Consortium Research Program on Dryland Systems (CRP DS)
ICARDA – NCARE Technical Meeting for Tafilah-Salamieh Action Site (Jordan sites)

Minutes of the Technical Work Plan Meeting, Amman 21-22 September 2014.

Participants

The meeting was attended by 59 persons distributed as follows:

- 27 from NCARE (headquarters, regional centers and research stations)
- 25 from ICARDA
- The CRP DS director
- 3 from the IFAD-funded ARMPII development project in the center and south of Jordan
- 2 from GIZ – Jordan
- 1 veterinary from the Jordanian Ministry of Agriculture

Main new considerations for the elaboration of the Work Plan 2015

These new considerations for the implementation of CRP DS emerged from the introductory statements and presentations made by the CRP DS Director Dr. Richard Thomas, Deputy Director General – Research (ICARDA), Dr. Maarten Van Ginkel and ICARDA CRP DS Center Coordinator, Dr. Hichem Ben Salem. The main considerations are summarized below:

- Switching the balance of efforts to innovative partnership
- Implementation approaches should move from a regional context to the concept of Agricultural Livelihood System (ALS)
- CRP DS is focused on integrated activities to which funds will be channeled in priority
- Research components should be funded through bilateral projects and partner cash/in-kind contribution
- Reducing barriers to outscaling through partnership with development projects in the action sites
- Involvement of other CGIAR centers in NAWA Flagship and identifying functional linkages with other CRPs in the POWB 2015.
- Work towards more integration through formation of multi-disciplinary teams around cluster of activities
- More explicit definition of the capacity development needs considering that the POWB 2015 should have 10% budget allocation for capacity development
- Definition of areas of new, innovative science

Main achievements in 2014

This section will report in a very brief style, the main achievements during the last two months of 2013 (following the kick-off meeting in Jordan) and 2014. The adopted demarche is by activity, coherent with the POWB for 2013-2014. This does not preclude that synergies, complementarities and integration were visible in some cases. For more details, readers are requested to refer to the presentations made during the workshop and accessible via this link: **http://www.slideshare.net/CRPDrylandSystems/tag/dryland-systems-ncare-icarda-meeting**

1. Selection of the field sites where integrated research is implemented. These are Erak (11.8 km^2) and El-Khrisha (12 km^2) sites, both located in Karak governorate and home for over 33,000 inhabitants. The selection was a consultative process, capitalizing on existing secondary data, looking for differences in the main commodities base of the production system and relying on the existence of active social and professional forms of organizations.
2. High resolution GIS mapping characterization of the 2 field sites: current land use and land cover for both sites, decadal analysis of land use change in the 2 field sites (process under validation).
3. Implementation in the 2 sites of a series of meetings and focus groups as part of the learning alliance and establishing innovation platforms leading to understanding challenges and opportunities for enhancing quality of life in the two field sites. In Erak, the main challenges were limited access to public extension, poor productivity, issues related to participation within cooperatives. The main identified opportunity was the olive production with a value chain focus. In El-Khreisha cluster of villages, the main challenges were related to disgruntled community, and evidence of discord between tribal clans. There was also history of failed attempts at social and economic organization. The identified opportunities were related to partnership with existing welfare societies and private NGO's aimed at expanding the range of access to technical, economic and social services in several fields particularly, the livestock sector. Further opportunities are sought in diversifying processed product ranges and product quality through technical training and support.
4. Ecogeographic and botanical survey conducted in Erak amongst several other sites across the kingdom; Promotion of the cultivation of medicinal and aromatic/herbal plants (Crocus sativus, Thymus spp, Salvia spp, cut herbs: Rocca, Basil, Thyme, etc…) in 5 farms belonging to men and women in Erak; Cultivation plots were provided with water tanks and irrigation systems; Focus groups to promote medicinal and aromatic plants in collaboration with AARINENA.
5. Initiate establishment of field gene bank in Mchaqqar station. So far over 150 cactus accessions (*Opuntia ficus indica*) have been introduced and established. These accessions

will be monitored for their adaptation and productivity under West Asia environmental condition. Similarly a new site has been prepared in the same station for seed multiplication of key rangeland species (rangeland rehabilitation as well as medicinal use).

6. Promoting spineless cactus as a multi-purpose species in 25 farms in Erak site; introduction of alley- cropping and/or inter cropping in Erak; rangeland rehabilitation through water harvesting techniques & shrub plantations in Erak.
7. Development of non-destructive technique for estimating rangeland biomass productivity. The technique is based on remote sensing and image processing. Particularly, terrestrial laser scanning (TLS) or ground light detection-and-ranging (LIDAR) is a remote sensing technology that has been successfully used in Dryland ecosystems to assess changes in the three-dimensional (3D) structure of soil and vegetation, including soil sediment loads and vegetation biomass, that are diagnostic of impacts from grazing, drought, and wind and water erosion
8. Soil conservation and water harvesting: Participatory testing and dissemination of soil and water conservation interventions in Erak; Fine-tuning and dissemination through participatory trials – integration with the DISPS program at ICARDA; Water harvesting and grazing management: working with farmers to fine-tune grazing practices – integration with DISPS; Water harvesting and supplemental irrigation (hill lakes): testing a model in Tafila; Watershed modeling: assessment of the impact of soil and water conservation, mainstreaming and training; Integrated land use planning and suitability analysis – collaboration with ARMP II (IFAD funded project).
9. A total of 16 ha were cropped under conservation agriculture including: integration CA/alley cropping, CA research trials, productivity of drought tolerant forage legumes and cereals under different tillage systems, evaluation and management of alternative forage cereals under saline conditions as well as 6 demonstration sites.
10. Studying flocks' nutrient deficiencies by sampling 260 animals (blood and wool), soil, grazing material, supplemental food and drinking water in a total area of 53 km^2 (El-Khreisha site and surrounding similar sites with a sheep population of 40,000 sheep); Breeding soundness examination of more than 90 rams in the same previous area including Erak; Epidemiological survey of most common abortive diseases in Erak and El-Khreisha; Sero-prevalence of chlamydiosis by sampling 150 ewes with a historic of abortive diseases in the 2 sites; Molecular identification of the chlamydial cause of abortion; Initiation of an on-station study on vaccine efficiency for commercially available vaccine against *Ch. Abortus;* Improvement of milk processing technologies and diversification of the end products in women-led processing units at El-Khreisha site impacting 20,000 sheep and 8000 l of milk/day.
11. Initiation of a comprehensive literature review, using a systems approach, on gender and livestock production in Jordan; Completed focus groups, participant observation, and interviews with youth and adults in El-Khreisha communities; Designing a survey which

aims at interviewing 50% men and 50% women (of different ethnicities and generations, from households with different land and flock sizes) to identify key entry points for future work in both sites.

12. Data collection for supply chain mapping: Focus groups of farmers (RRA and PRA) and Households survey (150) in Erak site; Personal interviews with wholesalers; road transporters, local traders, shipping companies and institutional buyers; Focus groups of women stakeholders; Focus groups with youth (labor issues and their involvement in the agriculture sector); Development of questionnaire (Marketing System for Olives and Olive Oil in Erak) in Arabic and translating it to English; Pre-testing of the questionnaire; Implementation of the survey for the first commodity – Olive (150 targeted households).
13. Initiation of a study on barley subsidies in Jordan: effects on small ruminant production, food security and development of the livestock sector.

Working groups and outcomes

For one and a half day, the participants were split into 3 working groups as summarized below.

Group number	Cluster	Covered activities
1	Sustainable management of marginal ecosystems	Agro-Biodiversity, Managing Rangelands, Water and Land Management, Conservation Agriculture and Livestock Productivity and Health
2	Developing and scaling innovation capacity – Markets and Policies – gender in drylands	Reducing System Vulnerability and Improving Resilience, Bio-Economic Modeling, Innovation Platforms, Policies, High Value Chains, Post-Harvest and Market Access, Gender
3	Capacity development	Cross cutting

The groups were briefed to develop workplans for both sites up-taking the main new considerations to improve the performances for CRP DS. The groups worked separately, then were grouped to present their first output and a discussion took place for a better integration between clusters of activities. The groups then split to refine/improve their workplans and finally were grouped in a final plenary session to present their revised workplans. Unfortunately, time was short to develop detailed, comprehensive workplans for both sites. This was particularly the case of Group 1 in which the output was mainly restricted to define the main activities, most appropriate to be implemented in each field site according to an integrated approach. For each activity, the following table sets 3 levels of priorities for implementation:

Type of activity	Erak	El-Khreisha
Agro-biodiversity		
Managing rangeland		
Water and land management		
Conservation agriculture		

Forage production		
Livestock productivity and health		
High value chains		
Post-harvest and market access		
Policies		
Innovation platforms		
Bio-economic modeling		
Gender[1]		
Geo-informatics applications		

Prioritized activity in the site Important activity to consider Activity of lesser importance

Which is meant by integration is implementation of the prioritized activities at the level of the whole site not necessarily the same farm. If a number of activities are implemented at the level of the same household/farm, this is also considered as integration and would contribute to the overall integration at the level of the field site. Without being exhaustive, some examples of integration are listed here. These examples are not theoretical; they illustrate the priorities and opportunities that emerged from the learning alliances, a better knowledge of the actual situation in the field by the joint research teams and the need to reach synergies and cross-linkages between all activities in an attempt to simulate reality in the field. System thinking and system approach is a novel, not well mastered approach and its field testing within CRP DS will come progressively.

[1] In addition to strategic gender mainstreaming, gender is integrated to agro-biodiversity, livestock productivity and health, managing rangeland, post-harvest and market access

Flagship	Action site	Integrative research field site	Cluster of activities	Examples of integrated interventions	Indicators[2]	IDO's[3]	Scaling opportunity
Agro-Pastoral Livelihood Systems	Tafilah-Salamieh (Jordan-Syria)	Erak	Sustainable management of marginal ecosystems – Markets and policies	Increased forage production under no till-orchard system – on-farm water harvesting works – Alternative management of orchards (olive trees) – Post-harvest and market access (Olive sector) - Assessment of soil fertility and moisture content - Monitoring of nutrient deficiencies in animal nutrition – Water productivity for livestock production - Improvement of the small ruminants feeding calendars and	**Biophysical Indicators:** Number of naturally occurring plant species; Variation in biomass; Nitrogen balance in the soils; Mortality and births rates in the flocks; Survival and destocking rates, Animal disease outbreaks; Quantities of marketed animal products; Level of contamination of animal products; Run-off and soil erosion; Sediment load in runoffs, Soil moisture	IDO 1 – IDO 4	IFAD funded ARMPII Development project

[2] Tools for measurement, data sources and methods of calculation in order to quantify these indicators and change over time need to be specified.

[3] IDO 1: RESILIENCE: More resilient livelihoods for vulnerable households in marginal areas; IDO 2: WEALTH AND WELLBEING: More sustainable and higher income and well-being of per capita for intensifiable households; IDO 3: FOOD ACCESS: Women and children in households have year round access to greater quantity and diversity of food sources; IDO 4: NATURAL RESOURCES MANAGEMENT: More sustainable and equitable management of land, water resources, energy and biodiversity; IDO 5: GENDER EMPOWERMENT: Women and youth have better access to and control over productive assets, inputs, information, market opportunities and capture a more equitable share of increased income, food and other benefits; IDO 6: CAPACITY TO INNOVATE: Increased and sustainable capacity to innovate within and among low income and vulnerable rural community systems, allowing them to seize new opportunities and meet challenges to improve livelihoods, and bring solutions to scale.

				impact on performances.	and organic matter content, Flow of water sources, Water footprint for crop and livestock production, Progress of urbanization, Land use and land cover; **Socio-economic indicators:** Youth employment, Women generated income, Cost/benefit analysis for main commodities, Household expenditure allocation, Infant mortality		
Agro-Pastoral Livelihood Systems	Tafilah-Salamieh (Jordan-Syria)	Erak	Sustainable management of marginal ecosystems – Gender in drylands	Assessment and monitoring of agro-biodiversity - Impact of urbanization on agriculture in Karak - Rangeland management plans (Grazing Management) - Gender inclusive community based management of rangelands.		IDO 4 – IDO 5	GIZ – Hima initiative
Agro-Pastoral Livelihood Systems	Tafilah-Salamieh (Jordan-Syria)	Erak and El-Khreisha	Sustainable management of marginal ecosystems – Markets and policies	Sustainable management of landscape depressions –Water mobilization and springs rehabilitation - Collect, evaluate, multiply, re-introduce market promising aromatic and medicinal species – Promoting cactus as a multi-purpose crop - Post-harvest and market access (Aromatic and medicinal plants).		IDO 4 – IDO 5 – IDO 6	IFAD funded ARMPII Development project - GIZ
Agro-Pastoral	Tafilah-Salamieh	El-Khreisha	Sustainable management of	Reducing land degradation in hilly		IDO 1 – IDO	IFAD funded ARMPII

Livelihood Systems	(Jordan-Syria)		marginal ecosystems – Developing and scaling innovation capacity – Markets and policies	cropping land by establishing contour ridges – spatial distribution of the cropping land - Cropping under conservation agriculture – Alley cropping - Stubble management for grazing – Flocks' management and feeding calendars – improvement of the soil fertility - Enhanced governance of natural resource management by local communities.		4 – IDO 6	Development project – FAO scaling initiative of CA
Agro-Pastoral Livelihood Systems	Tafilah-Salamieh (Jordan-Syria)	El-Khreisha	Sustainable management of marginal ecosystems – Markets and policies – Gender in drylands	Reduction of the disease-incurred losses in sheep flocks – Improvement of the quality and safety of milk and derived products – Value chain analysis of the dairy sheep sector – Empowerment of women-led milk processing units (number of women involved, income per		IDO 1- IDO 3 – IDO 4 – IDO 5	IFAD funded ARMPII Development project – NGO's – National Veterinary Services

				woman).			

These are only few examples on how to integrate different biophysical and socio-economic activities considering the primary characterization of the sites and available knowledge on major challenges and opportunities. These examples can be multiplied to fit various agro-ecological niches in the 2 field sites. In addition, other socio economic activities are cross cutting and not listed here, e.g. bio-economic modeling and implementation of innovation platforms.

The outcome of Working Group 3 on capacity development priority needs during 2015 is reported in the following table:

Level of Capacity Development	**Activity**	**Country specific or regional**
Community	Multi Stakeholders Community of Practice at the Community Level: Sharing information's, Identifying needs, Including additional Partners, Planning, Reporting. Objective: Developing a clear Action Plan on Cap Dev Activities at the Community Level to be conducted under CRP DS	Jordan
	Innovation Platform Training course: Training on Innovation Platform for the different Facilitators selected from the different CRP DS Action sites	Regional
	Training on System Approach for Innovation platforms: Facilitators – Researchers – Extensions under ToT (Training of Trainers) format so they can then themselves train other stakeholders	Regional
Research and extension (cross-cutting)	ToT GENDER training course to researchers and extension staff in view of training them on what is the meaning of gender and how gender issues can be integrated into activities and to agriculture for development	Regional
	Gender Workshop to disseminate Survey Results to decision makers	Jordan
	Training course on OPEN ACCESS	Regional
Research and extension (specific technical topics)	ToT Training on Conservation Agriculture – Weed Control and Pest Management	Regional
	ToT Training on Integrated Crop Livestock System Approach	Regional
	Training on Natural Resource Management (special emphasis on water) and using the project targeting farmers under IFAD-ARMP2	Regional

Way forward

- Adoption of the minutes by ICARDA and NCARE scientists;
- Elaboration by multidisciplinary teams of integrated packages for the 2 sites with a clear linkage to outputs and IDO's, synergy with other CG centers and CRP's and incorporation of innovative science;
- Elaboration of a consolidated, quantified and timely-depicted work plan for 2015;

- Budget estimation for the implementation of the consolidated work plan;
- Preparation of the MoA between ICARDA and NCARE.