TRAINING COURSE ON SITE-SPECIFIC SLM FOR THE SAVANNAH BELT OF NORTHERN NIGERIA

Amman, 4-9 June 2018

ICARDA-CASP agreement
Goals, progress, next steps

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(Integrated Water and Land Management program)

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Course Agenda

Day	Topic
June **4**, Monday	Opening of course, introductory presentations by CASP and ICARDA experts
June **5**, Tuesday	Water Harvesting
June **6**, Wednesday	Soil & Water Conservation
June **7**, Thursday	Irrigation Management and raised-bed farming
June **8**, Friday	Field trip: water harvesting and soil and water conservation systems in Jordan
	Cultural visit
June **9**, Saturday	Dissemination and Adoption of agricultural technologies, participatory planning
June **10**, Sunday	Departure of participants

A typical day

June 5, Tuesday		
09.00-10.30	Principles and types of Water Harvesting	Theib Oweis
	Break	
11.00-12.30	Methods and management of Water Harvesting systems	Theib Oweis
	Break	
13.30-15.00	Group discussion: identify options of water harvesting suitable for the CASP environments and cropping systems.	Theib Oweis, Bezaiet Dessalegn, and Claudio Zucca

June 8, Friday		
09.00-15.00	**Field trip**: water harvesting and soil and water conservation systems in Jordan. (Followed by **cultural visit**; to be agreed with participants)	Stefan Strohmeier, Mira Haddad, Bezaiet Dessalegn, and Claudio Zucca

ICARDA-CASP collaboration

MEMORANDUM OF UNDERSTANDING FOR CONDUCTING SUSTAINABLE LAND MANAGEMENT ACTIVITIES IN CASP AREAS OF THE SAVANNAH BELT OF NORTHERN NIGERIA

GOAL:
identify location-specific, effective and innovative soil and water conservation (SWC) adaptation techniques in the rainfed production systems, and technology packages based on raised bed technique to support the sustainable introduction of improved ICARDA's wheat varieties in the irrigated production systems

TIMEFRAME:
February 2018 to July 2019

ICARDA-CASP agreement: outline of activities

Outputs	Activities	By
1.1. Location-specific SWC packages designed.	1.1.1. **Diagnostic** of the current adoption of **SWC practices** by farmers, their effectiveness and association with current farming systems and degradation processes.	April 2018
	1.1.2. Define a **Matrix of potential SWC options** for the selected sites, including soil erosion control measures, water harvesting, and soil fertility management.	April 2018
	1.1.3. **Participatory identification** of **site-specific options**, in synergy with the Participatory Planning by CASP team.	May 2018
1.2. Implementation of demonstration supported.	1.2.1. **Support implementation of demonstrations** at farmers' fields in the seven concerned States by providing guidance and supervision in coordination with CASP team.	April 2019
	1.2.2. Provide raised bed implements for sustainable irrigated wheat package (for use in 2018-2019 season).	September 2018
1.3. Demonstration trials monitored & evaluated.	1.3.1. Establish a protocol for data collection in demonstration fields to enable **monitoring and evaluation** of demonstration effectiveness.	April 2019
1.4. Coordination with ICARDA and CG Centers.	1.4.1. Provide **improved cereals/legumes seeds** from ICARDA or other CG centers' breeding programs.	September 2018

Capacity Development component of Output 1		
1.5. Local experts and developers trained in SWC packages through regular ICARDA courses.	1.5.1. Local experts and developers attend **ICARDA courses** on sustainable soil and water management (CASP team will be provided with a list of the planned training events)	According to ICARDA training schedule and CASP staff needs
1.6 Local project and extension officers and farmers trained in SWC packages at CASP venues and at sites.	1.6.1. **Specific on-the-job training** provided in relation to above activities on diagnostic (1.1.1.), monitoring (1.3), and implementation demonstration fields (1.2), to CASP team members and **at sites**.	According to a local training schedule to be agreed

Next round of ICARDA regular courses (2018)

Course	Date
Geoinformatics application in agriculture and resilience	16/09 to 04/10 2018
Adoption and impact assessment of water management and saving technologies in the dry land areas	October 2018
Statistical design and data analysis in water management research	October 2018
Project Management Cycle and Monitoring and Evaluation System	November 2018
Leadership in Agricultural science: institutional and organizational strengthening	December 2018

Progress

Activities	Due	Done/planned
1.1.1. **Diagnostic** of the current adoption of SWC practices	April 2018	April/May 2018
1.1.2. Define a **Matrix of SWC options** for the selected sites	April 2018	May 2018
1.1.3. **Participatory identification** of **site-specific options**.	May 2018	June 2018
1.2.1. **Support implementation of demonstrations**.	April 2019	April 2019
1.2.2. Provide **raised bed implements**.	September 2018	September 2018
1.3.1. **Monitoring and evaluation** of demonstration.	April 2019	April 2019
1.4.1. Provide **improved cereals/legumes seeds**.	September 2018	September 2018

Diagnostic

28 sites visited (6 States covered)

Visited communities:
- are representative of different geographies
- have well documented CAPs

Large dataset generated

Diagnostic

A new approach and survey questionnaire (**SQ**) designed for this project

Phase 1: Group interview with community members.

1.a. Ask farmers to introduce the main, most frequent crops and farming systems around the village.

1.b. Refer to the SWC issues and related actions as described by the CAP: discuss them briefly to clarify. Then ask farmers to describe what they are doing to mitigate the problems, including either traditional practices or introduced by development agents.

2. Identify farmers ("adopters" of SWC/WH practices, or "non-adopters") for individual interview at fields.

Phase 2: Farm visit with selected farmers

3. Document soil and water degradation processes, soil type, and water availability, at farmer fields.

4. Document the farming practices in general.

5. Document the specific SWC/WH practices, characterize them technically.

6. Georeference main farmer field(s), following a proposed alternative procedure if no GPS available.

SWC measures in place in rainfed sites

Four main types of measures were reported:

- **Vegetative**-based: e.g. planting cover crops, planting grasses, planting trees/woodlots
- **Structural**-based: e.g. contour ploughing, stone bunds, half-moon, planting pits, earth bunds, etc.
- **Agronomic**-based: e.g. on-site crop residues, manure, mulching, crop rotations, intercropping/crop association, cropping leguminous species, etc.
- **Management**-based: e.g. area closure, fallowing, late land preparation, etc.

The most observed combinations are the following:

- **Structural-vegetative** measures: e.g. fencing + planting grasses
- **Agronomic-Structural** measures: intercropping on contour ridges
- **Management-vegetative** measures: abandonment assisted by natural regeneration (tree planting and selective maintenance of natural seedlings)

SWC measures in place in rainfed sites

Gully erosion	Jigawa	Kaya	Stone bunds; Sand bags
	Katsina	Baawa, Garu, Kofa	Stone bunds; Sand bags; Water diversion; Planting Vetiver grass
	Zamfara	Yautabaki, Goran	Contour ploughing; Fencing + planting cover species; Planting cover species; Planting Vetiver and Gamba grasses;
Gully&sheet erosion	Jigawa	Kaya	Planting grasses & shrubs
	Katsina	Garu	Planting cover species & Ron palm
	Kebbi	Barangawa, Masama, Bui	Sand bags; Contour bunds; Contour ridges/contour ploughing; Planting cover species
	Sokoto	Badau, Kebbe	Stone bunds; Sand bags; Contour ridges /Contour ploughing; Planting cover species; Vetiver grass and other grasses; Area closure
	Yobe	Laye, Dogonkuka, Jimbam	Sand bags; Earth embankments; Contour ploughing; Tree planting/Woodlots; Gamba grass planting; Abandonment associated to assisted natural regeneration
	Zamfara	Goran	Cover crops
Wind erosion	Jigawa	Kukawa, Dagwaje	Crop residue on-site; Late soil preparation; Planting holes
	Sokoto	Badau	Crop residues on-site

Soil infertility	Jigawa	Kaya, Dagwaje, Kukawa	Manuring; Mulching; Fallowing
	Katsina	Baawa; Garu; Kofa	Manuring; Mulching
	Kebbi	Barangawa, Masama,	Manuring; Fallowing; Planting leguminous species (cowpea, groundnut)
	Sokoto	Kebbe	Manuring; Fallowing;
	Yobe	Laye, Dogonkuka, Jimbam	Manuring; Crop rotation; Intercropping
	Zamfara	Goran	Mulching (Crop residues + Locust beans residues)
Soil moisture conservation	Kebbi	Barangawa, Masama, Bui	Contour ridges; Planting pits; Half-moon microcatchments
Waterlogging	Zamfara	Goran	Adoption of adapted crops

WH measures in place in rainfed sites

Mitigation targets	State	Site	Adopted measures
Water shortage for animal drinking	Jigawa	Dagwaje, Kukawa	Ponds
	Katsina	Kofa, Baawa,	Ponds
	Yobe	Jimbam, Dogonkuka	Ponds; Dams
	Zamfara	Yautabaki, Goran	Ponds
Water shortage for both animal & domestic use	Sokoto	Kebbe	Ponds
	Yobe	Jimbam	Individual containers
	Sokoto	Badau	Ponds
Water shortage for domestic use	Katsina	Kofa, Baawa	Bore holes & Open wells

Other measures surveyed in rainfed sites: rangeland and forest management

Site-specific Options; example

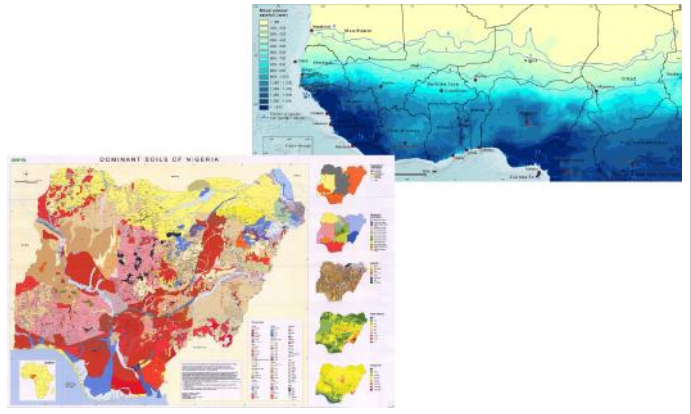
Issue	SWC			WH		
	Practiced	Advised (cross-site)	Advised (international)	Practiced	Advised (cross-site)	Advised (international)
Wind erosion	Crop residues, and weeds, on-site;		Grass reseeding;			
	Late land preparation		Tree plantation (windbreak/sand control; multi-purpose trees)			
	Planting holes		Energy-efficient stoves/solar cooking			
Soil infertility	Mulching	Manuring	Composting associated with planting pits			
		Productive fallow/rotation, instead of multi-cropping	Improved millet varieties (earliness)			
			Improved grazing management			
			Feedlots			
Water shortage for animal drinking				Ponds		Dams
						Check dam ponds
						Runoff/floodwater farming

Jigawa – KUKAWA. Decreasing yield, affected by decreasing length of rain season and by wind erosion; deep ground water; ~400mm/y

Code	SWC Technologies	Country
WOCAT45	Community supported pasture and rangeland rehabilitation works	Angola
WOCAT22	Solar cooker	Botswana
WOCAT23	Game Ranching	Botswana
WOCAT52	Split Ranch Grazing Strategy	Botswana
WOCAT1	Composting associated with planting pits	Burkina Faso
WOCAT16	Bassin de captage des eaux de ruissellement	Burkina Faso
WOCAT17	Cordons pierreux isohypses/diguettes/demi lunes /tabouri/ terres /	Burkina Faso
WOCAT19	Use of organic matter (manure and compost)	Burkina Faso
WOCAT20	Parkland Agroforestry System	Burkina Faso
WOCAT21	Assisted Natural Regeneration of Degraded Land	Burkina Faso
WOCAT38	Permeable rock dams	Burkina Faso
WOCAT39	Permeable rock dikes	Burkina Faso
WOCAT42	Organic cotton	Burkina Faso
WOCAT34	Dams	Cape Verde
WOCAT35	Muret	Cape Verde
WOCAT36	Reforced terraces for stone walls	Cape Verde
WOCAT37	Barreiras Vivas de Leucaena	Cape Verde
WOCAT50	Afforestation	Cape Verde
WOCAT51	Aloe Vera Living Barriers	Cape Verde
WOCAT40	Afforestation and Hillside Terracing	Eritrea
WOCAT2	Ridge & Basin	Ethiopia
WOCAT3	Stone faced soil bund of Tigray	Ethiopia
WOCAT4	Stone faced trench bund	Ethiopia
WOCAT5	Stone faced level bund	Ethiopia
WOCAT6	Area closure for rehabilitation	Ethiopia
WOCAT7	Dawa-Chea Traditional Checkdam	Ethiopia
WOCAT8	Stabilized Stone Faced Soil Bund	Ethiopia
WOCAT9	DireDawaTraditional Checkdam	Ethiopia
WOCAT10	Chat Ridge bund	Ethiopia
WOCAT11	Sorghum Terrace of Diredawa	Ethiopia
WOCAT12	Sweet Potato Ridge	Ethiopia
WOCAT13	Rehabilitation of degraded lands	Ethiopia
WOCAT14	Microcatchments and ponds	Ethiopia
WOCAT15	Soil bund & Fanya Juu combined & vegetated	Ethiopia
WOCAT18	Soil faced deep trench bunds	Ethiopia
WOCAT24	Trashlines	Ethiopia
WOCAT25	Hillside Terracing	Ethiopia
WOCAT26	Stone faced trench	Ethiopia
WOCAT27	Stone bund of Tigray	Ethiopia
WOCAT28	Area closure	Ethiopia
WOCAT29	Area Closure for Rehabilitation of Degraded Hillsides	Ethiopia
WOCAT30	Jatropha curcas hedge	Ethiopia
WOCAT31	Stone wall check dam	Ethiopia
WOCAT32	Large semi circular stone bunds	Ethiopia
WOCAT33	Check dam ponds	Ethiopia
WOCAT41	Konso Bench Terrace	Ethiopia
WOCAT43	Runoff/floodwater farming	Ethiopia
WOCAT44	Micro-catchments for rainwater harvesting	Kenya
WOCAT46	Grass reseeding	Kenya
WOCAT47	I Ngwesi Group Ranch Grazing with Holistic Management Principles	Kenya
WOCAT48	Borana Ranch Grazing with Holistic Management Principles Loldaiga Hills Ranch: Rotational Grazing and Borna-Based Land	Kenya
WOCAT49	Reclamation	Kenya
WOCAT53	Tree plantation for sand dune control	Tunisia

https://www.wocat.net/en/

Scaling



Technical goals of this course and project meeting:

Discuss and refine Matrix of Options

Discuss method for Participatory planning of Option implementation by communities

Discuss scaling concepts

Thanks for your attention…

40 YEARS

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Science for Better Livelihoods in Dry Areas