA)
- Dr. Birru Yitafaru (ARARI)
- Dr. Wondimu Bayu (Project NPO)

Work plan

Activity	J	F	M	A	M	J	J	A	S	O	N	D
Site selection				X								
Training					X							
Soil sampling						X						
Experiment execution						X						
Weeding							X					
Demonstration									X			
Harvesting											X	
Data analysis											X	
Report writing												X

Budget

No	Item	Budget (Birr)
1	Measuring devices (dynamometer, penetrometer)	82900
2	Materials (seed, fertilizer, plastic bag)	4974
3	Office material	1658
4	Field day	3316
5	Experiment setup & monitoring-car, fuel	11606
6	Experiment setup & monitoring-per diem	16580
	Total	121034