

# **Dryland Systems CRP Science and Implementation Meeting**



**Held on 30<sup>th</sup> June to 4<sup>th</sup> July 2014**

**At Holiday Inn - Amman, Jordan**



# Documentation of Dryland Systems CRP Science and implementation meeting

**This report documents the proceedings of the Dryland Systems CRP Science and implementation meeting that was held on June 30<sup>th</sup> to July 4<sup>th</sup> 2014 at the Holiday inn Amman, Jordan.**

**This report is not synthesised, but endeavours to capture the outputs of the meeting in a non-interpreted way. THIS DOCUMENTATION IS MEANT TO BE A REFERENCE DOCUMENT for participants and is intended to provide details of what transpired in the meeting. Almost all the discussions, results of the group works/table discussions and plenary sessions are documented with minimal modification.**

**Content of the report does not in any way reflect the position of PICOTEAM but is a compilation of participants' contributions.**

**Workshop Facilitation: Jürgen Hagmann and Documentation: Anita Msabeni  
Institute for People, Innovation, and Change in Organizations**



# Foreword by PICOTEAM

---

The first Dryland Systems Science and Implementation meeting was a rewarding and learning undertaking for PICOTEAM. The open, lively interactions and debate among participants particularly in the plenaries and working groups to thresh out in depth issues for the Drylands across the five target regions were motivating.

We would like to thank all the participants for their commitment and active participation through the five days of the meeting. We appreciate the chairs and rapporteurs of the group works and table discussions for going the extra mile to compile the outputs of their discussions. Similarly we thank the participants who agreed to be part of synthesis groups who put in extra time late in the evenings and early mornings to synthesize and bring some key outputs together to serve as a jump start for the discussions.

We express our gratitude to the process steering group who reflected with us every evening on the course of the workshop, on participant's impressions and concerns and guided on how to fit in the resulting necessary adaptations from day to day into the agenda.

We also acknowledge the assistance provided by ICARDA staff in ensuring all logistics were taken care of and supporting us during the facilitation of the workshop to make it a success, thank you! We are grateful to ICARDA for trusting us to facilitate the process of identifying critical issues facing Drylands CRP and requirements for getting ready for Phase II.

It was really a privilege to work with all of you and we wish you success as you take on the complex systems science approach in solving the challenges in the Drylands.

***Dr. Jürgen Hagmann and Anita Msabeni***  
***Institute for People, Innovation, and Change in Organization***





# Table of Contents

---

<b>1</b>	<b>OPENING AND SETTING THE SCENE .....</b>	<b>1</b>
1.1	INAUGURAL SESSION .....	1
1.1.1	<i>Welcome remarks by Maarten van Ginkel the DS Acting Director .....</i>	<i>1</i>
1.1.2	<i>Welcome remarks by Mahmoud Solh the Director General of ICARDA .....</i>	<i>1</i>
1.1.3	<i>Welcome remarks by John Lynam, the chair of ISAC .....</i>	<i>3</i>
1.1.4	<i>Welcome remarks by Richard Thomas the incoming director of DS CRP .....</i>	<i>4</i>
1.2	INTRODUCTION OF FACILITATION TEAM AND APPROACH .....	5
1.2.1	<i>Process steering group .....</i>	<i>5</i>
1.2.2	<i>Facilitation Principles .....</i>	<i>6</i>
1.3	GETTING TO KNOW EACH OTHER .....	9
1.4	WHO IS IN THE GROUP AND WHERE DO WE POSITION OURSELVES .....	12
1.4.1	<i>Participants' differentiation .....</i>	<i>12</i>
1.4.2	<i>Standpoint on provocative statements .....</i>	<i>15</i>
1.5	UNDERSTANDING AGENDA AND OUTLINE OF MEETING .....	19
1.5.1	<i>Objectives of the Workshop .....</i>	<i>19</i>
1.5.2	<i>Overview of the program .....</i>	<i>19</i>
1.5.3	<i>Invitation to Open space Discussions .....</i>	<i>20</i>
<b>2</b>	<b>GETTING A JOINT UNDERSTANDING OF THE CURRENT STATE OF IMPLEMENTATION OF DRYLANDS RESEARCH .....</b>	<b>21</b>
2.1	OVERVIEW AND HISTORY OF DRYLANDS SYSTEMS PROGRAM .....	21
2.2	IDENTIFICATION OF ISSUES AND CHALLENGES AT PROGRAM LEVEL .....	34
2.3	REGIONAL FLAGSHIPS: WEST AFRICAN SAHEL AND DRY SAVANNA .....	36
2.3.1	<i>ICRISAT On-going activities in WASDS .....</i>	<i>37</i>
2.3.2	<i>ILRI On-going activities in WASDS 2014 .....</i>	<i>40</i>
2.3.3	<i>ICRAF On-going activities in WASDS .....</i>	<i>41</i>
2.3.4	<i>ICARDA On-going activities in WASDS .....</i>	<i>46</i>
2.3.5	<i>CIP On-going activities in WASDS .....</i>	<i>48</i>
2.3.6	<i>OFSP in W. Africa through Diversified Markets .....</i>	<i>49</i>
2.3.7	<i>BIOVERSITY On-going activities in WASDS .....</i>	<i>51</i>
2.3.8	<i>IWMI On-going activities in WASDS .....</i>	<i>53</i>
2.4	REGIONAL FLAGSHIPS: EAST AND SOUTHERN AFRICA FLAGSHIP .....	56
2.4.1	<i>East and Southern Africa Flagship Action Sites .....</i>	<i>57</i>
2.4.2	<i>Main research questions .....</i>	<i>57</i>
2.4.3	<i>Tools and methods .....</i>	<i>58</i>
2.4.4	<i>Scale of operation .....</i>	<i>58</i>
2.4.5	<i>Collaboration frameworks and Partnerships .....</i>	<i>59</i>
2.4.6	<i>Key Achievements .....</i>	<i>59</i>
2.4.7	<i>Successes .....</i>	<i>60</i>
2.4.8	<i>Challenges .....</i>	<i>60</i>
2.4.9	<i>Areas for improvement .....</i>	<i>60</i>
2.4.10	<i>What would we do differently? .....</i>	<i>61</i>

2.5	REGIONAL FLAGSHIPS: CENTRAL ASIA AND THE CAUCASUS ONGOING ACTIVITIES AND FUTURE PROSPECTS .....	62
	<i>Background</i> .....	62
2.5.1	<i>Systems research agenda in Central Asia</i> .....	63
2.5.2	<i>Inception and implementation</i> .....	64
2.5.3	<i>Highlights of progress in Action Sites</i> .....	67
2.5.4	<i>Selection of Representative Research Areas in Action Sites</i> .....	73
2.5.5	<i>Perspectives</i> .....	73
2.6	REGIONAL FLAGSHIPS: SOUTH ASIA DRYLAND SYSTEM: PROGRESS, LESSONS AND CHALLENGES AHEAD .....	75
2.6.1	<i>Location and characteristics of the action sites</i> .....	75
2.6.2	<i>What do we want to achieve and research questions?</i> .....	75
2.6.3	<i>How we want to do this:</i> .....	76
2.6.4	<i>Synopsis of activities implemented and emerging issues</i> .....	77
2.6.5	<i>Successes and what did not work well</i> .....	80
2.6.6	<i>Biggest implementation challenges</i> .....	80
2.7	REGIONAL FLAGSHIPS: NORTH AFRICA AND WEST ASIA REGION ON-GOING ACTIVITIES AND FUTURE PROSPECTS .....	81
2.7.1	<i>NAWA FS challenges and opportunities</i> .....	81
2.7.2	<i>Goals to achieve through CRP-DS</i> .....	82
2.7.3	<i>NAWA FS action and satellite sites</i> .....	82
2.7.4	<i>Major Agricultural livelihoods (ALSs)</i> .....	82
2.7.5	<i>Research hypotheses</i> .....	83
2.7.6	<i>Working scale</i> .....	84
2.7.7	<i>Collaboration frameworks and partnerships working mechanisms</i> .....	85
2.7.8	<i>Highlight on major achievements</i> .....	85
2.7.9	<i>The inception phase</i> .....	97
2.8	REFLECTIONS ON LESSONS AND CRITICAL CHALLENGES FOR PROGRESS AND IMPACT ON DS PROGRAM .....	99
2.8.1	<i>What we can learn</i> .....	99
2.8.2	<i>Critical impediments/challenges for progress and impact</i> .....	101
2.9	REACHING AN EFFECTIVE AND EFFICIENT DS RESEARCH WITH IMPACT AT SCALE .....	106
2.9.1	<i>If you were to start again what would you do different to reach an efficient and effective systems research with impact at scale?</i> .....	106
2.9.2	<i>Looking at our goals, what needs to be done in the next year to have an integrated and coherent CRP? and how?</i> .....	108
2.9.3	<i>What do you require as services from the “central unit” to support you in the regions?</i> .....	110
<b>3</b>	<b>GROUNDING THE DISCUSSIONS: FIELD DAY</b> .....	<b>112</b>
3.1	IMPLEMENTED ACTIVITIES .....	112
3.2	IMPRESSIONS FROM THE FIELD .....	113
<b>4</b>	<b>EXPLORING CRITICAL THEMES TO THE SUCCESS OF DRYLANDS</b> .....	<b>116</b>
4.1	SCALING AND SCALE .....	117
4.2	PARTNERSHIPS .....	121
4.3	COMMON FRAMEWORK AND INTEGRATION .....	123
4.4	LEARNING ORIENTED M&E SYSTEM .....	125
<b>5</b>	<b>CONSOLIDATING THE ‘SYSTEMS APPROACH’</b> .....	<b>129</b>
5.1	REFLECTIONS ON A “SYSTEMS APPROACH” FOR DRYLANDS CRP .....	129

5.1.1	<i>Four Self-evident observations</i> .....	129
5.1.2	<i>A dynamic view of “Innovation systems”</i> .....	132
5.1.3	<i>What trends can we observe?</i> .....	135
5.1.4	<i>Some propositions for Drylands to consider in shaping a “systems approach”</i> .....	135
5.1.5	<i>Modelling and systems analysis tools</i> .....	137
5.2	INJECTING SYSTEMS METHODS INTO DRYLANDS SYSTEMS.....	140
<b>6</b>	<b>CREATING A COMMON RESEARCH AND COLLABORATION FRAMEWORK AT PROGRAMME LEVEL, ACROSS REGIONS AND INITIATIVES.....</b>	<b>143</b>
6.1	TOWARDS SYSTEMIC RESEARCH QUESTIONS .....	143
6.2	SYNTHESIS OF RESEARCH QUESTIONS INTO BROAD CLEAR OVERARCHING GOALS .....	147
6.3	INTEGRATING LEARNING INTO THE REGIONAL FLAGSHIPS .....	150
6.3.1	<i>Central Asia flagship project</i> .....	151
6.3.2	<i>Eastern and Southern Africa flagship</i> .....	156
6.3.3	<i>NA and WA Flagship</i> .....	157
6.3.4	<i>WAS&amp;DS Flagship</i> .....	159
6.3.5	<i>South Asia Flagship</i> .....	162
<b>7</b>	<b>CROSS-CUTTING THEMES .....</b>	<b>165</b>
7.1	IMPLEMENTING GENDER MAINSTREAMING IN THE DS CGIAR RESEARCH PROGRAM .....	165
7.2	SHIFTING THE GOAL POST – FROM HIGH IMPACT JOURNALS TO HIGH IMPACT DATA .....	173
7.3	EMERGING ISSUES .....	178
7.3.1	<i>New technologies – attracting youth into agriculture and creating jobs</i> .....	178
7.3.2	<i>Out scaling CGIAR legacy innovations with private sector</i> .....	182
7.3.3	<i>Data and information management</i> .....	183
7.3.4	<i>Innovation platforms/out scaling</i> .....	184
7.3.5	<i>Synthesis research</i> .....	185
<b>8</b>	<b>PREPARATION FOR PHASE II.....</b>	<b>188</b>
8.1	REQUIREMENTS FOR PHASE II .....	188
8.2	WAY FORWARD .....	191
<b>9</b>	<b>WRAP UP.....</b>	<b>194</b>
9.1	WORKSHOP EVALUATION.....	194
9.1.1	<i>What participants liked about the meeting</i> .....	194
9.1.2	<i>What participants feel could have been better</i> .....	195
9.1.3	<i>If we want to make this program a great success, the new director needs to:</i> .....	196
9.2	CLOSING REMARKS.....	196
<b>10</b>	<b>ANNEXES .....</b>	<b>200</b>
10.1	LIST OF PARTICIPANTS .....	200
10.2	OPEN SPACE DISCUSSIONS.....	202

# List of Abbreviations and Acronyms

---

<b>ALS</b>	Agricultural Livelihood Systems
<b>ARD</b>	Agricultural Research for Development
<b>ARI</b>	Advanced Research Institute
<b>CA</b>	Conservation Agriculture
<b>CAC</b>	Central Asia and the Caucasus
<b>CACILM</b>	Central Asian Countries Initiative for Land Management
<b>CARI</b>	Central Arid Research Institute
<b>CB</b>	Consortium Board (of the CGIAR)
<b>CG</b>	Abbreviation of CGIAR
<b>CGIAR</b>	Consultative Group on International Agricultural Research
<b>CIAT</b>	Centro Internacional de Agricultura Tropical
<b>CIP</b>	Centro Internacional de la Papa
<b>CRP</b>	CGIAR Research Programme
<b>DS</b>	Dryland Systems
<b>ESA</b>	East and Southern Africa
<b>EWS</b>	Early Warning Systems
<b>FP</b>	Flagship Projects
<b>GRS</b>	Global Research System
<b>ICARDA</b>	International Center for Agricultural Research in the Dry Areas
<b>ICRAF</b>	World Agroforestry Centre
<b>ICRISAT</b>	International Crops Research Institute for the Semi-Arid Tropics
<b>IDO</b>	Intermediate Development Outcomes
<b>ILRI</b>	International Livestock Research Institute
<b>IP</b>	Innovation Platforms
<b>ISAC</b>	Independent Science and Advisory Committee
<b>ISPC</b>	Independent Science and Partnerships Council
<b>IWMI</b>	International Water Management Institute
<b>NARC</b>	National Agricultural Research Center
<b>NARES</b>	National Agricultural Research and Extension Systems
<b>NAWA</b>	North Africa and West Africa
<b>NCARE</b>	National Center for Agricultural Research and Extension (Jordan)
<b>NRM</b>	Natural Resource Management
<b>POWB</b>	Plan of Work and Budget
<b>R4D</b>	Research for Development
<b>SA</b>	South Asia
<b>SLOs</b>	System Level Outcomes
<b>SRF</b>	Strategic and Results Framework
<b>SSA-CP</b>	CGIAR Sub-Saharan Africa Challenge Program

<b>ToC</b>	Theory of Change
<b>WANA</b>	West Asia and North Africa
<b>WASDS</b>	West African Sahel and Dry Savannas



# Executive Summary

---

## Preamble

The Dryland Systems program aims to improve food security for the rural poor, protect the natural resource base, and empower small-scale farmers and pastoralists in dry areas, which are home to 2.5 billion people and where poverty, hunger, and environmental degradation are widespread. DS Researchers pursue new technological, institutional and policy options for enhancing productivity and managing risks through diversification, sustainable intensification, and integrated agro-ecosystem approaches. The program also studies and tests technologies that have the potential to be scaled-up to help cope with climate change. ICARDA is the lead center working in partnership with ICRISAT, Bioversity International, CIAT, CIP, WorldFish Center, ILRI, IWMI and SSA-CP.

## Workshop Objectives

The meeting was recommended by ISAC so as to address the issues raised in the reflection report – the weaknesses and gaps identified during the first year of implementation, as well as other arising issues. The specific objectives of the meeting were to:

1. Critically review progress to date -both strengths and weaknesses- in the DS CRP against the higher level objectives embedded in the TOC and IDOs.
2. Identify impediments to more rapid progress towards CRP objectives and propose solutions towards greater impact in the balance of phase 1 and as a basis for a strong case for a phase 2.
3. Develop an "Action Plan" for presentation to Steering Committee and ultimately to inform interactions with the Consortium Office.

This would inform the priorities of the incoming Director and the Steering Committee's considerations on CRP goals for the next three years.

## Proceedings

The history and results of the last extension proposal workshop were provided giving an overview of high level objectives for the CRP; IDOs and ALS within and across target region flagship projects. Also described was the potential of systems research and key elements of the CRP strategy. This paved way for discussion and identification of issues and challenges at program level.

The five regions/flagship projects – WASDS, NAWA, ESA, CA and SA gave highlights of their ongoing activities in each research phase and how to reach IDOs moving along the phases. These presentations enabled participants to have a picture of the current status of DS and thus distinguish the elements needed for writing the phase II proposal, and what the priority gaps that need to be filled are. From the FP presentations participants' reflected on lessons and critical challenges for progress and impact on DS program. They also identified ways on how to attain effective and efficient DS research with impact at scale by enumerating what they would do differently as well as what needs to be done in the next year to have an integrated and coherent CRP.

A field visit was organized on the third day to El-Karak field site where DS CRP activities are implemented in two Villages - Eraq and El khreisha. Participants had an opportunity to get the picture of the DS realities and challenges when they observed the sheep milk processing and Awassi sheep flock at khreisha. Water harvesting, tending of olive orchards and small scale family farming were witnessed at Eraq.

Participants further prodded the challenges to assess how such work is best designed, organized, and coordinated based on four recurrent themes - partnerships, scaling and scale, learning oriented M&E system and common framework and integration.

A presentation on Systems approach to enlighten participants on what it consists of and exactly how they might use it was shared as a prelude to creating common research and collaboration framework. Participants defined potential systemic research questions for research within Drylands. Afterward they discussed how to integrate the learning into the regional flagships –

what needs to change until 2016, how to operationalize these changes and what are the critical capacity or implementation gaps.

Two cross cutting themes i.e. gender mainstreaming and data and information management were presented. Other emerging themes that support foundational work on system science of dryland households within the CRP were discussed - new technologies for attracting youth and creating employment, innovation platforms/scaling and outscaling CGIAR legacy innovations with private sector.

To help participants plan for the next phase and identify key elements to strengthen the scientific foundation of the CRP a presentation on requirements for phase II was given. Thereafter wrap-up and way forward discussions followed. Urgent issues for the next six months include: operationalizing a coherent systems approach and operational structure, concretizing synthesis research, relationships with other CRPs, Communication ("image") and capacity/implementation support as key for phase II preparation.



**Participants of the Dryland Systems Science and Implementation Meeting**

# 1 Opening and Setting the Scene

*This session was intended to create an atmosphere for open, lively interaction and debate among participants in a least formal way for the five days of the meeting. Introductory remarks were conveyed; participants introduced themselves and expressed their expectations of the meeting. The objectives of the meeting as well as an overview of the programme were also provided. Core values and ground rules for operating during the meeting were shared and agreed on by participants.*

## 1.1 Inaugural Session

### 1.1.1 Welcome remarks by Maarten van Ginkel the DS Acting Director

Acknowledging the familiar faces in the meeting, he explained his task was to introduce the speakers of the session. He thanked all for their contribution to the plan of work for 2014, annual report, the 10<sup>th</sup> proposal workshop process and the technical proposal despite their busy desks. He introduced Mahmoud Solh and John Lynam members of ISAC, Richard Thomas and Jürgen Hagmann the process facilitator.



### 1.1.2 Welcome remarks by Mahmoud Solh the Director General of ICARDA

He recognized Dr. Jürgen Hagmann and members of ISAC of the DS program as well as distinguished representatives and partners of national programs and sister CG centers, private sector institutions and civil societies. He welcomed all to the meeting and reminded that the DS program aims at improving food security for approximately 2.5 billion rural poor people, protect natural resources and empower small-scale farmers and pastoralists in dry areas which face



numerous serious challenges. Mahmoud particularly thanked the chair and members of ISAC for recommending the meeting which comes after the reflection report which identified weaknesses and gaps to be addressed after the first year of implementation so as to ensure the program is moving in the right direction towards achieving its objectives and harmonize implementation in the five regions.

Mahmoud informed the objectives of the meeting as threefold i.e. to critically review progress in the DS CRP, to identify obstacles to quick progress towards



CRP objectives and propose solutions towards greater impact and to develop an "Action Plan" for presentation to Steering Committee and ultimately inform interactions with the consortium office.

Mahmoud expressed that experiences by ICARDA and other institutions of the systems approach show within the Drylands showed there is not one model that can successfully solve the problems in Drylands. Rather a combination of several factors i.e. NRM approaches, livestock genetic improvement, socio-economic consideration as well as enabling policy environment and institutional support is important in addressing the challenges of Drylands. He therefore emphasized on the need for an integrated approach in solving the problems of small scale farmers. Researchers, decision makers, farmers, civil societies, and private partners as well as development partners have to work together to address the Drylands challenges.

Therefore the traditional research focusing on a particular community or system component has largely failed over time and therefore the challenge for the DS program is how to bring everything together. The best innovation from the CRPs is the systems approach.

He thanked all for attending the meeting and pointed out that it would be an informal meeting so as to bring together the thinking on implementation of the challenging program.

He concluded by thanking John Lynam, the chair of ISAC, and the members of ISAC as well as colleagues of national programs who are the actual implementers of the program. He also

thanked all partners of the CG program and all other partners involved in the DS. He thanked members of the steering committee of the program; they discussed the reflection report and concluded that it was important to hold the meeting. He thanked Maarten for leading the DS CRP and his team for ensuring the meeting is successful. He gave a warm welcome Dr. Richard Thomas the incoming director of DS CRP. He finally wished all successful deliberations for the next few days of the meeting.

### **1.1.3 Welcome remarks by John Lynam, the chair of ISAC**

In his remarks John focused on three principle issues: first the systems program within the national SRF and expressed that this was the innovative thinking that he expects to be promoted in the meeting. The systems' thinking was discussed by the DGs and center chairs in June during the Montpellier meeting where there was unanimous support for the systems program. Issues that came up on systems thinking were geography, what does CG need to do in order to bring the systems approach to fruition, how to think and define systems



approach. Is systems approach research a fall back to farming systems research or the exploration of new areas which have come under the banner of sustainable intensification? How will systems research be conceptualized and implemented within Drylands? How will systems thinking be contextualized within the DS program? John urged participants to ensure all these issues underlined the discussions in the next five days of the meeting.

John also brought out the question on how to think of systems program from the commodity and natural resource management perspectives. How does Drylands link back to the commodity and NRM programs, and draw from the breeding programs, soil research, and water research and integrate them into a systems approach within the geographies DS works?

The second issue John highlighted was phase II - preparations for getting ready would start in earnest in 2015 with the objective being to be organized by January 2017. It would be important to focus on what the **value added** of “systems approach” will be in phase II. Structural design issues around the five regions where the DS program is working need to be conceptualized. How to unite the five programs under the DS umbrella (Drylands CRP). He informed the consortium office has raised the bars for evaluation and approval of the proposals by the CRPs where there will be particular attention on the quality and coherence of the research programs.

Thirdly, John raised the issue of research agenda. He informed that currently there is a complex research agenda across the five regions for the DS, yet there is need to scale down to a core research agenda that would cut across the five regions and give the DS a research identity.

#### **1.1.4 Welcome remarks by Richard Thomas the incoming director of DS CRP**

Richard warmly welcomed all to Amman. He informed that he is winding up at the United Nations University but has spent close to 19 years with CGIAR. He started off at CIAT in various activities, and then moved on to ICARDA. Thereafter he went to the UN systems where he looked at how to address the bottlenecks in getting the implementation of research on the ground.

Richard revealed that he was going to be keenly listening and see how to agree on the why, refocus on what we are going to do, how



to do it. He reiterated the urgent need to consolidate and refine the outputs and outcomes as well as the impacts of the program. Impact from three different aspects i.e. the efforts of knowledge management and dissemination: how to improve the political institutions market site and impact on agricultural livelihood systems.

He reminded of the simple challenges of transiting to the 2<sup>nd</sup> phase. He informed that in the next phase focus will not be on impact of the programs but on how well the research processes have been designed to meet the objectives and demands of the funders and beneficiaries.



## **1.2 Introduction of facilitation team and approach**

After the welcoming remarks Maarten invited Dr. Jürgen Hagmann to take over the facilitation of meeting.

Jürgen welcomed all to the meeting and indicated he was happy to facilitate the meeting as he is interested in what the team is doing, has been involved for a long time and would like to see the progress made. He was also happy to meet with longtime friends whom he has interacted with at the CGIAR. Jürgen informed participants he is based in South Africa and Kenya, working with PICOTEAM (Institute for People Innovation and Change in Organizations) a group that is within eastern and southern Africa as well as Latin America comprised of professionals in change management, facilitation and coaching, and organizational development. PICOTEAM has wide experience in the fields of agricultural research, extension, rural development, reform processes with ministries, public sector and the private sector.

### **1.2.1 Process steering group**

Jürgen indicated that he is not alone in driving the meeting, but was with the Process Steering Group (PSG) that helps to co-manage the meeting in a way to help meet the objectives. The PSG is constituted of a cross-section of the organizers, participants and stakeholders who represent

the whole group well. They pick perspectives from the participants over tea break, lunch break and other interactions and bring back to the group in the evening when they look at what went well, what did not go well and what should be done differently the next day. This process-oriented procedure allows the participants to take an active role in co-creation of the process, responsibility for the success of the workshop and ownership of the outcomes.

It is an adaptive way of managing the meeting so as to keep it relevant and actively take on the emerging issues. Through this procedure it is possible to harness the best energy of the group and be focused but flexible to accommodate the interests of the participants as best as possible. The programme will provide room for flexibility and will not be rigid.

#### Process steering group

A mechanism for co-management of the meeting by participants

#### Task:

- ☐ To obtain feedback from participants on workshop process and contents
- ☐ To plan with the facilitator in the evening

#### Members:

Maarten	John	Enrico
PollyAntony	Jan	Richard

## 1.2.2 Facilitation Principles

Jürgen presented to the participants core values for facilitation and interaction as well rules for table groups that would ensure the meeting atmosphere was interactive.

### Core values in facilitation:

**Informality (relaxed atmosphere with discipline)** – we want a relaxed atmosphere but with discipline. We begin by getting rid of our titles – therefore no professors, doctors, excellences, ambassadors and call each other by preferred names. It also means no hierarchy as we are here to share and





learn together. When one is tired and energy levels are going down, they are free to pick a cup of coffee or even stand as long as they do not make noise or disturb the rest of the group.

**Inclusiveness (no hierarchy)** – we want everybody to participate actively. That is why we sit around the tables as we will have a lot of discussions.

**Openness and transparency**- when reviewing things it is important to share what works, but also what does not work as these are the issues we are trying to solve. Sometimes we can learn more from failures than from successes. He encouraged the participants to share their different ideas so that progress can be made towards the next phase.

**Appreciate the difference in thinking** – there are many perspectives in the DS and the regions are also doing different things, he encouraged participants to appreciate the different contexts and projects. While efforts will be put to make it more coherent, let us explore the different views rather than one sided thinking and the “difference” remains all the same.

**Think for the whole (not your niche)** – while we are one program some people feel its five separate things which are difficult to come together. Jürgen encouraged the participants to think as a program and noted that transition to phase II requires the thinking as one program and not five different programs.

**No defensiveness** - Jürgen encouraged the participants to challenge each other and urged participants not to be defensive. Instead listen, let it sink in and ask yourself why they are criticizing. There could be a point to be considered or sometimes the phrasing of the issue may not communicate the message effectively.

**No Jargon**- Jürgen noted that the language in the DS is full of abbreviations and noted that there is even a 3 paged list of abbreviations provided to the participants. He therefore urged participants to strive to avoid the use of abbreviations as not everyone understands them but use simple language that will help everyone understand the discussions.

**Accepting reality** – the contexts are different and the realities also different therefore it is important to accept them as they are and this will help to build from them and hence move forward faster noting that we are coming from a programmatic background.

**Pragmatism** – we are trying to develop a science agenda and bring coherence into the DS activities, however we need to be realistic on what we can do, and these should be exciting and responding to the realities in our contexts.

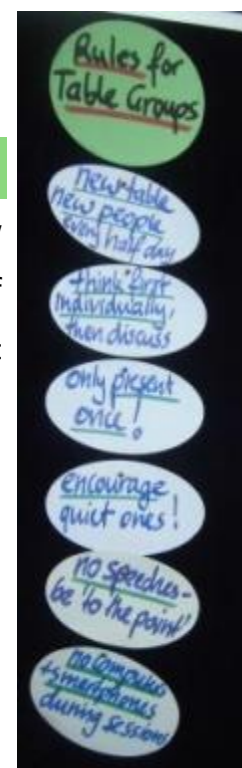
**Constructive controversy** - controversy brings out a lot of creativity – therefore let us have controversy which should be constructive in a forward looking perspective, not blame games and criticizing for the sake of it. Controversy is the real source of creativity and innovation.

**Creativity-thinking out of the box-** not only focusing on discussions within log frames, IDOs etc. but also bring out exciting ideas, what can be done differently and better. Challenge each other to think outside the box.

**Honesty and Political incorrectness** – call a spade a spade, we are one group and one project, and there are no politicians in the group. Let us bring out the issues even if they are not pleasant, put them in a constructive manner so that we can deal with them and move forward.

#### Rules for interaction at tables are:

**New table with new people every half day.** After lunch and on each new day, sit at a different table with new/different people. After the five days of the meeting we should have talked to everyone and explored their different ideas. Another benefit is networking.



**Think first individually, then discuss.** When given a task think first individually for two to three minutes, write down some notes of your thoughts then discuss. This enriches the ideas for discussions and avoids the group being stuck on only one idea.

**Only present once** - each time there should be a different person present the outputs of the group discussions, this helps to make the meeting more inclusive and interesting.

**Encourage the quiet ones** – some cultures are very fast others slow therefore if somebody doesn't speak out so openly encourage them to share their views by simply asking them what they think. Sometimes very good ideas come from the quiet ones.

**No speeches, be to the point.** In two minutes one should be able to say what they want to say. If you take ten minutes to present you deny four or five other people to express their ideas. Keep your contributions short and clear and to the point.

**No computers and smart phones during sessions** - we have the luxury of being in the meeting face to face. The justification for spending huge resource to facilitate face to face meetings is the richness and depth of thinking, very good concentration and dialogue. Therefore when we do emails on the side during the meeting we lose 90% of the participants' concentration getting only 10% of their attention. Multi-tasking affects the dialogue we want to engage in the meeting. Let us use the breaks for our emails.

## 1.3 Getting to know each other

To help participants to know each better and create an atmosphere for free interaction, Jürgen requested them to sit at the tables with people whom they do not work with every day or do not know very well. He indicated that there should

### Participants' introductions

1. Make sure you sit at a table with people you don't know well
2. Find out from each other:
  - a. Who you are and where your roots are
  - b. What were the major highlights in your personal and professional life in the past year?
  - c. If you were the director of the CRP and you wanted fast progress and impact, what would be the key thing you would do?

15 minutes

3. Expectations and fears (3 cards/question)
  - a. What **should** happen in this meeting.....
  - b. What **should NOT** happen here.....

5 minutes

not be more than two people from the same region and institution. He asked the participants to follow the guidelines in the Box to introduce themselves.

The participants introduced themselves in their tables according to the task given and at the end of the session agreed on the expectation from the workshop.

### Participants gave the following as what should happen during the meeting

<ul style="list-style-type: none"> <li>• Clear outcomes with next steps</li> <li>• Logical action plan prioritized and developed</li> </ul>
<ul style="list-style-type: none"> <li>• Lessons learnt so far</li> <li>• Improve implementation of current phase</li> </ul>
<ul style="list-style-type: none"> <li>• Common learning and common approaches across regions</li> <li>• Very clear common understanding of what "systems" means and HOW to do it</li> <li>• Develop a common understanding of the system approach</li> <li>• Understand/define system approach, especially NARS and ICARDA</li> <li>• Develop common methodologies</li> <li>• Develop a dialectic approach, taking advantage of experience in action sites</li> </ul>
<ul style="list-style-type: none"> <li>• Focus on science</li> <li>• Sharpen the focus</li> <li>• Focus on system approach</li> <li>• What is the science that links the 5 regions</li> </ul>
<ul style="list-style-type: none"> <li>• Programme building</li> <li>• Clear vision for CRP-DS 2020/25</li> </ul>
<ul style="list-style-type: none"> <li>• A plan for knowledge exchange</li> </ul>
<ul style="list-style-type: none"> <li>• Better interaction between centers</li> <li>• To clarify role of all stakeholders</li> <li>• Must strengthen partnerships</li> </ul>

- New, creative ideas and approaches on systems research
- Make resources work for development - reflect on role of research for development
- Integrate socio economic issues as part of the livelihood systems
- Integrate development and research activities

### Participants gave the following as what should not happen during the meeting

- Business as usual
- Unclear action plan
- Continue with ad hoc approach
- Working as individual institutes
- Avoid being tied up by former concepts
- Should not forget about our TARGET – farmers
- Thinking as WE/not me
- Complex but not complicated
- Business as usual – lack of challenges
- More confusion
- Poor energy
- Focusing on centers' agendas
- Focusing on donors agendas
- Do dispersion of ideas
- No "logframe", no budgets, no administration!
- Too complicatedness





- Theoretical discussion about systems approach



## 1.4 WHO is in the GROUP and WHERE do we POSITION ourselves

Jürgen asked the participants to an open space at the back of the meeting room for an exercise to explore who is represented and how this may have implications on the discussions. Participants positioned themselves according to the categories that the facilitator read to the group.

### 1.4.1 Participants' differentiation

#### Regional representation

Region	No of reps	Comments and implications to the meeting
WASDS	7	<ul style="list-style-type: none"> <li>• The south Asia team is under represented</li> <li>• The global team comprised of people working across the regions in the program as well as general support.</li> </ul>
North Africa and West Asia	11	
ESA	7	
CA	6	
South Asia	4	
Global	14	



### CG centers and partners

	No of reps	
CG centers	34	ICARDA - 25 representatives (majority) CIP ICRISAT Bioversity ICRAF ILRI IWMI CIAT
Partners	16	6 NARES representatives (Tunisia, Morocco, Nigeria, Burkina Faso and Tajikistan) Members if ISAC Sub-regional organizations representatives

### Comments and implications to the meeting

- The participants of each group (NARES, Partners and CG centers) were encouraged to ensure they are well represented in each of the tables and avoid sitting together.

- The participants were asked to bring out the strengths of their disciplines and field experience across the regions to enrich the discussions
- Participants were to apply the systems thinking approach rather than institutions perspectives.
- With regards to discussions on implementation, participants were urged to listen more the NARES and partners
- ICARDA participants were also requested to ensure they do not dominate tables in terms of numbers and views.



### Period involved in program

Length of time	Number of participants
Involved since proposal writing and beginning of program (Veterans)	11
Joined halfway	About 29 participants (majority)
Joined recently (less than half year)	12

### Comments and implications to the meeting

- Program started in February 2010
- The veterans were urged to give the history where necessary so that the new people can understand where it all started from and what the vision was, what the science agenda was.
- Those who joined later were urged to read and understand the "big" proposal and seek clarifications where things are not clear.
- Things are changing e.g. the IDOs have changed and the change is exciting
- The program has established good collaborations and partnerships





### 1.4.2 Standpoint on provocative statements

Jürgen used some provocative statements as a means of initiating debate on some issues related to the program. The statements were read one at a time, and participants were asked to position themselves (take a standpoint) in terms of whether she/he (I disagree completely; I disagree a bit; I am in between/don't know; I agree a bit; or I fully agree). This exercise was used to explore the diversity of opinions and to set the basis for open discussions throughout the entire meeting.

#### **Statement 1: our science agenda is more driven by centers and scientists interests than by the problem we are trying to solve**

**I disagree completely:** (2 participants) – most of the scientists focus on the problem and are trying to come up with solutions to the problems, not personal interests.

**I disagree a bit:** (15 participants) – parts of the interests of the collaborators are met by the science agenda not only of the CGs or scientists. Additionally the agendas of the CGs are driven by the challenges in the Drylands. There have been lots of engagements, feedback and communication among the stakeholders in the Drylands during the process and therefore concerns are from wide sources not just scientists/centers. At the implementation phase the NARS have been fully engaged in identifying the problems, therefore the scientists interest on one hand are there, but in tackling the problems in the Drylands.

**I agree a bit:** (21 participants) – for some of the CGs the issue of resources is key, if you don't publish then you are out as compared to the NARS whose funding is from governments, national institutions and few partners and therefore they are committed to solving the local

problems. On the other hand most meetings have been about planning, administration and talking about the common agenda. Instead the meetings should be about what we want to do in the five regions (what problems do we want to solve) then planning and administration should follow thereafter. Most of the times the focus is on what the donor wants and not what are at the heart of scientists/CG aspirations or the needs of the poor on the ground. Balancing research and development sometimes is difficult. Most of the activities being carried out are not systems oriented and are therefore not achieving the intended objective of providing solutions to those in the Drylands. Sadly there is also inertia in research itself and there is need to shake things up for the systems approach to succeed. At times research may not necessarily be the solution and may require other interventions.

**I am in between/don't know:** (11 participants) – being in the transitional period and the current inertia two things must be considered: some centers and regional programs research is organized on thematic approach rather than a systems approach, so scientists are driving their research based on what they have been doing before going into the integration (systems approach). Furthermore within some CGs and CRPs the budget is put through activities which are usually on thematic basis. "Money drives the agenda".

*Seems the systems is not giving the scientists the incentive to work – it is uncomfortable, has not been tried and scientists are afraid to try it out. But then again who are we working for – in our hearts we are working for the poor farmers but in our heads we have to work for the funders. We should also analyze the problems further so as to know which specific disciplines are required and at what stage - this will help to execute the systems approach.*



**Statement 2: systems science is too complex, we ran a big risk as we will stay a bit at a descriptive level - describing things is too complex**



**I fully agree:** (1 participant) – scientists are generally very focused on disciplines and unable to cross over to other fields. Scientists don't have a common language to speak across disciplines causing misunderstanding when trying to put the program together. If it were "*simple*" we should have already been doing it as we all know what a farm is and the complexities of farm production, yet we are not already operating in the systems approach which signifies there is an obstacle.

**I agree a bit:** (15 participants) – there is need to have a clear understanding of the systems approach and have all people on the same page. It is about the benefits that can be arrived at from the integration and interaction of both crops and livestock and this takes a long time to be realized (system impact). Therefore we might still stay at the descriptive stage. We are not prepared yet to address the complexities of systems – at CG centers and at NARS, because we have not fully transited from the thematic focus. CG centers and NARS are not adequately prepared to deal with the systems complexities yet.

**I disagree completely:** (16 participants) – scientific processes mix observations, experimentation, and analysis to enrich experimentation. Through this the complexities of systems can be tackled. Addressing complexities is a choice – and we should be positive and ready to think under the systems approach. There are many tools and methodologies to use in the systems approach. Systems approach is a comprehensive bottom up approach that really helps to analyze complexities better e.g. in a production system. The fear is that there is no *science* in systems thinking – but in reality the system comes before the science. Systems approach helps to bring together science and the broader context (links research and development) e.g. the feminization of agriculture in many areas and this is of great implication to scientists as the target/audience is increasingly becoming feminine.

The main problem is there is too much reservation and trying to be academic on the systems approach – trying to fully understand before doing anything. We should therefore be pragmatic, see what works and how to improve. Move out of the comfort zone.

**I am in between/don't know:** (11 participants) – we have been simplifying the production systems which are not really single systems in reality they are several systems e.g. rangeland livestock systems. System approach implies tradeoffs, and right capturing of the tradeoffs is an essential element for the success of the systems approach. Site specificity may limit the interventions of the systems approach.



**Statement 3: If we want to succeed with this program we all need to work in the action sites otherwise we will have piecemeal results at the end.**

**I disagree completely:** – the last phase is out scaling which requires moving out of your site to other similar areas in different regions and carrying similarity mapping. The ability to work at the action sites is determined by other factors including federal, organizational among many others.

**I fully agree:** – mapping of action sites at the labs we can tolerate failures and we strive to correct these failures and achieve success therefore we scale out success not failures. Laboratories are action sites/learning sites and here several partners and centers can work together.

**I agree a bit:** – agree so long as there are clear guidelines and criteria for selection of the action sites. The action sites should be representative of a bigger area and not restrictive in its

character. We need to focus at the field sites where farmers' livelihoods are determined rather than at the action sites.

**I disagree a bit:** -it's important to work on the action sites to develop the procedures, processes, innovations and systems platforms. But what is the unit of analysis for the production system research

## 1.5 Understanding agenda and outline of meeting

Jürgen presented the anticipated outputs of the workshop and the program overview as discussed and agreed upon by the process steering group in the previous day.

### 1.5.1 Objectives of the Workshop

Specific objectives of the meeting are:

- ☐ To critically review progress to date
- ☐ To identify impediments for progress and solutions - as a base for phase II
- ☐ To develop and action plan

Generally, participants agreed the workshop objectives were in line with their expectations.

### 1.5.2 Overview of the program

	Monday 30 <sup>th</sup> June 2014	Tuesday 1 <sup>st</sup> July 2014	Wednesday 2 <sup>nd</sup> July 2014	Thursday 3 <sup>rd</sup> July 2014	Friday 4 <sup>th</sup> July 2014
8 <sup>30</sup> <b>Session 1</b> 10 <sup>30</sup>	Opening Setting scene	Regions presentations	Field trip	Scientific foundation	Cross cutting issues Groups
11 <sup>00</sup> <b>Session 2</b> 13 <sup>00</sup>	Overview and history discussions	Regions presentations challenges		Towards common research framework	Action planning
14:00 <b>Session 3</b> 15:30	Regions presentations	Group work on challenges		Group work: regions	Wrap up Next steps Evaluation
16 <sup>00</sup>	Regions	Group work on		Group work:	Closing

<b>Session 4</b> <b>17:30</b>	presentations	challenges		regions	
<b>Evening</b>			Dinner		

Jürgen emphasized the programme will be flexible and adaptive to accommodate the interests of the group and to make maximum use of the time and energy of the participants. The process steering group will look at what the meeting wants to achieve and accommodate concerns that will help reach the objective of the meeting.



### 1.5.3 Invitation to Open space Discussions

Jürgen introduced the idea of the open session to the participants. He invited the participants who had something interesting they like to share but cannot present in the main plenary and does not fit in the agenda and mainstream programme; they can convene a discussion group or session outside the formal programme for interaction. These sessions will be self-organized and conducted / facilitated by the interested parties.



## 2 Getting a joint understanding of the current state of implementation of Drylands research

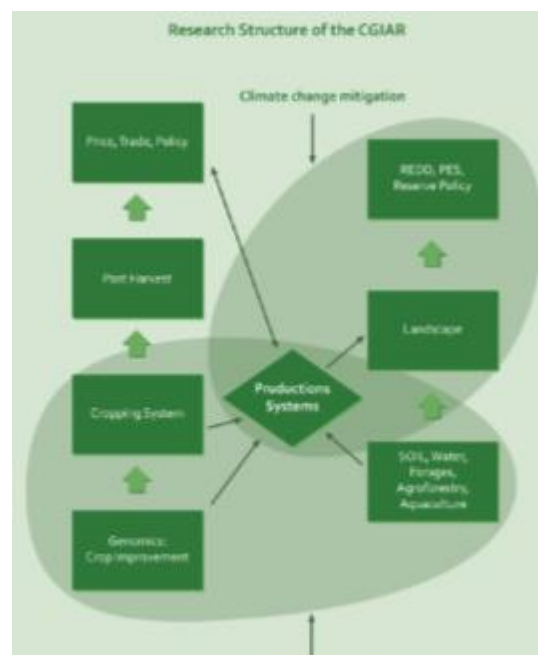
This session is aimed at providing a common understanding of the current state of implementation of Drylands research across the five regions so as to provide a baseline for planning of future work. An overview, history and results of the last extension proposal were provided as well as the high level objectives (ToC, IDOs, ALS) for the CRP within and across target region flagship project; the potential of systems research and key elements of the CRP strategy. Thereafter the regions presented ongoing activities in each research phase and how to reach IDOs moving along the phases.

### 2.1 Overview and history of Drylands Systems Program

**Presentation by Paul Vlek**

#### **Strategic and Results Framework**

1. The SRF (CGIAR 2011) advocates new areas of core competency to achieve impact in four SLOs.
  - One is development of core competency in the area of “production systems”. This will test the ability of the system to undertake inter-center research
2. Systems research will integrate commodity, natural resource management and policy research to improve productivity and livelihoods in a sustainable manner at the national and regional level



Integration of new core competencies into the existing

3. SRF to be rewritten by Consortium Office Working Group, of which ICARDA is a member

### CGIAR System Level Outcomes

- Reduced rural poverty;
- Improved food security;
- Better nutrition and health;
- Sustainable management of natural resources.

### Systems Program Development

Overall objectives: Sustainably improve wellbeing of dryland farming communities

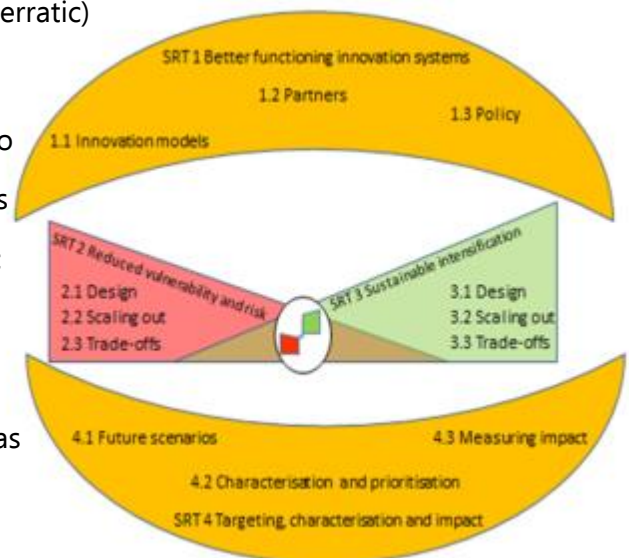
- **Where are those communities:** 5 corners of the world
- **What is the problem:** Very diverse. System failure... Still looking for common ground
- **What is the approach to solve the problem:** TOC with phases – SRTs
- **Who is involved:** partnership

### Problems in the Dry Areas = Fragile Eco-systems:

- Physical water scarcity
- Rapid natural resource degradation and desertification
- Groundwater depletion
- Drought
- Climate change will make it drier (or more erratic)

### Prominent Features of Drylands

They cover 41% of the earth's surface, are home to over 2.5 billion people and the majority of the world's poor. About 16% of the population lives in chronic poverty. Age distribution is skewed towards youth. Urbanization, unemployment, rising food prices and political unrest. 93% of malnourished live in dry areas as well as disempowered women.





## Drylands Systems

Dryland Systems targets the poor and highly vulnerable populations of dry areas in developing countries and the agricultural systems on which they depend. The interpretation of agricultural systems was seen as too confining à agricultural livelihood systems.

## Conceptual Research Framework

- SRT2: Reducing vulnerability and managing risk
- SRT3: Sustainable intensification for more productive, profitable and diversified dryland agriculture with well-established linkages to markets

Strategic Research Theme	Output
<b>Approaches and models for strengthening innovation systems, building stakeholder innovation capacity, and linking knowledge to policy action</b>	Approaches and models for strengthening innovation systems, building stakeholder innovation capacity, and linking knowledge to policy action
	Enhanced capacity for innovation and effective participation in collaborative "IAR4D" processes
	Strategies for effectively linking research to policy action in a dryland context.
<b>Reducing vulnerability and managing risk through increased resilience</b>	Combinations of institutional, biophysical and management options for reducing vulnerability designed and developed
	Options for reducing vulnerability and mitigating risk scaled-up and -out within regions
	Trade-offs amongst options for reducing vulnerability and mitigating risk analyzed (within regions). Knowledge-based systems developed for customizing options to sites and circumstances
<b>Sustainable intensification for more productive, profitable and diversified dryland agriculture with well-established linkages to markets</b>	Sustainable intensification options designed and developed
	Sustainable intensification options out-scaled
	Trade-offs amongst sustainable intensification and diversification options analyzed and knowledge-based systems developed for customizing options to sites and circumstances
<b>Measuring impacts and cross-regional synthesis</b>	Future scenarios and priority setting
	Livelihood and ecosystem characterization.
	Across-region synthesis of lessons learnt from SRTs 2 and 3
	Program impacts measured.

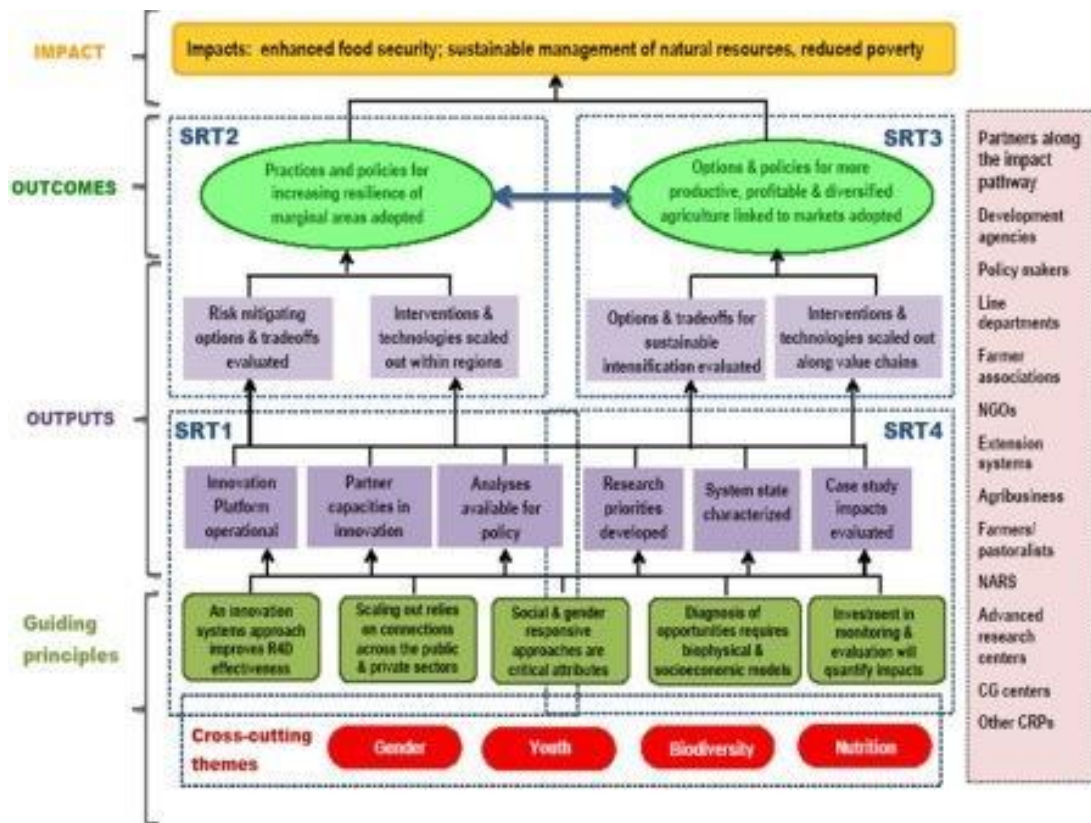
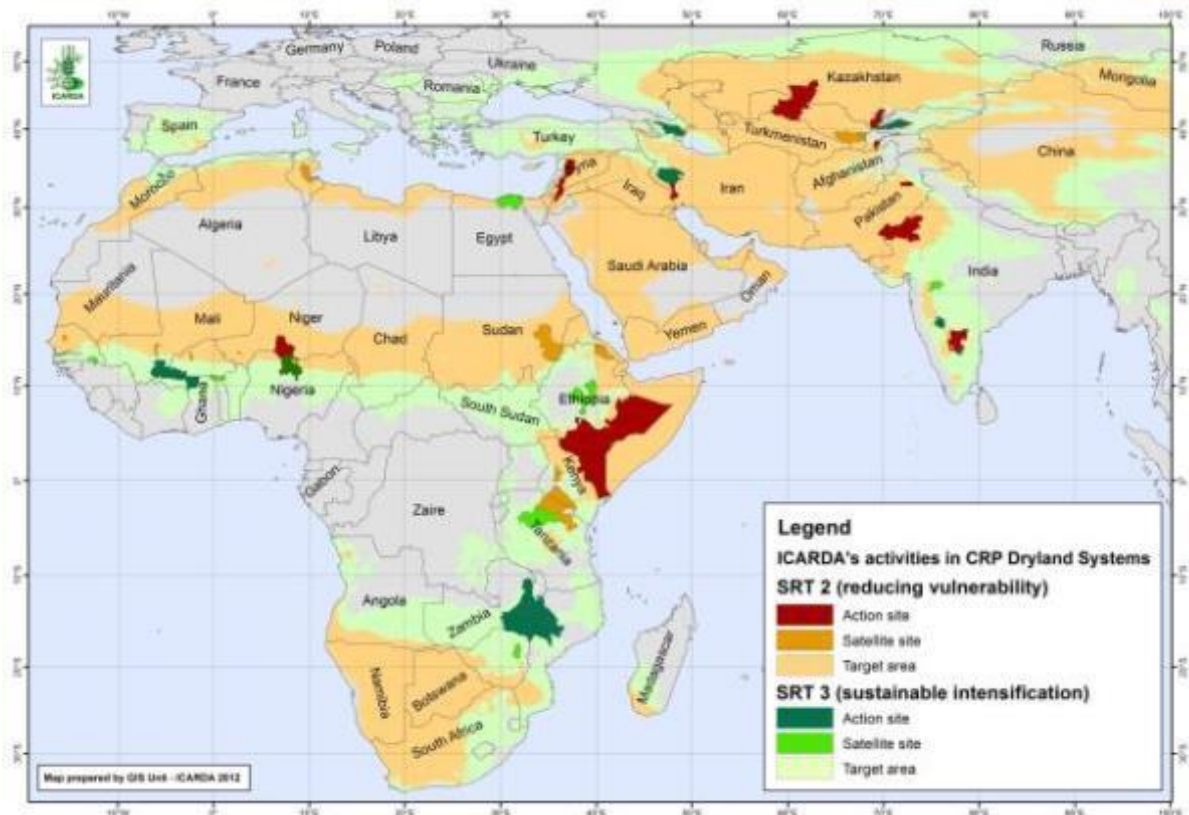
## Characterization of Target Areas and Action Sites

### Criteria for Target Area Selection

Criteria	Limits for SRT 2	Limits for SRT 3
Length of growing period	<90 days	90-180 days
Distribution of poverty		
Hunger and malnutrition (food security, no of people, % of people)		
Aridity Index	0.03 to 0.35	0.35-0.65
Environmental risk (Rainfall variability, access to irrigation,	CV>15%	CV<15%
Land degradation(soil salinity, soil erosion)	High	Low-medium
Market access	Travel time >2 hrs	Travel time <2 hrs
Population density		

### Characteristics of potential action sites in Target Areas

Target Area	Potential Action Site 1	Potential Satellite Site 1	Potential Satellite Site 2
Country			
Geographical location			
Accessibility			
Potential for hypothesis testing			
Representativeness			
Potential for out-scaling (impact)			
Potential to attract funds			
Potential to interact with CRPs			



## Cross-Cutting Themes

- Gender
- Youth
- Biodiversity
- Nutrition
- Capacity building

### Gender Matters in Agro ecosystems

No development if views and needs of women are not addressed

- ❖ **Land tenure**
- ❖ **Natural resource access (trees, fields)**
- ❖ **Food preparation and processing**
- ❖ **Household nutrition**
- ❖ **Varietal assessment**
- ❖ **Use of disposable income**
- ❖ **Landed and Landless labor**

**Culture- and agro-ecosystem-dependent**

## Partnership in Dryland Systems

- Part of conceptual framework and one of four Strategic Research Themes
- Critical to out scaling and therefore impact
- Partners set research priorities and identified "Action Sites"
- Partners are explicit part of governance

## Inception Phase

- Groundwork for baseline characterization
- Workshops to set Research Priorities
- **Common Ground:** 21 Constraints; 20 Outputs; 16 Hypotheses and 20 Outcomes

## CRP IDOs are meant to be:

- Informed by and have buy in from key stakeholders
- Integrated across CRPs to the extent possible
- Fully aligned with system level IDOs (SLIDOs).
- Completed by September 30, 2013 for as many CRPs as possible.
- Composed of three 3-year cycles, i.e. they have ~10 year time lines

**The first 4 target direct impact on wellbeing and sustaining natural resource base:**

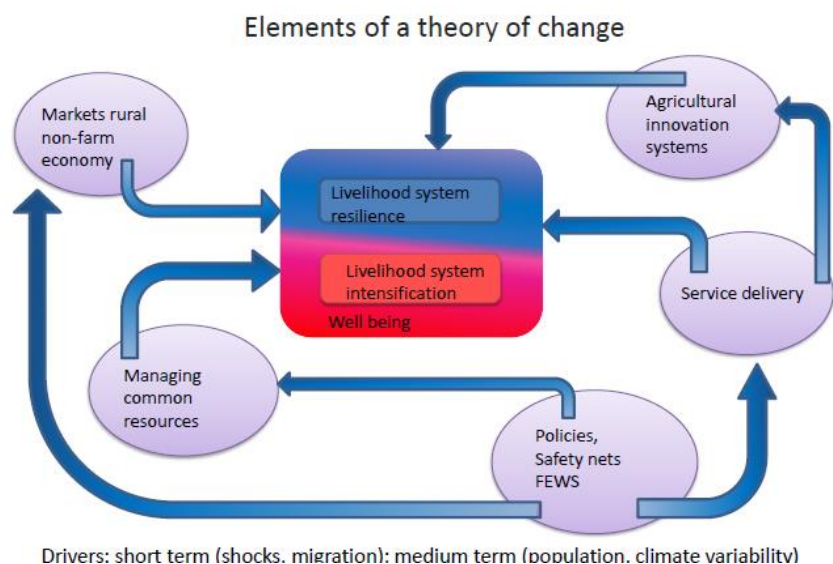
1. More resilient livelihoods for vulnerable households in marginal areas.
2. More stable and higher per capita income for intensifiable households.
3. Women and children in vulnerable households have year round access to greater quantity and diversity of food sources.
4. More sustainable and equitable management of land and water resources in pastoral and agropastoral.

**The rest relate to requirements for the first 4 to be realized:**

5. Better functioning markets underpinning intensification of rural livelihoods.
6. More integrated, effective and connected service delivery institutions underpinning resilience and system intensification.
7. Policy reform removing constraints and creating incentives for rural households to engage in more sustainable practices that improve resilience and intensify production.

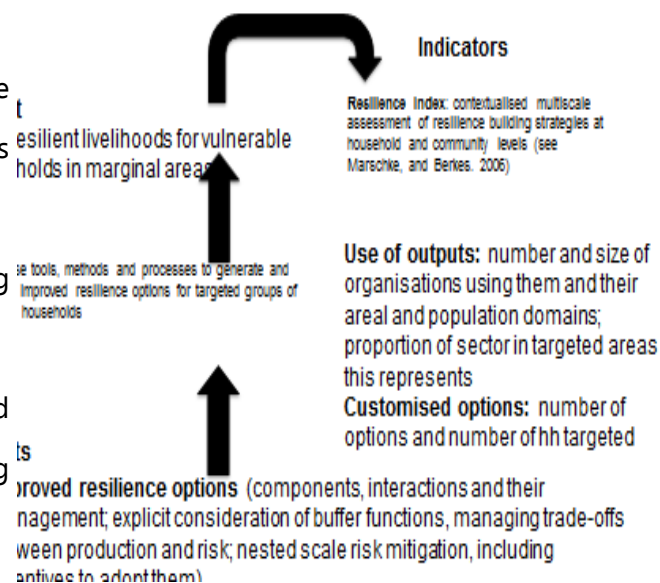
**THEORY of CHANGE**

Key elements of the agricultural system interact to improve human welfare and management of natural resources



## Impacts from IDOs

1. More resilient livelihoods for vulnerable households in marginal areas.
2. More stable and higher per capita income for intensifiable households (those above an asset threshold that makes intensification a viable option).
3. Women and children in vulnerable households have year round access to greater quantity and diversity of food sources
4. More sustainable and equitable management of land and water resources in pastoral and agropastoral areas
5. Better functioning markets underpinning intensification of rural livelihoods
6. More integrated, effective and connected service delivery institutions underpinning resilience and system intensification
7. Policy reform removing constraints and incentivizing rural households to engage in more sustainable practices that intensify and improve resilience and intensify production



## Effective Implementation of Dryland Systems CRP led by ICARDA

Plan of Work and Budget 2014	2013 Annual Report
<b>1. November 2013 provision by CO of guidelines for:</b> <ol style="list-style-type: none"> <li>POWB2014 (December 15 – January 15, 2014)</li> <li>2013 Annual Report</li> </ol>	<ul style="list-style-type: none"> <li>First deadline: March 10</li> <li>Paul Vlek (ISAC): special guiding expert</li> <li>Submitted by first deadline: March 10</li> <li>Received positive, constructive feedback</li> <li>Final deadline: April 23</li> <li>Submitted by final deadline: April 23</li> </ul>
<b>2. POWB2014:</b> <ol style="list-style-type: none"> <li>Submitted on January 15</li> <li>Almost immediately rejected as it did not follow the format and did not provide all requested information. New deadline: February 22</li> <li>Submitted on February 22</li> </ol>	



## Extension Proposal

**Extension Proposal:** 2<sup>nd</sup> CRPs phase starts 2017; Gap filling till end 2016

### Participatory development

1. Deadline April 25
2. Paul Vlek: special guiding expert
3. Extension Proposal Writing Workshop:
  - a. March 28-31 (Amman)
  - b. Participants: 40 Dryland Systems Focal Points and Target Region Coordinators
4. Submitted by final deadline: April 25

### Timeline for Extension Proposal

1. **December 31, 2013:** Final, approved templates and guidance for Extension Proposals.
2. **April 25:** CRPs submit Extension Proposals to CO.
3. **April 30:** CO shares Extension proposals, together with the 2013 Annual Reports, with FO/FC/ISPC for review.
4. **June 30:** ISPC provides reviews of Extension proposals to FO and CO;
5. **July 14:** CO combines all review and comments and shares with CRPs.
6. **August 30:** CRPs provide responses to ISPC/CO/peer review and questions.
7. **September 15:** CO prepares full package (proposal, ISPC review, CO review and funding recommendations) to CB and FC
8. **October/November:** CB and FC discuss and make decisions on Extension Proposals.
9. **November/December:** CRPs finalize proposals and contract amendments are processed.

## Flagship Target Regions and Agricultural Livelihood Systems (ALS)

ALS - Pastoral systems; Agro-pastoral systems; Intensive rain-fed systems; Tree-based systems; Irrigated crop systems

Agricultural Livelihood Systems	West African Sahel & Dryland Savannas	North Africa & West Asia	East & Southern Africa	Central Asia	South Asia
Pastoral systems					
Agro-pastoral systems	★		★		★
Intensive rain-fed systems	★	★	★	★	★
Tree-based systems	★	★	★	★	★
Irrigated crops systems	★	★		★	★
Home garden systems		★		★	
Traditional Subsistence systems	★			★	

## Newly-focused IDOs (1st CRP leadership meeting)

**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

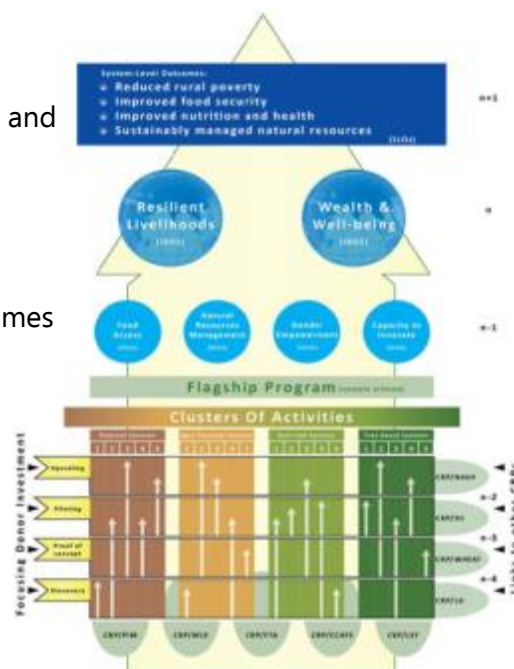
**IDO 5 Gender empowerment:** Women and youth have better access to and control over productive assets, inputs, information, and market opportunities and capture a more equitable share of increased income, food and other benefits

**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.

## Phased Activities, ALS, Flagships, Intermediate Development Outcomes

### Dryland Systems Results and Management Framework

1. Framework integrates Activities, Outputs and Outcomes
2. Follows 4-phased research pathway
3. Leads to 6 intermediate development outcomes (IDOs)
4. Delivers on 4 SLOs
5. Entry points at activity level with other CRPs
6. Donors can target investments on activities at specific phases



### M&E framework,

**M&E system:** To be developed and agreed upon with all partners = a key task at Regional Inception Workshops. M&E will include evaluation of economic, environmental and social indicators

**Approach:** Impact pathways will be analyzed to ensure that annual plans include intermediate measurable indicators of progress and milestones along the RandD continuum.

### Performance indicators:

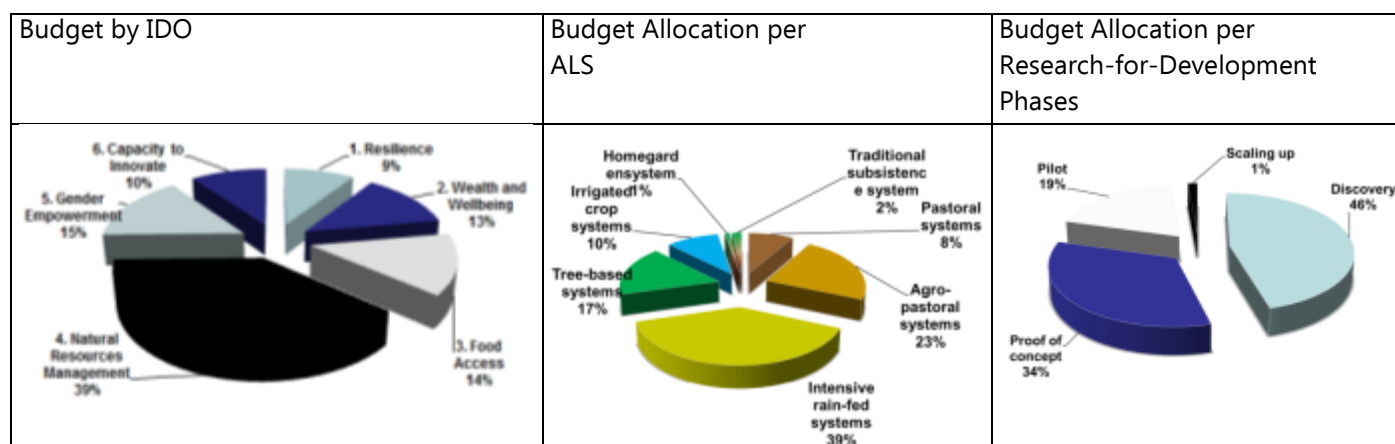
- agricultural productivity; production system stability
- rural livelihoods: income, nutrition, welfare
- bio-geophysical indicators: biodiversity, soil and water parameters
- number/gender of users of products
- participants in capacity strengthening
- Policy advisories and policy-makers reached, etc.

The development of International Public Goods at various scales will be an important performance indicator;

**Participatory approach:** M&E and performance assessment will use a participatory approach

## 2014 Total Budget

Activity Cluster	W1and2	W3	Bilateral	Total
Governance and Director's Office	1,225			1,225
Regional Coordination	1,075			1,075
Strategic Gender	700			700
<b>Total</b>	<b>3,000</b>			<b>3,000</b>
WASDS Flagship Project	2,968	500	1,718	5,186
NAWA Flagship Project	3,952	2,037	10,800	16,789
ESA Flagship Project	2,831	-	7,141	9,972
CA Flagship Project	1,452	799	587	2,838
SA Flagship Project	2,797	138	5,608	8,543
<b>Total</b>	<b>14,000</b>	<b>3,474</b>	<b>25,853</b>	<b>43,327</b>
<b>Grand Total</b>	<b>17,000</b>	<b>3,474</b>	<b>25,853</b>	<b>46,327</b>



## Why are we here

1. To see what science is on-going
2. To see how what issues it addresses
3. To see the R4D partnership
4. To see how it will deliver on IDOs
5. To identify research portfolio gaps
6. To see the common thread and cross cutting issues among Flagships
7. To get a holistic view on where DS is going and for whom
8. The DS has to overcome an image problem
9. This will not be done with parochial thinking
10. Think of yourself as directing the program
11. Find common ground in helping people in your mandate zone

## The way forward

### Build on what we have:

- IDOs
- Flagship projects
- Unit of Analysis (ALS)

Identify the threats and opportunities

Define the R4D agenda and ToC pathway

Identify or generate pipeline (phases)

Define research portfolio and compare with status quo

Look for common ground and synergies

Address cross cutting issues

## Below are some quick comments from the participants:

***Why does DS have an image problem?*** We are not able to transfer what is ongoing. It was suggested to develop a visibility strategy. One participant observed that DS image was penalized by slow approval by the CO. We had difficulties with previous director. ISPC and CO do not have clear idea of what they want. Additionally we are in the field since one year only; we need more visibility and success stories; DS is young and we should not compare with 3 years programs.

***Shouldn't budget follow activities?*** Take the example of Rice CRP: you identify what you need and pass the responsibility to the donor, if he does not want to fund the activity. There is no shortage of funds but of ideas. There is need to revisit the POWB but also to think forward and

anticipate the CO, if we want to maintain the system approach and not let commodity CRP to take over DS.

***Another participant observed that the Target is 89Mil that is 5% of poor people in DS (Note: the flyer distributed was based on the original proposal. In the AR2013 we stated that the potential population we target is 650 Million). We should raise our target. Which is our starting point?*** We need to link development projects since outscaling is only 1%. We can reach more and we should allocate more funds to outscaling.

***Another participant observed that there is Better defense is attack!*** We should promote systems in CG; we should promote link with development; we need to promote partnership along CRPs. Systems is broadly diffused in literature. We need to target 700-900 Mil (example of world food price).

## 2.2 Identification of issues and challenges at program level

### Table Group Discussion:

**What issues need to be sorted out here in order to accelerate progress and reach impact?**

#### Clear framework for system research

- Role of science/research throughout CRP development chain
- Do we do research or fund findings into programmes
- Coherent framework for embedding systems research in the project/CRP that leads to impact
- Identify themes that cut across the 5 FP/regions
- Problem analysis should drive prioritization
- Harmonize methodologies of system research across regions



- Clear framework for systemic research with illustrated examples
- Clarify “system” impact
- Approaches for integration /system approach
- Integration – how at action site, production level and program
- Where is the synthetic learning (how to do this?)
- Diversity of systems as an asset for interactions
- Integration of research in development
- Standards for system problem diagnosis
- Interlocking livelihoods beyond agriculture
- Argue value proposition beyond the THEORY of “systems approach” – tangible development opportunity

#### **Partnerships and institutional arrangements**

- Defining roles of partners and linkages among them
- What is the role of DS in relation to partners along impact pathway
- Target relevant partners who make the difference
- How to broaden partnerships - NARS, CGIAR and overcome “institutional perceptions
- More involvement of NARS in designing
- Farmers organizations/associations
- Role in research in development

#### **Communication of results for visibility**

- Image of programme
- More communication of successful results
- More visibility to successful case studies....low hanging fruits
- Boost communication – populate dry land systems science and technology
- Picking other “gems” and tell the story
- Give more examples of possibilities (not explanations)

#### **Knowledge exchange – within dry land systems and external**

- Look at successful experiences from other CRPs – communication, cross cutting etc

- Accelerate knowledge exchange and communication

### Scaling – different dimensions

- Re-thinking of the scaling paradigm
- More resources for pilot and out scaling phases windows 1 and 2
- Phase the action sites within the target regions
- Generate more flexibility for investing in cross cutting foundational systems work
- Applying appropriate science and technological findings
- Improve ground level planning
- What is talked about that we are not doing

## 2.3 Regional Flagships: West African Sahel and Dry Savanna

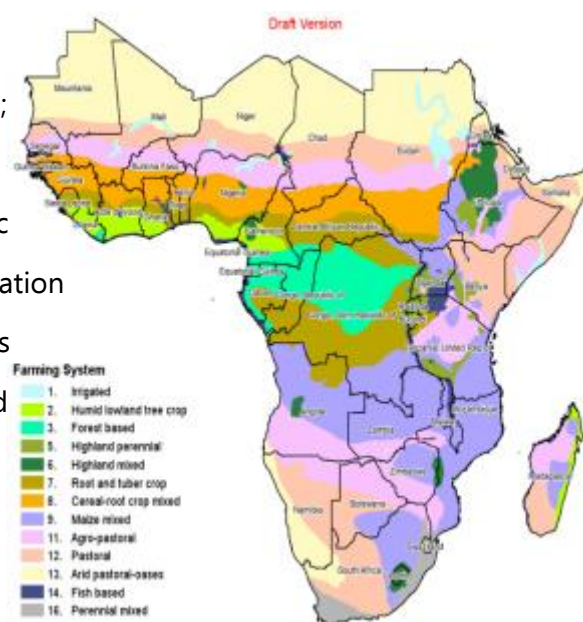
### Presentation by Patrice Savadogo

#### Context of WASDS

Rainfall is becoming more erratic and extreme; Temperatures are increasing intensifying crop stress; Soil fertility is declining in many regions; Inorganic fertilizers are increasingly expensive; High population growth rates (dwindle farm sizes and livestock assets and worsen the impacts of food insecurity) and farming is expanding into more marginal lands.

#### Targeted Categories of production systems

- Pastoral systems
- Agro-pastoral systems
- Intensive rain-fed systems
- Tree-based systems
- Extensive mixed crop-livestock systems



### 2.3.1 ICRISAT On-going activities in WASDS

Activity cluster	Progress towards outputs and IDOs, 2014
<p><b>1.</b> Establish reference situation / baselines for the action sites to support systems approaches</p> <p><b>IDOs: 1-7</b></p>	<p><b>Key activities:</b></p> <ul style="list-style-type: none"> <li>▪ Establish and characterize watershed areas for integration of research activities.</li> <li>▪ Use HH survey data to guide action research. Verify that HH survey data corroborates systems research hypotheses and site selection ;</li> <li>▪ Advance our understanding of changes in land resources / capita as a key driver of change in systems</li> </ul> <p><b>Expected Outputs</b></p> <ul style="list-style-type: none"> <li>▪ Appropriate and integrated technologies for watershed management are identified</li> <li>▪ Instilling a sense of ownership in the community to manage the established watershed</li> <li>▪ Report drafted testing the large-scale assumptions behind SRT2/3 distribution in action sites against HH level data.</li> </ul> <p><b>Area and Sites:</b> Kano-Katsina-Maradi (KKM), Wa-Bobo-Sikasso</p>
<p><b>2.</b> Assess and MONITOR BIOMASS AND RESOURCE FLOW in the action sites</p> <p><b>IDOs: 1-7</b></p>	<p><b>Key activities:</b></p> <ul style="list-style-type: none"> <li>▪ Biomass assessment of annual and perennial crops including woody vegetation, assessment of soil and land health conditions, and mapping of resource flows in the farm systems. This output includes assessment of ecological metrics and variability across action sites and information on soil health constraints</li> <li>▪ Development of remote sensing methods for automatic quantification of seasonal biomass production</li> </ul> <p><b>Expected Outputs</b></p> <ul style="list-style-type: none"> <li>▪ Administration of 2014 cropping season full biomass assessments (annuals + perennials) in KKM and WBS transect</li> <li>▪ Paper/report being drafted on agro-biodiversity management and conservation in major agroecosystems of in West African Sahel and Dry Savanna</li> </ul>

	<ul style="list-style-type: none"> <li>Two ground, UAV and satellite measurement campaigns in 150 farms with fertility trials</li> </ul> <p><b>Area and Sites:-</b> Kano-Katsina-Maradi (KKM), Wa-Bobo-Sikasso</p>
<p>2. Assess and MONITOR BIOMASS AND RESOURCE FLOW in the action sites</p> <p><b>IDO: 4,5,6</b></p>	<p><b>Key activities:</b></p> <ul style="list-style-type: none"> <li>Testing various tree crops interactions-and roles of agroforestry parklands on soil water balance and crop yield in Sahelian farming system</li> <li>Quantification of nutrient flows in the farming systems in the action sites, yield mapping and tradeoffs assessment of nutrient use in the defined systems.</li> </ul> <p><b>Expected Outputs</b></p> <ul style="list-style-type: none"> <li>Data generated and paper on effect of shading on yields of staple crop by common tree on farming land in Sahelian agroecosystem</li> <li>Effect of tree husbandry on cereal and legume grown in pure stand or intercropped and nutrient management on crop performance</li> <li>Simulation of nutrients flow at farm scale in the Fakara from three years corralling trial</li> </ul> <p><b>Area and Sites:-</b> Kano-Katsina-Maradi (KKM), Wa-Bobo-Sikasso</p>
<p>3. Facilitation of INNOVATION PLATFORMS, monitoring and evaluation of innovation platforms</p> <p><b>IDs: 1-7</b></p>	<p><b>Key activities:</b></p> <ul style="list-style-type: none"> <li>Stakeholder consultation to fill gaps and prioritize technologies</li> <li>Exploration of best cultivars for dual purpose crops in the region for crop-livestock in KKM and WBS sites</li> <li>Addressing the issues non-adoption of technologies in tree- crop-livestock interaction in West Africa.</li> <li>Develop a sustainable, subscription based rural land information service supported by very high resolution satellite imagery</li> </ul> <p><b>Expected Outputs</b></p> <ul style="list-style-type: none"> <li>Enhanced capacity for innovation and effective participation in</li> </ul> <p><b>Collaborative IAR4D processes</b></p> <ul style="list-style-type: none"> <li>A basket of low risk crop and livestock innovation with technical potential for SI developed and tested</li> <li>50,000 farmers registered in the land information service</li> </ul>

	<b>Area and Sites:-</b> Kano-Katsina-Maradi (KKM), Wa-Bobo-Sikasso
<p>4. Induce intensification and improve resource use efficiency through ON-FARM TESTING AND EVALUATION of technologies</p> <p><b>IDs:1-6</b></p>	<p><b>Key activities:</b></p> <ul style="list-style-type: none"> <li>▪ Introduction and evaluation of new technologies: germplasm, agricultural inputs, livestock management options, fodder, and options for mechanization. In addition, this activity includes testing and evaluating of gender-smart best fit options for improved livelihood, and water management</li> <li>▪ Pre and post-harvest small and medium scale machines for planting and other agronomic activities as well as for processing made available test across KKM locations</li> </ul> <p><b>Expected Outputs</b></p> <ul style="list-style-type: none"> <li>▪ New germplasm introduced</li> <li>▪ Reduced drudgery</li> <li>▪ Area and Sites:- Kano-Katsina-Maradi (KKM), Wa-Bobo-Sikasso</li> </ul>
<p>4. Induce intensification and improve resource use efficiency through ON-FARM TESTING AND EVALUATION of technologies</p> <p>IDs: 1-6</p>	<p><b>Key activities:</b></p> <ul style="list-style-type: none"> <li>▪ Evaluate biomass productivity and quality in various sorghum genotypes on station to assess potential for dual purpose usage in different agro-ecologies</li> <li>▪ Establish P response in selected sorghum genotypes including dual-purpose, and improve crop models (DSSAT, SAMARA) with P-aware functionalities.</li> </ul> <p><b>Expected Outputs</b></p> <ul style="list-style-type: none"> <li>▪ Improved crop models, with associated simulation outputs corresponding to data collected on station trial.</li> <li>▪ Paper/report on testing the improved model against sorghum yield data collected under high and low P conditions, and run a sensitivity analysis for various soil P levels and low-P tolerant genotypes</li> </ul> <p><b>Area and Sites:-</b> Kano-Katsina-Maradi (KKM), Wa-Bobo-Sikasso</p>
<p>5. Strengthen the capacity of the partners, including women farmers and youth to</p>	<p><b>Key activities:</b></p> <ul style="list-style-type: none"> <li>▪ Promotion of Farmers to farmers interaction for CAWT adoption taking into account the gender</li> </ul>

<p>facilitate wider scaling up of CTL technologies and development approaches and strategies</p> <p>IDO:3-6</p>	<ul style="list-style-type: none"> <li>▪ Training on Crop-livestock management in West Africa</li> <li>▪ Follow-up scenario visioning workshops organized at the district level</li> </ul> <p><b>Expected Outputs</b></p> <ul style="list-style-type: none"> <li>▪ Enhanced dialogue for co-learning and dialogue with innovators farmers for bottom-up scaling of technologies (FMNR)</li> <li>▪ Enhance participants awareness on the different ways of making efficient use of crop-residues</li> <li>▪ Workshops organized for each action district within WBS and KKM transect</li> </ul> <p><b>Area and Sites:-</b> Kano-Katsina-Maradi (KKM), Wa-Bobo-Sikasso (WBS)</p>
---	--

### Research and development partners

NARS	NGOs	Farmers Organization
<ul style="list-style-type: none"> <li>▪ Institut National de Recherche Agronomique du Niger (INRAN)</li> <li>▪ Institut de l'Environnement et de Recherches Agricoles (INERA)</li> <li>▪ Institut d'Economie Rurale (IER)</li> <li>▪ CSIR-SARI</li> <li>▪ AGRHYMET</li> <li>▪ CDA-BUK</li> <li>▪ University of Niamey and Bobo</li> </ul>	<ul style="list-style-type: none"> <li>▪ Care International au Niger</li> <li>▪ World Vision</li> <li>▪ Oxfam Novib</li> <li>▪ AMEDD</li> <li>▪ Sahel Eco</li> </ul>	<ul style="list-style-type: none"> <li>▪ ROPPA</li> <li>▪ Moriben-Niger</li> <li>▪ FNUGN-Burkina Faso</li> </ul> <p><b>Private sector</b></p> <ul style="list-style-type: none"> <li>▪ MANOBI S.A.</li> </ul>

### 2.3.2 ILRI On-going activities in WASDS 2014

- *Review and synthesis of ILRI long-term (1994 – 2008) systems research in Fakara action site, Niger: Learning from the past* - synthesis of past research activities in agro-pastoral systems of Niger with the overall goal of drawing pertinent lessons for dryland system research in West Africa
- *Assessment of vulnerability and risk of smallholder farmers in WASandDS in KKM and WBS* - Group and individual interviews to collect basic information on risk perceptions, variation in vulnerabilities to risks and strategies to reduce socioeconomic vulnerability



- *Assessment of feed resources using Feed Assessment Tool (FEAST) in action sites in KKM and WBS* - PRA survey and individual interview of farmers to have an overview of farming system and livestock feed aspect, and collect quantitative and qualitative information on crop-livestock production, feed availability, feeding rations and perception on feed quality
- *Quantification of internal farm constraints and assessment of trade-offs in resources use in KKM* - Modeling of resource use at farm level in mixed crop-livestock systems using FARMSIM and LIVSIM models developed by University of Wageningen
- Characterization of ruminant value chains in KKM

### Partnership

Activity	Partner
Review and synthesis of ILRI past farming system research in West Africa dryland	Consultant (Pierre Hiernaux, Géosciences Environnement Toulouse, Toulouse, France)
Assessment of vulnerability and risk of smallholder farmers	University of Wisconsin, Madison; INERA Burkina Faso; AMEDD, Mali
Assessment of feed resources	INERA Burkina Faso; AMEDD, Mali; Animal Research Institute, Ghana.
Quantification of internal farm constraints and assessment of trade-offs in resources use	University of Wageningen; CCAFS national coordinators (Burkina Faso, Ghana, Mali)
Characterization of ruminant value chains in KKM	INRAN, Niger; Consultant (Dr Kassali, Obafemi Awolowo University, Nigeria)

### 2.3.3 ICRAF On-going activities in WASDS

*I. Agro-ecological intensification of sorghum and pearl millet-based production systems in the Sahel through agroforestry: linking farmers' knowledge to process-based science Agro-Ecological Intensification (McKnight)*

#### Rationale

Most production systems of the Sahelian region are mixed tree-crop-livestock. There is a wealth of local knowledge as farmers have been managing these systems for centuries and such

knowledge need to be capitalized. This knowledge is geared towards application. Its explanatory power can be helped by science-based analyses of the socio-ecological systems and its component processes

## Objectives

- Enhance the knowledge on the ecosystem functions provided by parkland agroforestry to sustain the production in sorghum and millet-based systems in the face of variable and uncertain rainfall
- Assess, improve and support current development efforts to reduce human vulnerability in the Sahel through identification of current 'best practices' and promote the use of such approaches.

## Inception phase

<b>Output 1:</b> Team of the project built and functional through mail exchanges, and face to face meetings and a workshop to fine tune the activities to be conducted	<b>Output 2:</b> Local knowledge on tree-crop-livestock interactions collected, synthesized and made available  a literature review tree-crop-livestock interactions and local knowledge as well as baseline surveys on local knowledge about tree-crop-livestock interactions
<b>Key achievements</b> <ul style="list-style-type: none"> <li>• Local knowledge acquisition using the Agroecological Knowledge Toolkit (AKT) was conducted in Burkina Faso and Mali</li> <li>• 11 researchers trained on AKT including McKnight project members from INERA and IER of Mali, and regional ICRAF staff working on DS CRP and ICRAF/MARS V4C Project</li> <li>• Technical report available</li> </ul>	
<b>Implementation phase</b> <ul style="list-style-type: none"> <li>• Output 3: Tree-crop interactions evaluated on-farm using different tree species and cereal varieties</li> <li>• Output 4: Better management of the existing biomass is developed both for land reclamation and animal feeding</li> <li>• Output 5: New agroforestry technologies/practices aiming at improving biomass production evaluated</li> <li>• Output 6: Capacity of key stakeholders strengthened through collective action and co-learning.</li> <li>• Output 7: Finally, guidelines of best practices will be generated for the use of larger audience than the experimental site public.</li> </ul>	

## ***II. Sustainable intensification of cereal-based farming systems in the Sudano-Sahelian zone (AfricaRising project)***

<b>Aim:</b> Transform Agricultural systems in Mali through Sustainable Intensification of key farming systems	<b>Key research outputs (RO) are:</b> <b>RO1:</b> Situation Analysis and Program-wide Synthesis (IFPRI, WUR and partners) <b>RO2:</b> Integrated Systems Improvement (CGIAR, AVRDC, WUR, national partners) <b>RO3:</b> Scaling and Delivery of Integrated Innovation (CGIAR, AVRDC, WUR, national partners) <b>RO4:</b> Integrated Monitoring and Evaluation (IFPRI with partners)
---	---

### **Community mobilization and establishment of innovation platform**

- Diagnostic / planning meetings to identify the opportunity to introduce high yielding fodder and fruit tree species in 5 villages (Sirakele, Zanzoni, Mpressoba, Yorobougoula, Sibirila)
- Platform established in Yorobougoula
- 20 innovator women farmers testing goat fattening and in combination with fodder cowpea trials

Innovation platform 1)- Networking mapping	Innovation platform (2)- Institutional Power analysis
<ul style="list-style-type: none"> <li>○ The network map of Yorobougoula is dense with predominant CBOs and rural enterprises with a high level of centrality around one leader (Cooperative of Bio-cotton producers—CPCB)</li> <li>○ The main channels for information sharing in Yorobougoula are trainings, formal and informal periodical meetings, etc.</li> <li>○ There are three clusters with two of them connected through two women institutions which are a rotating saving and credit association (RSCA-Benkadi ton) and a shea butter processing association (Chikolo ton)</li> <li>○ Cotton cooperative (OPCB) plays a central role reflected in the number links with other associations</li> </ul>	<ul style="list-style-type: none"> <li>○ Youth associations, agroforestry farmers' association (Guanan ton), tree products processing association as well as the cooperative of cotton producers (CPCB) among others are the most influential institutions through which the innovation platform can build to easily get the by-in from the other partners for the sustainability of actions in the platform.</li> <li>○ Because the IP is an integrated and knowledge sharing framework inclusiveness is the guiding principle for the selection of different stakeholders/actors.</li> <li>○ To increase inclusiveness, the IP should link the maximum number of farmer associations and groups (including those of the upper left quadrant) with other stakeholders from different domains including private sector, extension agents, development partners and policy makers to cater for the needs of different type of farmers.</li> </ul>

## **Establishment of diversified seed enterprise options**

- Increase availability and accessibility of improved seed (cereals, vegetables, fodder crops, etc.) and planting material (trees, shrubs) for rural cooperatives and their unions
- A business plan developed by different producers with a defined target on seed/seedling production
- Fruit tree establishment trials in five villages (Mpessoba, Sirakele, Zanzoni, Yorobougoula, Sibirila).
- Off-season irrigated vegetable / seed production
- Establishment of RRC
- Capacity development training on tree propagation and planting techniques

### *III. Regional program on food and water in the Sahel and the horn of Africa: regenerating dryland farming systems by creating an Evergreen Agriculture (DGIS The Netherlands)*

The programme is working in semi-arid areas of Mali, Burkina Faso, and Niger.

#### **Outcome 1: Improved water and food security**

- Integrated on-farm water and soil management practiced
- Water availability in the watershed secured

#### **Outcome 2: Commercialization of the rural economy**

- Increased participation of different categories of farmers in strengthened value chains of selected inputs and commodities
- Access to credit and financial mechanisms by different categories of farmers improved

#### **Outcome 3: Environment that enables increased water and food security and economic growth created**

- Policies adjusted to the interests of different categories of farmers
- Institutional framework to upscale integrated water and soil management techniques and value chain development adapted to different categories of farmers
- Inclusive and integrated approach developed and applied

Key long term impact indicators	Key aspects of the project
<ol style="list-style-type: none"> <li>1. Increase in productivity of tradable crops (both women and men's crops)</li> <li>2. Increase in productivity of staple crops, (both women and men's crops)</li> <li>3. Improve water use efficiency</li> <li>4. Improve on-farm profits</li> <li>5. Decrease in dependency on food aid</li> <li>6. Decrease of the different marginalized categories of people living under the poverty line</li> <li>7. Increase in availability of nutritious food</li> <li>8. Increase in consumption of nutritious food</li> <li>9. Decrease the stunting levels of children</li> </ol> <p><b>Provisionary targets:</b> After 5 years, about 500,000 hectares will be rehabilitated; Water productivity will be improved by 30% and the standard of living of about 70,000 farmers (male and female) will be improved; These impacts will result from intervening in about 140 villages in each country</p>	<ul style="list-style-type: none"> <li>○ Development oriented – An integrated approach with a broad soil and water component and commercialization component</li> <li>○ The approach is a "bottom up, farmer driven" program that service providers will respond to.</li> <li>○ An inclusive approach where the needs of all types of farmers including women, youth the poor can be addressed</li> <li>○ Service providers are to be national organizations as much as possible with attention paid to building up capacity of farmer associations</li> <li>○ Interventions are meant to be sustainable</li> <li>○ International organizations playing mainly a capacity building role that is to lessen over time</li> <li>○ A first year (inception phase) helps to learn how to make this work</li> </ul>

#### ***IV. Fodder trees species for enhancing production of the Sahelian Agroforestry systems***

Literature review of animal feed systems in four Sahelian countries (Burkina Faso, Mali, Niger and Senegal): Bayala J., Ky-Dembélé C., Kalinganire A., Olivier A., Nantoumé H. 2014. A review of pasture and fodder production and productivity for small ruminants in the Sahel. Occasional Paper (ICRAF), ICRAF, Nairobi, Kenya. Valorization of data and experiments of previous trials on fodder species management. Development of vegetative propagation techniques for 12 local fodder tree species

#### ***Key research questions to be addressed in Survey on fodder trees and shrubs marketing***

- *Which value chain actors are involved and what are their respective roles (gender aspect)?*
- *What are the profit generated from fodder trees and shrubs production and marketing, and how are theses profits distributed?*
- *What are the farmers and breeders perceptions on fodder trees and shrubs availability and accessibility issues?*

## Partnership

NARS	NGOs	Farmers Organization
<ul style="list-style-type: none"> <li>○ Institut National de Recherche Agronomique du Niger (INRAN)</li> <li>○ InInstitut de l'Environnement et de Recherches Agricoles</li> <li>○ Institut d'Economie Rurale (IER)</li> <li>○ CSIR-SARI</li> <li>○ AGRHYMET</li> <li>○ CDA-BUK</li> <li>○ University of Niamey and Bobo</li> </ul>	<ul style="list-style-type: none"> <li>○ Care International au Niger</li> <li>○ World Vision</li> <li>○ Oxfam Novib</li> <li>○ AMEDD</li> <li>○ Sahel Eco</li> <li>○ Reseau Marp</li> <li>○ Karkara</li> </ul>	<ul style="list-style-type: none"> <li>○ ROPPA</li> <li>○ Moriben-Niger</li> <li>○ FNUGN-Burkina Faso</li> <li>○ Reseau Bilital Manore</li> <li>○</li> </ul>

### 2.3.4 ICARDA On-going activities in WASDS

CRP WAS- DS Activity Title	Activity Leader	IDO	IDO Output	<i>Progress towards outputs and IDOs, 2014/15</i>
Establishing innovative platforms at Kano for participatory wheat technology validation, demonstration and community based seed multiplication	S. Assefa	IDO 6 -1	Innovative partnership models for improved seed delivery and technology transfer to local circumstances across scaling domains	<p><b>Key activities:</b></p> <ul style="list-style-type: none"> <li>▪ Conduct R4D activities for technology validation, on-farm demonstration and dissemination ;</li> <li>▪ Establish functional community-based farmers' seed multiplication and supply (3 IP sites in Kano, 1 IP in Maradi) ;</li> <li>▪ Organize training on IAR4D and innovation systems approaches for wheat value chain</li> <li>▪ Organize training on quality seed production and management of certified seed for seed producing farmers and stakeholders</li> </ul> <p><b>Expected Outputs</b></p> <ul style="list-style-type: none"> <li>▪ Establishing and operationalizing three innovative platforms (3 IP sites in Kano, 1 IP in Maradi) for wheat technology demonstration, seed production and promotion along the value chain</li> <li>▪ Setting a functional and sustainable community based farmers' seed multiplication and supply in the IP sites</li> </ul> <p><b>Area and Sites:-</b> Kano-Katsina-Maradi (KKM)</p>



Study of the effects of intensification on local agro-biodiversity in West Africa	A. Amri	IDO 1-2	Information and Data on farming systems, - Threats to agro-biodiversity	<p><b>Key activities:</b></p> <ul style="list-style-type: none"> <li>▪ Undertake farming systems surveys for the aspects related to local agrobiodiversity in terms of extent, uses, threats;</li> <li>▪ Organize workshop with key stakeholders to discuss technological, socio-economic, institutional and policy options for <i>in situ</i> conservation of dryland agrobiodiversity;</li> <li>▪ Provide training on approaches for promoting <i>in situ</i> conservation.</li> <li>▪ Write a report on status and threats to local agrobiodiversity</li> </ul> <p><b>Expected Outputs</b></p> <ul style="list-style-type: none"> <li>▪ Report on status and threats to local agro-biodiversity</li> <li>▪ Capacity building through training the trainers in the area of in situ conservation of dryland agrobiodiversity</li> </ul> <p><b>Area and Sites:-</b> Kano-Katsina-Maradi (KKM)</p>
Land Use Land Cover change Mapping for Dryland Systems sites in the West African Sahel and Dry Savannas region	C. Biradar	IDO 1- 2 IDO 4- 2	Decadal dynamics of the land use and land cover baseline for action sites	<p><b>Key activities:</b></p> <ul style="list-style-type: none"> <li>▪ Collection of appropriate data (e.g., ground truth, statistical, ancillary info, etc.);</li> <li>▪ Collection of appropriate satellites images (e.g., Landsat, CORONA, etc);</li> <li>▪ definition of classes of land-use and land-cover (e.g., classification scheme);</li> <li>▪ Definition of categories of land-use and land-cover change (e.g., major LULC types);</li> <li>▪ Training of LULC surveyors (field data, geo-referenced field photos);</li> <li>▪ Analysis of historical land-use and land-cover change; map accuracy assessment;</li> <li>▪ Preparation of report based on analysis and methodologies.</li> </ul> <p><b>Expected Outputs</b></p> <ul style="list-style-type: none"> <li>▪ Report with Map of land use land cover change</li> </ul>

				<p>survey, including an annex detailing data sources and methods used for pre-processing, data classification, and classification accuracy</p> <p><b>Area and Sites:-</b> Kano-Katsina-Maradi (KKM) :- Kano-Katsina-Maradi (WBC)</p>
--	--	--	--	--

## Partners and Stakeholders

Activity	Partners and Stakeholders
1. Establishing innovative platforms for participatory wheat technology validation demonstration and community based seed multiplication	<p>-LCRI, Nigeria: Contribute to establish IP sites and research center managed breeder and basic seed multiplication</p> <p>- Zaria University Nigeria: contributes to establish and operationalize IP sites and community based farmers' seed multiplication in Kano IP sites</p> <p>- SG-2000-Nigeria: Contributes to community based farmers' seed production in Kano IP sites</p> <p>- IER-Mali: Contributes to participatory technology validation, on-farm and demonstration</p> <p>- INRAN-Niger: Contributes to participatory technology validation, on-farm and demonstration</p>
2. Study of the effects of intensification on local agro-biodiversity in West Africa	<p>Bioversity International: Contributes to workshop on options for in situ conservation</p> <p>- Zaria University, Nigeria: Participate in the surveys</p>
3. Land Use Land Cover change Mapping for Dryland Systems sites in the West African Sahel and Dry Savannas region	<p>ICRISAT:- Coordinate the consultancy, and paper writing.</p> <p>Wageningen University: Provide inputs to paper writing and support for training event.</p> <p>AGRHYMET: Responsible for field survey administration, land use land cover change analyses and mapping, and final report production</p>

## 2.3.5 CIP On-going activities in WASDS

CRP WAS- DS Activity Title	CRP WAS - DS	Activity Leader	IDO	IDO Output
Establish reference situation / baselines for the action sites to support systems approaches	KKM	E. Carey	IDO 6 -1	Appropriate sweetpotato AR4D interventions

Promote local and regional knowledge generation and exchange for scaling up and out of promising intensification options and strategies	KKM	E. Carey	IDO 1-2	Information and Data on farming systems, - Threats to agro-biodiversity
Capacity building	KKM	E. Carey	IDO 6 -1	Training of trainers from francophone benchmark sites and surrounding region on sweet potato
Gender oriented promotion of OFSPA	WBS, KKM	E. Carey	IDO 1-2	- Engendered research and extension agenda implemented through innovation platform at local level - Action research priority planning at benchmark site level with gender perspective

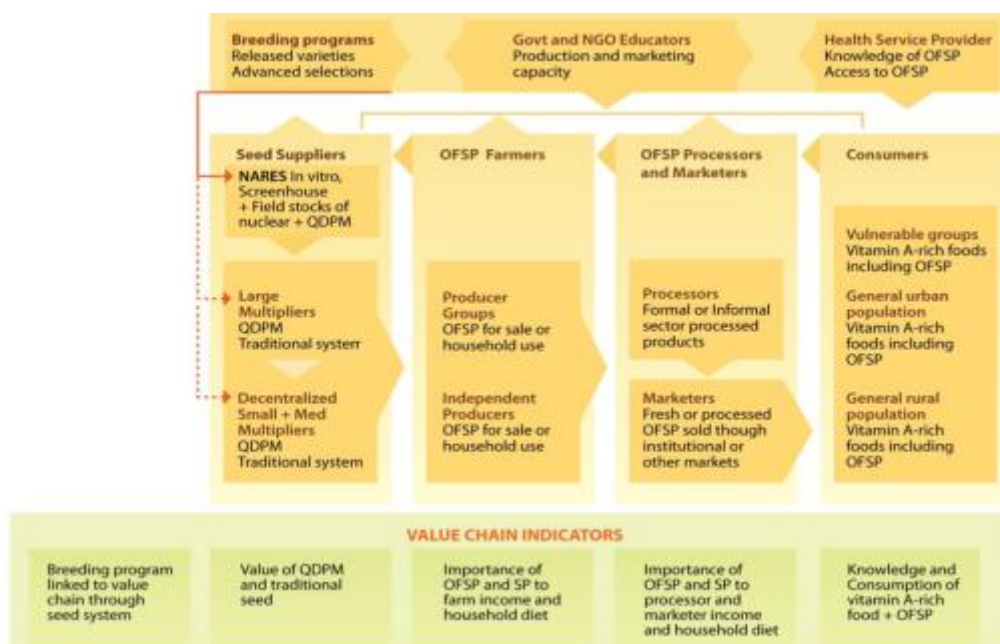
### 2.3.6 OFSP in W. Africa through Diversified Markets

Key Concept: The International Potato Center (CIP) and partners will work in Ghana, Nigeria and Burkina Faso to test the hypothesis that it is possible to simultaneously develop value chains for OFSP and maximize nutritional benefits to vulnerable populations. Project targets selected areas of Ghana, Nigeria and Burkina Faso.

#### Major Outcomes

1. Institutional and other diversified market opportunities for OFSP developed in project pilot areas in Ghana, Nigeria, and Burkina Faso.
2. Commercial seed system functioning in target areas and capable of expanding in response to increased demand.
3. Most at-risk households and individuals in target areas have increased vitamin A intakes.
4. Commercial sweetpotato seed and root farmers are benefitting from participation in OFSP value chains

## Interactions among value chain actors



## Targets and Partners

Region/State (District/Province)	Activity (Outcome)	Partner	Linked Projects/Program*
<b>Ghana</b>			
Upper East (Pusiga, Binduri, Bawku Municipal, Kassena-Nankana East, Kassena-Nankana West)	Market development, nutrition, and utilization training; production, storage, business skills, credit access (1, 3, 4); QDPM system and seed multiplication (2)	iDE-Ghana; MoFA	FRI; on-farm storage research project (CIP)
Northern (Tolon, Kumbungu)	Market development, nutrition, and utilization training; production, storage, business skills, credit access (1, 3, 4); QDPM system and seed multiplication (2)	Association of Church-based Development Projects (ACDEP); NGOs; MOFA	FRI; CGIAR Research Program on Dryland Systems benchmark site; SASHA
Both regions	Pathogen-free breeder and foundation seed; seed maintenance trials (2)	CSIR-SARI; CSIR-CRI	WAAPP; Ghana Grains Development Board; SASHA
Both regions	Integration of nutrition education into community health planning and services	Ghana Health Service	SASHA
Both regions	Capacity building (all)	iDE-Ghana, SARI, MOFA, Ghana Health Service	Reaching Agents of Change (RAC) sweetpotato course ARMTI, Ilorin, Nigeria

Both regions	Gender-sensitive monitoring and evaluation (M&E) (all)	CSIR-SARI; esoko	Dryland Systems
<b>Burkina Faso</b>			
Hauts-Bassins (Kenedougou, Houet)	Market development, nutrition, and utilization training; production, storage, business skills, credit access (1, 3, 4); QDPM system, seed multiplication (2)	INERA; MOA; iDE-Burkina Faso	FRI; Dryland Systems benchmark site
Kenedougou	Links to Dafani S.A. juice factory, Orodada (1)	MOA; FGs	SASHA
Houet Province	Foundation seed multiplication and on-farm demonstrations (2)	INERA–Farako Ba; Nafaso	Alliance for a Green Revolution in Africa (AGRA)
<b>Nigeria</b>			
Kwara State (Irepodun and Offa LGA)	Market development, nutrition, and utilization; production, storage, business skills (1, 3, 4); QDPM system and seed multiplication (2)	NRCRI, Agricultural Development Programme	FMARD, Rainbow Project + ??
Osun State (Odo-Otin, Osogbo+? LGA)	Linkages to school feeding program; nutrition and utilization training; production, storage, business skills, and credit access (1, 3, 4); QDPM system and seed multiplication (2)	Partnership for Child Development (PCD), NRCRI, ADP	FMARD Rainbow Project; QIIP; CGIAR Research Program on HumidTropics benchmark site

### 2.3.7 BIOVERSITY On-going activities in WASDS

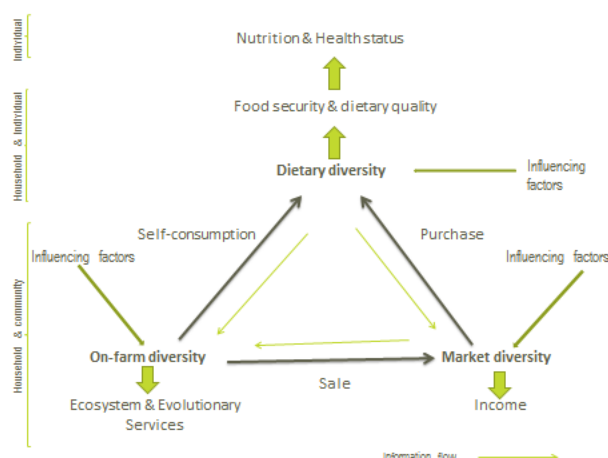
CRP WAS- DS Activity Title	CRP WASDS	Activity Leader	IDO	IDO Output
Agricultural biodiversity (ABD) assessment	WBS	Raymond Vodouhe, Mauricio Bellon	IDO 2	Tested methodology to assess ABD applied and disseminated; understanding of the role of ABD in household livelihoods; entry points to apply interventions to improve livelihoods identified; increased capacity of local partners to carry out this type of work.
Seed systems and community management of ABD	KKM WBS	Raymond Vodouhe, Mauricio Bellon	IDO 2	Characterization of the seed system used by target farmers, farmers and farmers' organization trained in improved seed production techniques
Dietary Diversity Assessment (West Africa)	KKM	Raymond Vodouhe, Mauricio	IDO 3	Inventory of the foods available to households characterization of the dietary diversity consumed by women and children.

		Bellon		
--	--	--------	--	--

## General objective

To characterize these three dimensions of ABD:

- the elements and relationships involved
- the exogenous factors that influence them
- as the basis for analyzing the roles of ABD in the lives and livelihoods of rural populations
- to identify entry points for designing and implementing interventions that contribute to improve their well-being



**Specific objective** - To identify and quantify the number of all useful plant and animal species (including fish) at the household-level (including both domesticated and wild species) that are:

- a) grown on farm and home garden, or collected from the wild
- b) consumed as part of the diet by mothers and children
- c) purchased and sold

Activity	Partner	Achievements / Results
Agricultural biodiversity (ABD) assessment	Institut d'Economie Rurale (IER)-Mali, Plant Genetic Resources Institute-Ghana, Crop Research Institute Kumasi-Ghana	<b>Farmers selected sorghum and millet varieties in Mali</b> <ul style="list-style-type: none"> <li>Strengthened collaboration among seed actors</li> <li>Major constraints to seed sector are examined.               <ul style="list-style-type: none"> <li>formal and informal seed systems are complementary and should both benefit from government and development aids.</li> <li>Current laws are not conducive to local seeds</li> </ul> </li> </ul> <b>Training of farmers on seed multiplication, seed conservation, packaging and on seed business plan development in Mali (46 farmers including 6 women)</b>
Seed systems and community management of ABD	IER-Mali INRAN-Niger INERA-Burkina Faso	
Dietary Diversity Assessment (West Africa)	INERA Burkina Faso; AMEDD, Mali; Animal Research Institute, Ghana.	



## 2.3.8 IWMI On-going activities in WASDS

Activity	<i>Progress towards outputs and IDOs, 2014</i>
<p><b>1.</b> Establish reference situation / baselines for the action sites to support systems approaches <b>IDOs: 1</b></p>	<p><b>Key activities:</b> Characterize farmer understanding, skills and aspirations in farm and business planning and meeting agronomic and financial objectives</p> <p><b>Expected Outputs</b></p> <ul style="list-style-type: none"> <li>➤ Survey instrument designed and executed. Results submitted for internal review.</li> <li>➤ <b>Area and Sites:</b> (KKM), Wa-Bobo-Sikasso</li> </ul> <p><b>Partners</b> - CSIR-SARI; University of Kumasi</p>
<p><b>2.</b> Assess and monitor biomass and resource flow in the action sites <b>IDOs: 1</b></p>	<p><b>Key activities:</b> Understanding the role of trees in surface and subsurface carbon fluxes, hydrology, microclimate and soil fertility protection at hillslope to landscape scales</p> <p><b>Expected Outputs</b></p> <ol style="list-style-type: none"> <li>1. Conceptual and empirical models of tree distribution in inland valleys and intervening ridges in agriculturally developed and virgin land submitted for review as conference paper.</li> <li>2. Model (conceptual or otherwise) describing ridge, hill slope and inland valley processes as conference paper.</li> <li>3. Spatio-temporal datasets and empirical relationships on tree-crop species combinations from field to catchment / landscape scales developed and reviewed internally.</li> </ol> <p><b>Area and Sites:</b> Wa-Bobo-Sikasso</p>
<p><b>2.</b> Assess and monitor biomass and resource flow in the action sites <b>IDOs: 1</b></p>	<p><b>Key activities:</b> Yield mapping of field crops to locate and help identify the causes of variability and capitalize on the causes of increases.</p> <p><b>Expected Outputs:</b> Characterization and reporting of main sources of variation published as a journal article</p> <ul style="list-style-type: none"> <li>➤ <b>Area and Sites:</b> Wa-Bobo-Sikasso</li> </ul> <p><b>Partners:</b> CSIR-SARI; University of Kumasi</p>

<p><b>3.</b> Induce intensification and improve resource use efficiency through on-farm testing and evaluation of technologies <b>IDs: 1</b></p>	<p><b>Key activities:</b></p> <ol style="list-style-type: none"> <li>1. Africa RISING farming systems experiments with the following treatments: 1) 'typical' or control; 2) best-bet options applied as informed by farmers and experts; 3) best-bet options applied from (2) that are economically viable</li> <li>2. Mechanization options for human, animal and tractor propelled operations. New designs of simple and robust implements.</li> </ol> <p><b>Expected Outputs:</b> Farm scale experiments conducted 2. Prototype implements undergoing on-farm trials</p> <p>➤ <b>Area and Sites:</b> Wa-Bobo-Sikasso</p> <p><b>Partners</b> - CSIR-SARI; University of Kumasi</p>
<p><b>4.</b> Facilitate effective linkage and knowledge exchange among different actors for improved system productivity and better market access <b>IDs: 1-6</b></p>	<p><b>Key activities:</b></p> <p>Smart phone apps for basic agronomy, basic water balance, forming market linkages and accessing market information</p> <p><b>Expected Outputs:</b> New apps beta tested</p> <p><b>Area and Sites:</b> Wa-Bobo-Sikasso</p> <p><b>Partners</b> - CSIR-SARI; University of Kumasi</p>
<p><b>5.</b> Promote local and regional knowledge generation and exchange for scaling up and out of promising intensification options and strategies <b>IDs: 1-6</b></p>	<p><b>Key activities:</b></p> <p>Coordinated catchment, district, regional and farmer to farmer bus tours for familiarization and exchange on local, catchment and landscape processes, ecosystem services and farming options and strategies.</p> <p><b>Expected Outputs:</b> Tours and field days conducted.</p> <p><b>Area and Sites:</b> Wa-Bobo-Sikasso</p> <p><b>Partners:</b> CSIR-SARI, University of Kumasi</p>

### Below are some quick comments from the participants:

**Clarification was sought on what is the role of W1/W2 Funds? Bilateral funds are there but do not help for integration. Should we adjust W1/W2 funds for integration?** The response was that the program should develop an analysis on how to use W1/W2 to fill gaps. W1/W2 are used for regional/particular projects and not for integration. The staff in the regions is not enough to foster integration.

**Participants observed that they were expecting to see one program from DS and how partners contribute to that comparative advantage. The integration aspect is not there. What do we need to create integration?** This is because the program is based on history of each center. It is important to learn from lessons. The biggest challenge is the historical problem. It is difficult to plan at different levels among centers. There is not continuity due to an

unequal budget allocation among different centers in the same region. We should go back and revisit research questions and re-align entry points.

***The presentation was only on CG centers work. There is need to establish relations with other CRPs.*** Participants were informed there is ongoing work with other CRPs (with CYMMIT and IWMI). It would be positive to attract other CG Centers. Which ones? ICRAF, IFPRI and ILRI;

Do we work for funding partners (Donors) or for the people? We should re-focus on beneficiaries. There are a lot of projects (i.e. Australian AID) not represented despite CG centers being members in those projects.

Which are the results? Which are the lessons learnt? The presentation shows what has been planned. We need to understand how to do coordination on the ground.

***Did you look into other aspects for Capacity development other than long term training?*** The response was farmers are involved even though the presentation was focused on young generations.

***Most of the presentation was on technologies and then on policy. We need to show linkages. You should strengthen platform to link those two aspects.*** It is true and innovation platforms should be strengthened.

***Please elaborate on the concept of scalability? What has been tested at action site level?*** We are too young. We need 2-3 years. Only conservation agriculture and water harvesting are ready for scalability.

***You presented the concept of Cementing. We should undertake the system approach first and not cementing the activities after.*** We are not doing the system approach. We still need time.

***Government and development bodies should be involved/integrated since the initial stage otherwise there is not scalability.*** Policy makers/development bodies have been involved since the beginning.

**Bio-economic model -we have this research ongoing in South Asia. We should collaborate with the work in NAWA. Do you think we have to collaborate? Is it possible?** Yes, we need cross-region activities. We work with ICRISAT within IFPRI: Global future project. We don't work within DS.

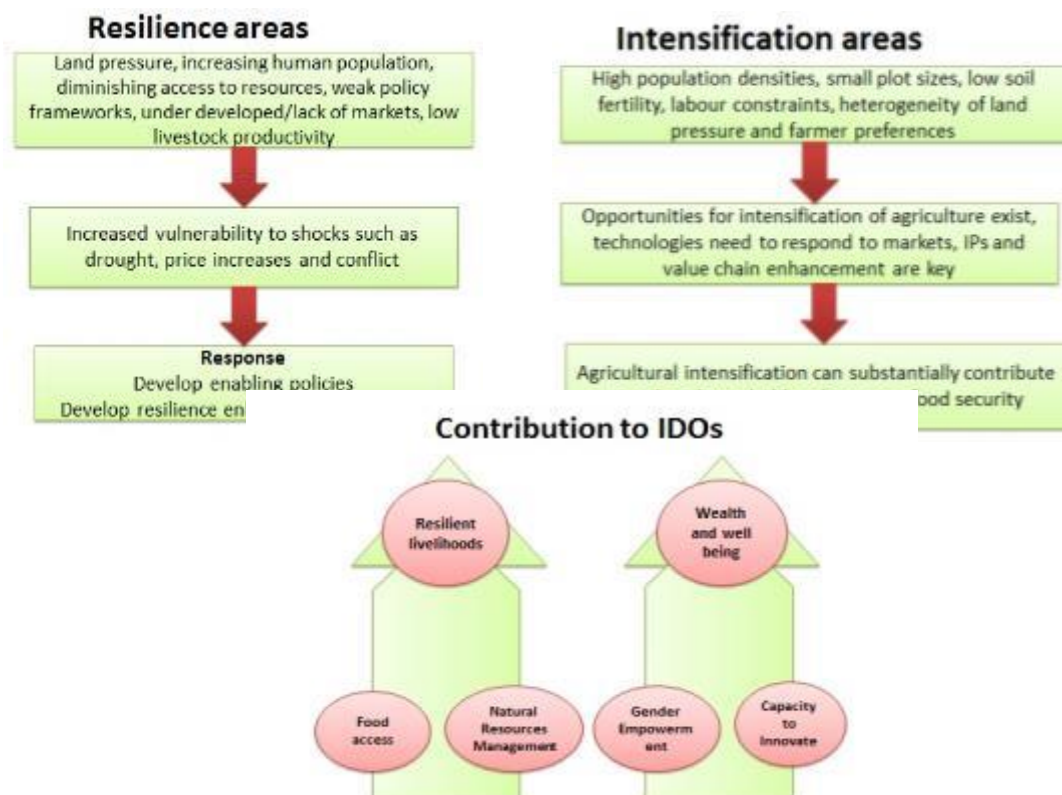
**75% of the presentation was technical. Where are the farmers? Are they involved at the beginning (bottom-up) or they receive our output at the end? Is the farmer involved in the full process?** Yes, farmers are involved- more information is available in the full presentation.

## 2.4 Regional Flagships: East and Southern Africa Flagship

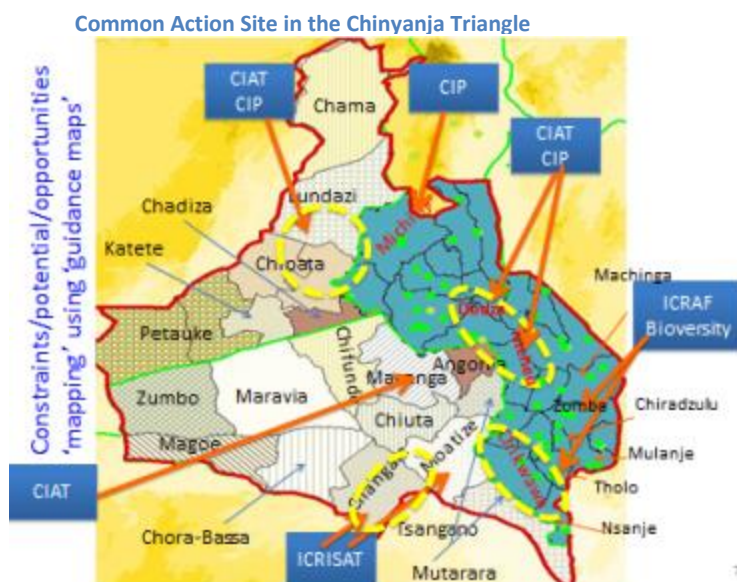
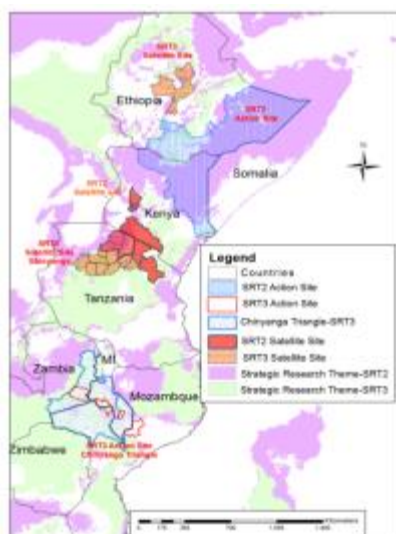
Presented by Polly Ericksen (prepared by Siboniso Moyo and Mohammed Said)

### Background

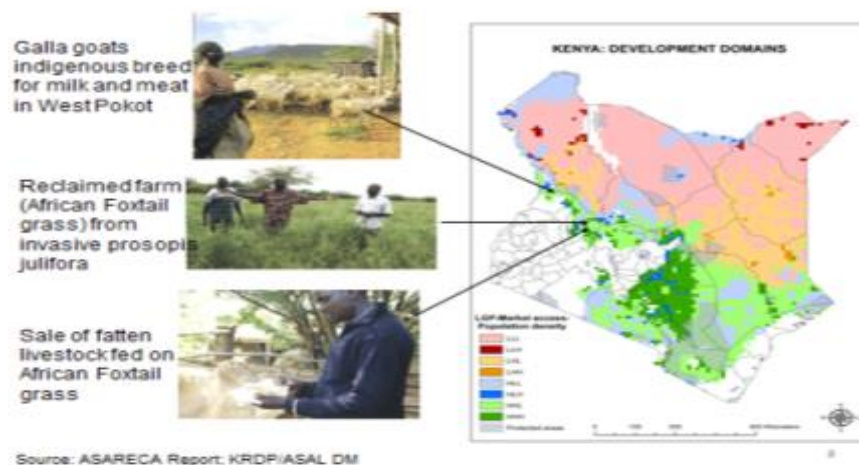
A problem analysis led to understanding of key issues as shown in the diagrams below:



## 2.4.1 East and Southern Africa Flagship Action Sites



### Kenya development domains



## 2.4.2 Main research questions

- What are resilience enhancing options?
- Where are the hot spots of land degradation and how best to tackle this?
- Do integrated crop and livestock systems minimise environmental impacts, reduce risk and enhance resilience?
- What are the major determinants of technology adoption by smallholder farmers?
- What are the best bet technology options that can be recommended for adoption by smallholder farmers?

- What are the dynamic drivers of change in the status of agricultural biodiversity resources in integrated crop livestock systems?
- What is the soil health status of landscapes and its implication on sustainable intensification?
- How to make low input small scale farming productive, profitable and resource efficient?
- What are the decision support tools which will help intensification of integrated agricultural water management interventions?

### **2.4.3 Tools and methods**

- Development of vulnerability frameworks
- Characterisation of food systems and identification of entry points
- Characterisation of agricultural biodiversity resources
- Understanding research gaps and gap filling
- Developing integrated systems approach to land and water use for productivity and income
- Developing resilience enhancing options and testing best bet technologies
- Baseline surveys, agronomic and socio-economic surveys
- Participatory value chain analysis and development of interventions
- Test extension approaches for NRM, land use plans, governances and tenure security
- Innovation platforms for stakeholder engagement
- Integrated systems simulation modelling, remote sensing and geospatial analysis
- Developing capacity of farmer associations and cooperatives

### **2.4.4 Scale of operation**

- Household (individual surveys)
- Plot level
- Farm level
- Community level (FGDs, participatory mapping)
- Landscape (rangeland ecology, NRM, water management)
- Ecosystem, biomass (range and biodiversity assessments and modelling)



### **2.4.5 Collaboration frameworks and Partnerships**

- Bioversity, CIAT, CIP, ICARDA, ICRAF, ICRISAT, ILRI, IWMI and SSA-CP
- Currently there is a regional focus
- Partnerships formed around bilateral projects
- All CGIAR Centres in DS/ESA;
- NARS;
- Farmers, Extension Services;
- Private Sector;
- Universities and colleges;
- NGO Partners in target sites
- Policy makers – in various countries

### **2.4.6 Key Achievements**

- Four Innovation Platforms (IPs) established in mixed crop-livestock systems
- Nine major technologies tested and put into use eg.
  - ✓ mechanised and non-mechanised CA;
  - ✓ intercropping maize with legumes;
  - ✓ cultivation of improved forage varieties;
  - ✓ Seed multiplication
- Partnerships developed and some strengthened
- Capacity building –Training of farmers, extension staff, MSc students and project teams.
- Soil and landscape health assessment conducted in the Chinyanja Triangle.
- Review on agricultural water management interventions for the Chinyanja Triangle.
- Revision of Empirical Model upon which Index Based Livestock Insurance contracts are based.
- Wildlife and conservation Management Bill 2013 was passed in Kenya.
- Work with KNDMA on EWS system.
- Generated knowledge, tools and data (eg. lessons distilled on IPs and NGO partnerships to improve livestock value chains)

- Publications, policy briefs and policy engagements (revision of policy) and media materials
- Conference papers on various topics on sustainable intensification of agriculture.
- Consultative process to compile and synthesise knowledge on trees and resilience in the drylands of Africa.
- Special publication on pastoral farming systems and food security in Sub-Saharan Africa priorities for science and policy
- Special publication on Pro-poor co-investment in environmental services in Africa and Asia: a theory of change

<b>2.4.7 Successes</b>	<b>2.4.8 Challenges</b>	<b>2.4.9 Areas for improvement</b>
<ul style="list-style-type: none"> <li>• Developed appropriate technologies</li> <li>• Introduced improved management practices</li> <li>• Generated data on several areas (eg. soils, landscapes, and household typologies)</li> <li>• Forged partnerships with local organisations which helped with implementation</li> <li>• Engaged stakeholders identification of constraints and opportunities</li> <li>• Generated publications on conceptualizing and measuring resilience in drylands,</li> <li>• Generated publications on sustainable intensification and</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding complexity of systems and implications for research and development.</li> <li>• Developing and tailoring the management technologies to a diverse group of large numbers of smallholder farmers.</li> <li>• There are barriers to adoption of technologies which are beyond Science and require investments (capacities and infrastructure) in the drylands.</li> <li>• Limited capacity to implement systems research (trans disciplinary research across organizations and partners)</li> <li>• CG Centres in the FP not yet working closely in implementing an integrated systems approach at the action site level.</li> </ul>	<ul style="list-style-type: none"> <li>• Adopt systems approach, and make use of synergies</li> <li>• Engage relevant stakeholders from the beginning.</li> <li>• More attention and involvement of policy and decision makers.</li> <li>• Improve Centre coordination and communication (joint planning).</li> <li>• Develop joint proposal to support the work of the FPs (currently plans do not match the available resources).</li> <li>• Improve reporting mechanisms.</li> <li>• Disburse funds in good</li> </ul>

on trees. • Conducted a number of capacity building initiatives	• New to joint planning • Centre issues result in focal points without authority to follow up on deliverables in some cases	time. •
--	--	------------

#### 2.4.10 What would we do differently?

- Define the goal of each FP clearly from the beginning.
- FPs should have the funding initially not Centres.
- Activities should be accompanied by resources.
- Allocate enough time and resources to do the work.
- Define and agree areas for joint resource mobilisation (filling the gaps).
- Improve mechanisms for inter centre coordination (funds, communication).

#### Quick comments from the participants:

***Barriers to technology: not so many of the technologies have been out scaled, is it because the technologies are feasible but subjected to technical challenges?*** Some minimal successes are being seen around the innovation platforms; however more effort should be put to promote the technologies.

***What are your experiences in getting development alliances and the governments to promote technologies?*** More development partners are moving from relief programs to development programs e.g. in southern Africa we are talking to FAO and USAID to support work on driving the technologies.

***A participant appreciated the multi-scale approach and requested for more elaboration on the different performance indicators and how to capture tradeoffs.*** We are still learning on how to report: on IDO basis are the indicator levels eg food security level, ecosystem level. Then we develop the reporting frameworks and indicators.

***What is the composition of innovation platforms and how effective/successful are they.***  
***What is the aim of the IP?*** Innovation not only comes from research (science), but also from

other relevant partners including the farmers. It is important to critically consider all other relevant partners to make sure the IP are successful. Most technologies are introduced by research/science and therefore stakeholder engagement in IP is critical.

***Looking at the map – shows no integration of the centers, what is the level of integration across the centers and initiatives?*** What is the incentive to move towards regional planning? The first step is the appointment of a coordinator. Then follows the commissioning of joint research programmes.

***What does integration really mean?*** FP should have funding not related to centers e.g. funds committed to specific research area. Currently money coordinated at FPs is sent to centers.

## 2.5 Regional Flagships: Central Asia and the Caucasus ongoing activities and future prospects

**Presented by Jozef Turok**

### Background

Existing partnership: Regional Program for Sustainable Agricultural Development in CAC

- ✓ Operational since 1998 – with a portfolio of about 70 projects since 1998
- ✓ Eleven CGIAR and non-CGIAR Centers: each center has own mandate and expertise – transfer, testing and development of technologies
- ✓ Strong partnership with national agricultural research systems
- ✓ Governance by Steering Committee
- ✓ Program Facilitation Unit in Tashkent provides policy, technical and administrative support
- ✓ Strengthening local institutions and training – so far 130 training courses with more than 2500 participants

## CGIAR Research Programs in CAC

<ul style="list-style-type: none"> <li>• Research problems are inter-related</li> <li>• Interdisciplinary approaches combined with site-specific implementation plans</li> <li>• Exploit synergies among Centers, avoid redundancy, contradictions and competition</li> <li>• Increased stakeholder participation for improving acceptability of research results</li> <li>• Inclusion of gender, youth issues</li> <li>• Co-location of Centers and common procedures, resources in Tashkent have offered opportunities for CRPs implementation in Central Asia</li> </ul>	<ul style="list-style-type: none"> <li>• Dryland Systems</li> <li>• Policies, Institutions and Markets</li> <li>• Wheat</li> <li>• Roots and Tubers</li> <li>• Dryland Cereals</li> <li>• Water, Land and Ecosystems</li> <li>• Forests, Trees and Agroforestry</li> <li>• Climate Change</li> <li>• Genetic Resources</li> </ul>
---	---

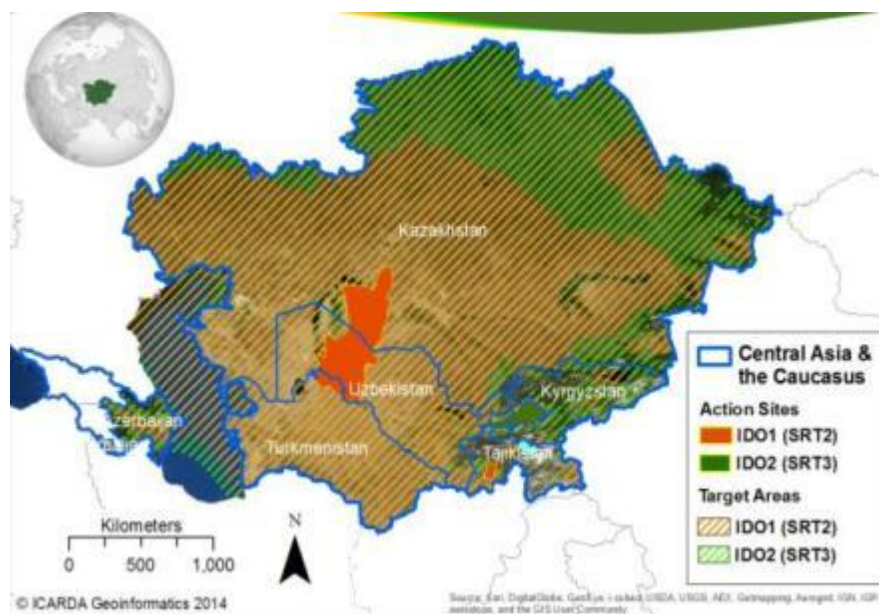
### 2.5.1 Systems research agenda in Central Asia

**Sustainable intensification - Fergana Valley** including Batken, Jalalabad, Osh provinces

(Kyrgyzstan), Sugd region  
(Tajikistan), Andijan,  
Namangan, Fergana  
provinces (Uzbekistan)

#### Key characteristics:

**Water for irrigation,**  
options for diversified  
production **systems for**  
**cotton-wheat-livestock-**  
**vegetables** **and**



**horticultural crops**, characterized by high and unique agrobiodiversity, along with good research and transport infrastructure are some of the factors that can lead to higher standards of living of the local population

## 2.5.2 Inception and implementation

**(From research hypotheses to activities with Outputs, Outcomes, IDOs, Impact)**

### Inception phase 2011-2013

- Regional Implementation Workshop in August 2013
- Integrated Research Team with inputs from Centers' Programs
- Detailed characterization of Action Sites in English and in Russian available on internet
- Finalized Logframe, discussed and agreed on a set of 21 Activities
- Partners and their key contributions along the research-for-development continuum
- New funding: CGIAR/ICARDA contribution of Russian Federation fully aligned with DS CRP in Central Asia

**risks, constrains bottlenecks** - Salinity, waterlogging, irrigation water deficit, soil degradation, drought, heat, frost tolerance of crops, low productivity, landslides, soil erosion, out-of-date or lacking storage and processing infrastructures, inefficient seed systems, low research education and extension capacity in agriculture, lack of small-scale innovations, etc.

### Mapping of constraints across Action Sites

Problems, constraints	Action site		
	Fergana Valley	Aral Sea Region	Rasht Valley
Salinity	Moderate	Severe	Fragmented
Waterlogging		In Khorezm province	Severe
Irrigation water deficit		Severe	Seasonal
Soil degradation	Moderate	Severe	Severe

Low drought, heat, frost tolerance of varieties	Low productivity of local varieties	Low productivity of local varieties	Low productivity of local varieties
Low productivity – crops	Moderate	Due to soil degradation	Marginalized agriculture
Low productivity – livestock		In Marginal lands	In Marginal lands
Landslides			Typical
Soil erosion	Moderate	Severe	Severe
Out-of-date or lacking storage and processing infrastructures		Out-of-date or absence technologies	Across value chain
Inefficient seed systems	Undeveloped	Absence	Absence
Low capacity	Need to be improved	Very low	Very low
Lack of small-scale innovations	Need to be out-scaled	Throughout	Throughout
	Moderate		
	Severe		

**Production/livelihood systems** - Cereals – winter wheat, barley, rice; grain legumes, vegetables, potato; cotton; agroforestry; horticulture; pastures; livestock; fodder crops; poultry; aquaculture, bee-keeping-(1)Agro-pastoral, (2) Irrigated crop system, (3) Tree-based and (4) Home gardens

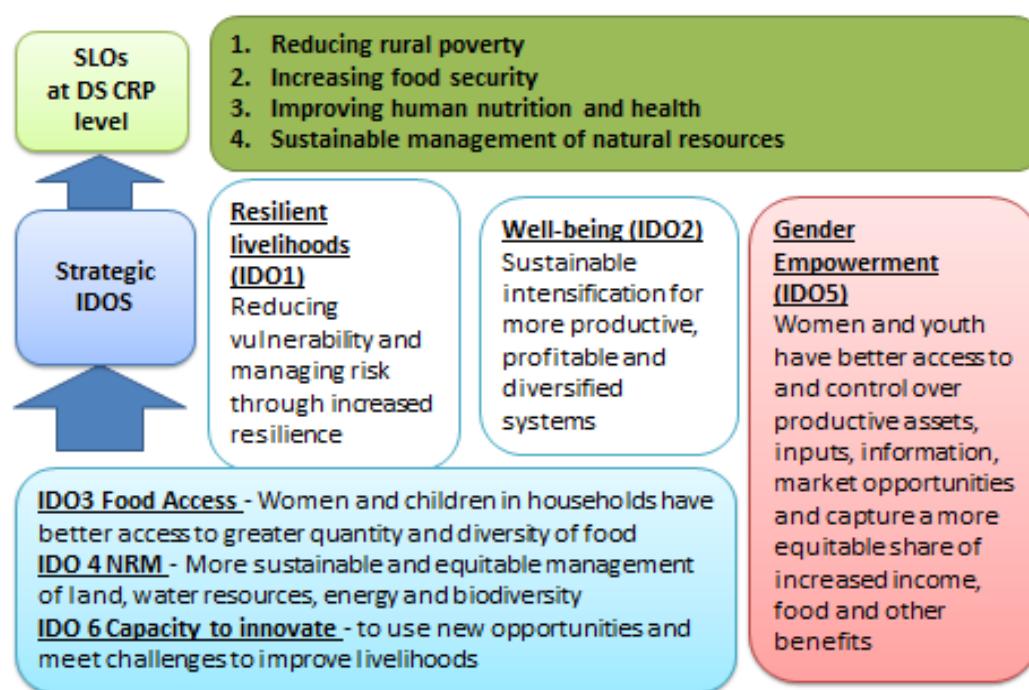
**Research hypotheses:** 14 hypotheses articulated.... Improved options and practices for integrated water and land resources management, increased diversity portfolio (including neglected and underutilized species) adapted to soil salinity in target cotton-wheat-rice-livestock production system will increase soil and environmental health, sustainable agricultural productivity, improve diets and food nutrition, and increase employment in the Aral Sea Region



**Innovations and deliverables:** *methods, tools, processes, technology, research, testing, adoption, options* developed through integrated, participatory research

**Cross-cutting issues:** Gender, youth, biodiversity, smallholders, nutrition, capacity building

### Hierarchy of DS CRP objectives in Central Asia



### Outreaching DS CRP in Central Asia



## 2.5.3 Highlights of progress in Action Sites

### Activities in 2014 -- 2015

1. Productivity of marginal lands
2. Livestock productivity
3. Water use efficiency
4. On-farm adaptive trials/ varieties
5. Seed systems
6. Strategic Innovation Platform
7. Knowledge management CACILM
8. Geoinformatics capacities

### Mapping Phased Activities across ALSs

Ongoing cluster activities	2014				2015				2016			
	Ag	Tr	Ir	Hm	Ag	Tr	Ir	Hm	Ag	Tr	Ir	Hm
1 Marginal lands												



## Contribution of Activities to IDOs

Cluster activities	IDO1 - resilience				IDO2 - wellbeing				IDO3 - Food				IDO4- NRM				IDO5 - Gender				IDO6 - Capacity			
	Ag	Tr	Ir	Hm	Ag	Tr	Ir	Hm	Ag	Tr	Ir	Hm	Ag	Tr	Ir	Hm	Ag	Tr	Ir	Hm	Ag	Tr	Ir	Hm
1 Marginal lands	40%	20%	20%		10%	30%	20%		10%	10%	10%		20%	20%	30%		10%	10%	10%		10%	10%	10%	
2 Livestock productivity		30%	40%		10%				20%				20%				10%				10%			
3 Water use efficiency		20%		20%		30%	10%	20%						40%	40%	40%				20%		10%	10%	
4 Varieties	30%	20%	20%	20%	20%	30%	20%	30%	20%	20%	20%	20%	10%	10%	10%		10%	10%	20%	20%	10%	10%	10%	10%
5 Seed systems	20%	20%	20%		20%	20%	20%		20%	20%	20%		10%	10%	10%		20%	20%	20%		10%	10%	10%	
6 Innovation Platform	30%	20%	10%		20%	30%	40%						10%	10%	10%		10%	10%	10%		30%	30%	30%	
7 CACILM	30%	20%	20%	10%	10%	20%	20%	10%					20%	20%	20%	40%	10%	10%	10%	10%	30%	30%	30%	30%
8 Geoinformatics	40%	30%	30%		30%	30%	30%						30%	40%	40%									

	Marginal lands	Livestock productivity	On-farm adaptive trials	Water Use Efficiency
Objective	Improve agricultural production under saline conditions with minimum trade-offs within the Aral Sea Basin, applying a farming systems approach	Increase livestock productivity for better availability of animal proteins to the households and increased revenues and well-being of the pastoralists	Identify multiple new varieties with better and reliable yields that reach more farmers who cultivate in the prevalent crop-livestock systems to improve the competitiveness of crops within farming systems by enabling labor-saving technologies to reduce weeding and harvesting costs	<ul style="list-style-type: none"> <li>Determine water and energy productivity of dryland production systems with high level of vulnerability and with greater potential for more productive, profitable and diversified dryland agriculture</li> <li>Introduce innovative technologies in irrigation and cultivation of cereals, potatoes, vegetables, fruits and forage crops in Fergana Valley through (collaboration with SIC-ICWC)</li> <li>Analysis of existing constraints hindering the efficient water use based on an assessment of the results of previous projects;</li> <li>Organize an effective system of water management at the field level in WUAs;</li> <li>Organize demonstration plots in selected pilot WUAs;</li> <li>Transfer available knowledge and technologies; training.</li> </ul>

Outputs in 2014	<ul style="list-style-type: none"> <li>• Inventory and classification of production systems and marginal lands associated with different natural resources management scenarios -- one dataset for the Basin</li> <li>• Networking with national research partners and policy makers to develop a basis for institutional support for long-term salinity management</li> <li>• Field-based management strategies within the broader regional salinity management approach, in cooperation with CRP WLE</li> <li>• Gender aggregated labor distribution and decision making processes for communities</li> </ul>	<ul style="list-style-type: none"> <li>• Analysis of sheep and goat production systems in two communities in each Action Site (Rasht Valley and Aral Sea Region)</li> <li>• Qualitative value chain analysis from production through to consumption in two Action Sites representing 400 small ruminant keeping households</li> <li>• Set of interventions identified and prioritized</li> </ul>	<ul style="list-style-type: none"> <li>• 200 advanced lines of wheat, barley, chickpea, mungbean, tomato and potato evaluated by the farmers</li> <li>• One training course organized on planning, management and evaluation of field experiments; and one on application of statistical software in data analysis, presentation and interpretation of the results</li> <li>• Three farmer field days</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
-----------------	---	--	--	---

Progress	<p>Mapping marginal lands in Khorezm province, Uzbekistan (Aral Sea Site) in collaboration with KRASS, April 2014</p>	<ul style="list-style-type: none"> <li>• Workshop with key national partner institutes and other Activity leaders; field visits in Rasht Valley, discussions with livestock farmers – May 2014</li> <li>• Focus on agro-pastoral systems considering linkages to mixed systems, fodder production opportunities</li> <li>• Set of interventions discussed, identified</li> <li>• Field research coordinator recruited</li> <li>• Linkages with World Bank regional project on animal health</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Field demonstration plots</li> <li>• Out-scaling: one improved variety of chickpea planted on 11 ha involving 8 farmers in Namangan, Uzbekistan to demonstrate varietal performance and multiply seed for out-scaling in 2014-2015 season</li> <li>• Two commercial varieties were selected by the farmers and will be entered in official seed multiplication plan for 2014-2015 in Karakalpakstan and Khorezm regions of Uzbekistan. These varieties were previously not recommended for cultivation in the Aral Sea Action Site in Uzbekistan.</li> <li>• One commercial and three perspective winter wheat varieties were selected by the farmers in Fergana Valley in Uzbekistan to be included in the official seed multiplication plan for 2014-2015. Previously, these varieties were not cultivated in the Fergana Valley Action Site in Uzbekistan.</li> <li>• Five new candidate cultivars of winter wheat were identified in field evaluation and will be tested for quality parameters. One cultivar is likely to be submitted to State Variety Testing for further testing and release in Aral Sea Region.</li> <li>• Two frost tolerant winter wheat varieties were selected by the farmers in the Sugd province of Tajikistan. Farmers' field demonstration and seed multiplication of these two varieties will be done in 2014-2015.</li> </ul>	<ul style="list-style-type: none"> <li>• Review and preparation of a set of existing approaches and technologies on the basis of previous projects in selected pilot WUAs in the Fergana Valley :</li> <li>• Developed mechanisms for effective planning and water allocation;</li> <li>• Selected pilot farms and demonstration plots on which innovative technologies are practiced.</li> <li>• Selecting and organizing demonstration fields in the Fergana province (Fergana Valley Site, Uzbekistan) -- farmer's household "Kahramon Davlat Sahovaty" located on the territory of the Quva district of the Water Users Association "Kodirjon Azamjon" (winter wheat area 1 ha and cotton 19 ha)</li> <li>• Four measuring stations were built to measure water supply and discharge of residues of irrigation water from the irrigated fields. These gauging stations are located at the inlet and outlet of the field allocated for cotton crops and winter wheat -- from technical report SIC-ICWC, April 2014</li> <li>• <b>in Fergana:</b> Water and Energy Use Efficiency through Innovative Irrigation Approaches; Linked to an ongoing bilateral project on Improved potato varieties and water management technologies;</li> <li>• Water governance and its impact on efficient use of water;</li> <li>• Gender in Water Users Associations (WUAs).</li> </ul>
----------	---	---	---	---

## Central Asian Countries Initiative for Land Management (CACILM) – Knowledge Management in Phase II



### Project objectives

Enhance the CACILM knowledge management component for facilitating widespread dissemination of Sustainable Land Management approaches and technologies;

Improve agricultural systems for enhanced productivity and sustainability, and promote climate change adaptation approaches and technologies.

- Multidisciplinary approach to disseminate SLM at different levels for enhanced productivity and climate change adaptation through synthesis, socio-economic assessment and packaging and dissemination

### Collected Sustainable Land Management approaches and technologies to date

Countries	Approaches	Technologies	TOTAL
Kazakhstan	1	34	35
Kyrgyzstan	9	25	34
Tajikistan	5	31	36
Turkmenistan	0	20	20
Uzbekistan	14	40	54

### Conservation Agriculture

- ✓ First conservation tillage practices in Kazakhstan in the 1960s
- ✓ Now more than 1,900,000 ha under conservation agriculture mostly in rain fed North Kazakhstan
- ✓ Recognized in state policy with subsidies
- ✓ Research and demonstration efforts in irrigated areas in Kazakhstan, Azerbaijan, Uzbekistan
- ✓ 'Crop-Livestock Conservation Agriculture' -- Tajikistan

### Equipment procurement:

- ✓ plot thresher 5 units,
- ✓ EM Meter for field salinity measurement,
- ✓ maintenance of Eddy Flux Tower,
- ✓ laser levelling equipment etc



## Innovation Platform and up-scaling



### 2.5.4 Selection of Representative Research Areas in Action Sites

Selection criteria	
<ul style="list-style-type: none"> <li>• High potential to demonstrate impact for the small farmer</li> <li>• Ideally a mixed farming system, i.e. different crops, livestock; diversity in economic status of small farmers, age and ethnic groups, man/woman headed households, different sources of income; varied production constraints/ opportunities</li> <li>• Geographically located in an Action Site and represents its characteristics</li> <li>• Access to support institutions – national research and extension services</li> <li>• Availability of previous data/ baseline survey is an advantage</li> <li>• A cluster of farms (village), a large farm, a cooperative or Water Users Association</li> </ul>	
<b>Representative Research Areas: Fergana Valley</b> <ul style="list-style-type: none"> <li>• Davlat Qanimat Farm</li> <li>• Bakht Tarona Savosi Farm</li> <li>• Kahramon Davlat Sahovati Farm</li> </ul>	<b>Representative Research Areas : Rasht Valley</b> <ul style="list-style-type: none"> <li>• Falhabad Village</li> <li>• Jirgatal Village</li> </ul>

### 2.5.5 Perspectives

- Baseline survey and data management
- Expanding clusters of Activities in Action Sites
- Policy makers at all levels; rural advisory services

- Exchange of experience with other Regions
- Barriers to broader adoption -- training and capacity building
- Mechanisms of interaction with other CRPs in the Region
- Change of mind-sets...!

### **Quick comments from the participants:**

***In your work plan you outline activities for up to 2016, but you have not put information on up scaling –what do you intend to upscale and to whom? What varieties to be scaled out or released?*** There is no budget for outscaling; we will focus on establishing partnerships especially with governments for outscaling. A lot of the work on varieties is piloted. On seed multiplication, varieties are in all 4 phases with some in discovery. We only release varieties that have been out scaled.

We should put in mind and from the beginning role of development agents on outscaling as we will be judged from our impact. Therefore the added value of CRPs should be partnerships with development agents/partners. We should collaborate more with commodity programmes to make our role clear in the systems approach.

***For 2013/2014 activities you did not indicate capacity building yet it is a core component.*** Capacity building is cross cutting, the programme has demonstrated this e.g. trainings

***There is no information on operational level of innovation platform in your strategic plan.*** IP have been established at all the action sites and they incorporate all partners considered relevant.

***Data management*** – there is a contract with oxford university across all CRPs. However it is critical to consider data management aspects including harmonization.

***Focus of your programme strikes as more technically oriented which is not credible in the systems approach as well as in the central economy.*** We are balancing the speed at which we are addressing other socio-economic issues. There is work done by ILRI on water, food and energy; therefore the concept is adequately covered.

***What and how have you defined water productivity?*** Human demand for water versus what is supplied i.e. aligning human demand with what the ecosystem is providing.

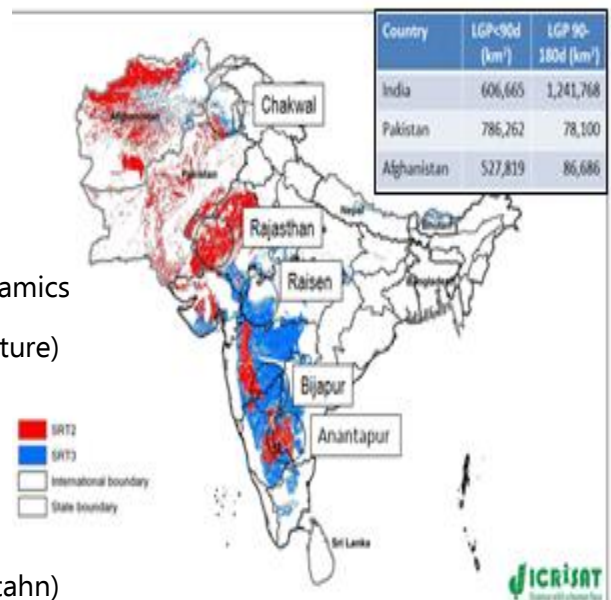
***You indicate gender has been given more attention (IDO5) but this did not come out clearly – how are you looking at gender, what is the criteria you are using in your typologies?*** There is ongoing work on mainstreaming gender e.g. working towards recruiting a gender specialist. There is also a socio-economic research that will disaggregate gender data/information.

## 2.6 Regional Flagships: South Asia Dryland System: Progress, Lessons and Challenges Ahead

Presented by Anthony Whitbread (prepared by Haileslassie, Whitbread, Krishna, Wani)

### 2.6.1 Location and characteristics of the action sites

- Agro pastoral systems
- Irrigation systems
- Tree based systems
- Intensive rainfed systems
- Rainfall gradients ~600-150mm
- Diversity in soil and thus the soil-water dynamics influencing agricultural practices (sand- clay texture)
- Extensive and intensive and farming systems
- Systems undergoing rapid changes (e.g. migration, non-farm employment)
- Yield instability (Anantapur) and high CV (Rajasthan)
- Changes in the structures of farming systems (e.g. livestock species, land holding size)
- Production systems and livelihoods in transition: how can we support



### 2.6.2 What do we want to achieve and research questions?

**Generating knowledge on the present performances of production systems.**

- What are structural components of the system and their interactions;

- What are the functional components of the system (e.g. input levels and types and output level achieved over time); and status of the system (e.g. stability, risk).

### **Improving system performances and associated livelihoods.**

- What are farmers' livelihood objectives and how it matches with the current level of livelihood outcomes?
- What are the options and scenarios to achieve higher level of performances?
- Trade-off analysis.
- Recommendation domain and out and up scaling.

### **High level activities to address the research questions**

- Baseline characterization of systems function and structure and ex-ante impact assessment of selected technologies ( DP, PC)
- Identification, demonstration and validation of promising technologies and diversification options for enhanced productivity and livelihood security (PC, Piloting)
- Gender inclusive capacity strengthening of individuals, community and institutions on knowledge gaps and promising technologies (PC)
- Enabling institutional and policy options for enhanced adoption, resilience and market access for improved livelihoods ( PC)
- Monitoring and evaluation of project interventions and trade-offs (DP)
- Effective convergence for out-scaling and larger impacts (SUP)

## **2.6.3 How we want to do this:**

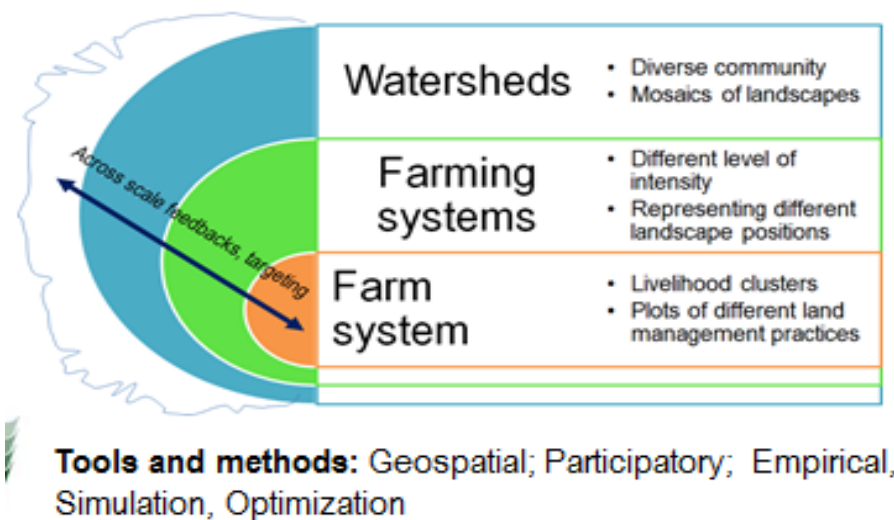
### **Partners**

- **Regional coordinator:** ICRISAT
- **CGIAR partners:** Bioversity, CIP, ICARDA, ICRAF, ILRI, IWMI.... Level of collaboration and integration

- **NARS partners:** Indian Council Agricultural Research (ICAR), Indian Agricultural Ministries, Pakistan Agricultural Research Council (PARC), Ministry of Agriculture (Afghanistan)
- **Agricultural Universities:** University of Agricultural Sciences, Karnataka; Acharya NG Ranga Agricultural University, Andhra Pradesh
- **National and State-based NGOs:** BAIF, GRAVIS, AF-Ecology Center

## Scales and tools/methods

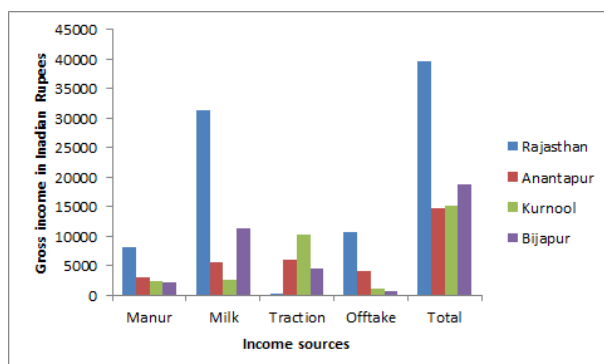
**Scales:** 6 Districts, 15 villages, Nested approach



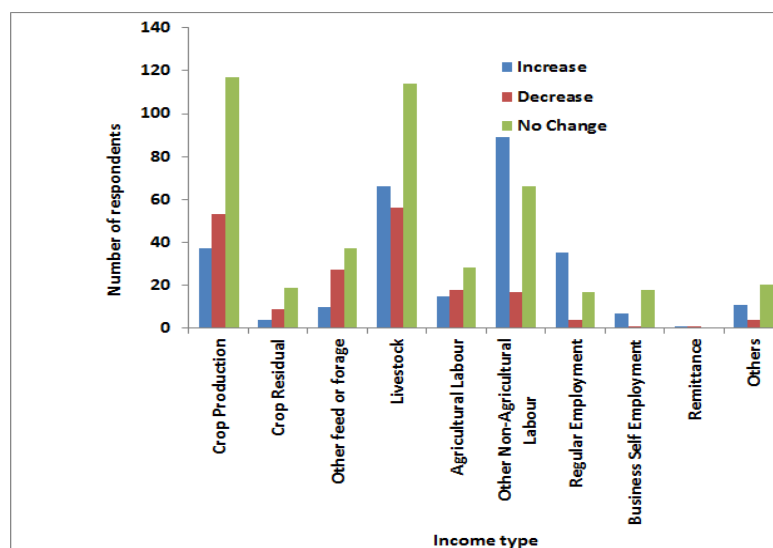
## 2.6.4 Synopsis of activities implemented and emerging issues

Emerging issues:

- Livestock holding – action sites: Anantapur, Rajasthan, Kurnool and Bijapur
- Feed seasonality-Rajasthan
- Gross income as calculated by expert



d) Sources of livelihoods and trends over the last five years-Rajasthan



- e) Relation between different income sources and implications - **Key message:** how can the different livelihood sources complement each other?
- f) Household vulnerability-Andhra Pradesh (income at Rs. 15,472 and Rs.36,500 per year) plotted against income
- g) Adaptation strategies ... one does not fit all!

A2	Livestock + Change in cropping pattern + Farm Mechanization
A3	Livestock+Following Improved Crop Production Practices + Farm Mechanization
A4	Livestock +Providing Supplemental Irrigation + Farm Mechanization
A5	Livestock + Additional Skill Development Activities +Change in Cropping pattern + Farm Mechanization
A6	Livestock + Additional Skill Development Activities +Change in Cropping Pattern+ Change in Planting Date + Farm Mechanization
A7	Livestock + Additional Skill Development Activities +Change in Cropping Pattern+ Change in Planting Date + Providing Supplemental Irrigation+ Farm Mechanization
A8	Livestock + Additional Skill Development Activities +Change in Cropping Pattern+ Change in Planting Date + Following Improved Crop Production practices +Providing Supplemental Irrigation+ Farm Mechanization

h) Scenarios and their ex-ante impacts

i) **Scenario 2:**

j) **PL= Rs.42.4/day for Andhra Pradesh, Rs.179.3/day for Karnataka and Rs. 54.9/day for Rajasthan.**

k) **HI: increased income of the household(21% for Andhra Pradesh, 24% for Karnataka and 19% for Rajasthan due to adaption of improved strategies)**

l) **Scenario 4:**

m) **PL=Rs.100/day**

n) **HI: increased income of the household (21% for Andhra Pradesh, 24% for Karnataka and 19% for Rajasthan due to adaption of improved strategies)**

o) **Scenario 6:**

p) **PL=Rs.200/day.**

q) **HI: increased income of the household (21% for Andhra Pradesh, 24% for Karnataka and 19% for Rajasthan due to adaption of improved strategies)**

r) Land use land cover maps

s) Composite sustainability index -farm typologies

Sustainability pillars	Farm typologies				
	1( N=247)	2(N=131)	3(N=84)	4(N=20)	5(N=11)
Economy	0.11±0.06a	0.13±0.07b	0.15±0.09c	0.13±0.09ab	0.19±0.16c
Environment	0.20±0.06a	0.31±0.05b	0.27±0.08c	0.30±0.05cb	0.27±0.07cb
Social	0.40±0.10a	0.39±0.11a	0.47±0.13b	0.42±0.12a	0.45±0.12a

t) Relation between sustainability index

u) Three dimensional approaches to agricultural biodiversity survey



v) Impacts of improved seed (millet) on grain and biomass yields (>250 farmers system impact?) and (Chickpea) on biomass yields (system impact?)

w) widespread deficiencies of plant nutrient ( Ananatapur)

x) Up scaling



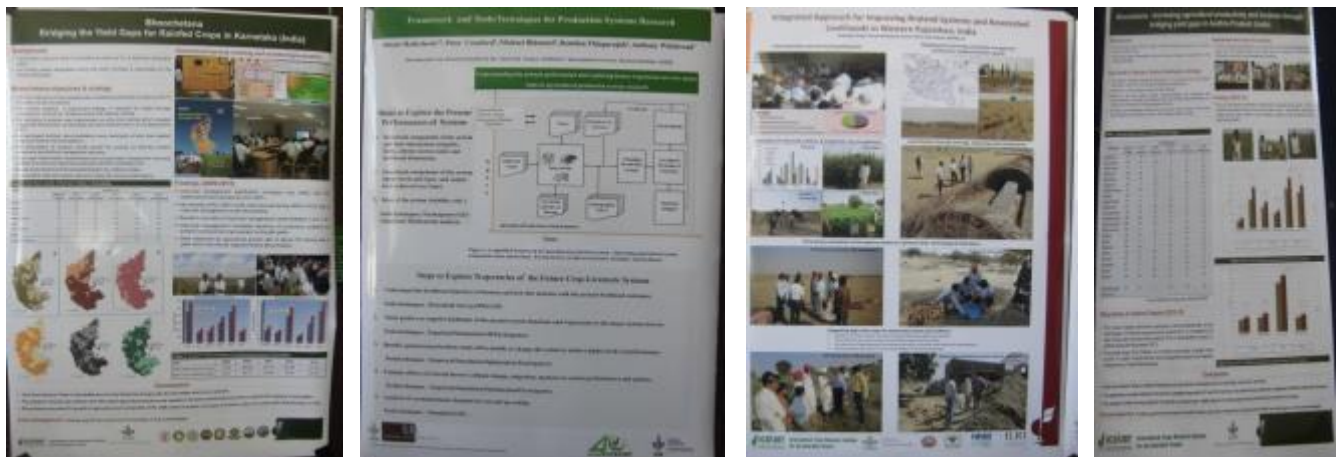


## 2.6.5 Successes and what did not work well

- y) Partnership building, baseline establishment, piloting...
- z) Coherent framework for research and development continuum....
- aa) Integration across regions and partners is needed- ( activities in Pak, India...
- bb) Conceptual framework for regional and global synthesis – regional partners must work but within the global framework
- cc) Common/ understanding on what farm system/farming system/integration are- position paper

## 2.6.6 Biggest implementation challenges

There is no short cut to bring impacts on system related research. It is the result of component integration and interaction: i.e. it is a process and needs enough time to mature. Differences between impact on components and system need to be differentiated. We need to focus. We need finance and man power



### Quick comments from the participants:

***What is new, what has CRP brought that adds value?*** There is really nothing new, but we have innovatively brought together what is being done e.g. micro-nutrients to bring impact on farmers – yield increment from nutrient input brings tremendous impact to farmers who initially were not using nutrients.

***What is the role of off farm income and related off farm activities? What is the explanation for on-farm productivity?*** The purpose of farm typologies e.g. extensive rainfed

based, irrigation based – the technologies are directly addressed to recommendation domains eg some farmers need fertilizer recommendation, others water saving technologies like drip irrigation – therefore the typologies address specific needs of farmers.

***How do you use your research structure?*** India is one of the countries with institutions under systems approach and most research is based on thematic areas.

***How is your partnerships strategy i.e. what percentage or fraction of your budget is dedicated to partnerships?*** Details can be shared by management committee. However partnerships budget depend on development impact they deliver.

***What is different? There is need to learn from each other and look at the tradeoffs correlations - especially the negative correlations. The non-intended impacts and potential surprises should be adequately considered.***

## 2.7 Regional Flagships: North Africa and West Asia region on-going activities and future prospects

Presentation by Ali Nefzaoui

### 2.7.1 NAWA FS challenges and opportunities

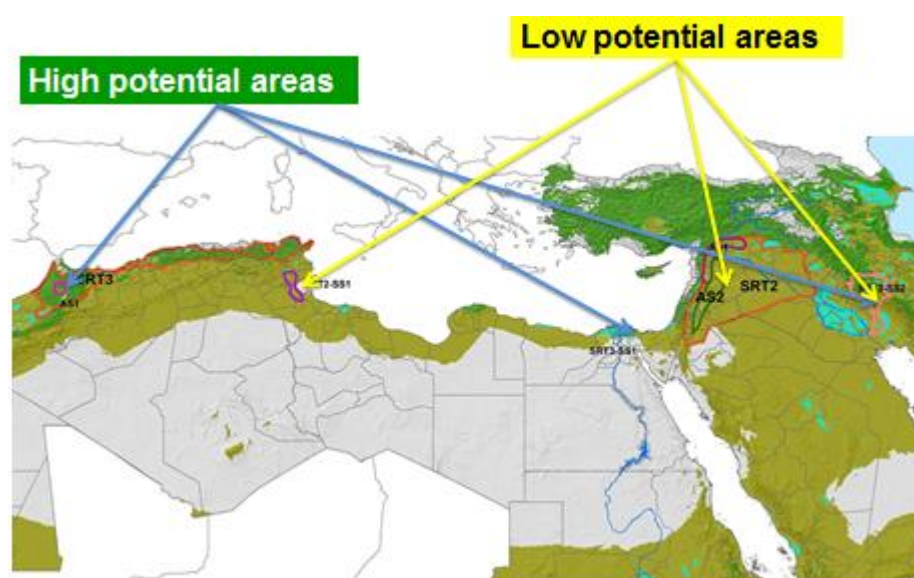
NAWA FS Challenges to Overcome	NAWA FS Opportunities
<ul style="list-style-type: none"> <li>In low potential areas (SRT2), <b>aquifer degradation</b> both in terms of level and quality.</li> <li><b>High temporal variation in precipitation</b> with annual variation between 23 and 60% with precipitation occurring almost entirely in the winter. This variability, along with <b>climate change</b> projections that predict a reduction in precipitation by <b>10-30%</b> by the end of the century, pose severe challenges to rainfed cropping.</li> <li>Poor households, often utilizing <b>less than one hectare</b> of land (10-40 %)</li> <li>Due to <b>unavailability of credit</b>, on poor rainfall years when stock losses are heavy, most households are not able to immediately <b>restock</b> their flocks and herds.</li> <li>In both favorable and marginal areas there is a distinct <b>rejection of pastoral activity by the younger</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Highly mechanized agricultural systems</b> exist within the SRT 2 area. In the SRT2 area there is also a <b>strong preexisting network of traders</b> for high value items like dairy products, sheep, and fruit. A complex relationship between middlemen and on farm producers.</li> <li><b>The</b> growing period in the SRT3 areas of North Africa are quite long ranging between 200 to 240 days. Because of favorable temperature regimes across most of the site it provides <b>excellent conditions for growing a diverse range</b> of climatically adapted crops.</li> <li>Most of the soils in favorable areas are <b>good agricultural soils</b> and are already under cultivation. This makes the potential for substantial short to medium term production gains more likely.</li> <li><b>Moderate to high access to improved varieties</b></li> </ul>

<p>generation that is leading to out migration.</p> <ul style="list-style-type: none"> <li>A lack of <b>skilled agricultural and pastoral labor</b> could become a serious problem in the agricultural sector.</li> </ul>	<ul style="list-style-type: none"> <li>SRT 3 areas are well enough <b>connected to the EU market</b>.</li> <li>A great number of potential <b>R4D and development partners</b> are already at work in this region creating opportunities for synergy.</li> </ul>
---	--

## 2.7.2 Goals to achieve through CRP-DS

*The goal is 'sustainable intensification' and investment for long-term food security*

- to reduce vulnerability to system shocks and climate change in dry resource poor areas with poor institutions and poor market connectedness,
- to sustainably intensify production in less marginal areas which tend to have better institutional support and access to markets



### Sites characterization

#### Biophysical descriptors

- ❖ Climate
- ❖ Topography
- ❖ Soils)
- ❖ Water resources
- ❖ Land use/land cover
- ❖ Land degradation

#### Socio-economic descriptors

- ❖ Demography
- ❖ Agricultural systems
- ❖ Governance, institutions, policies
- ❖ Opportunities for agricultural research

## 2.7.4 Major Agricultural livelihoods (ALSs)

ALS	Brief description	Major constraints	Sites
-----	-------------------	-------------------	-------

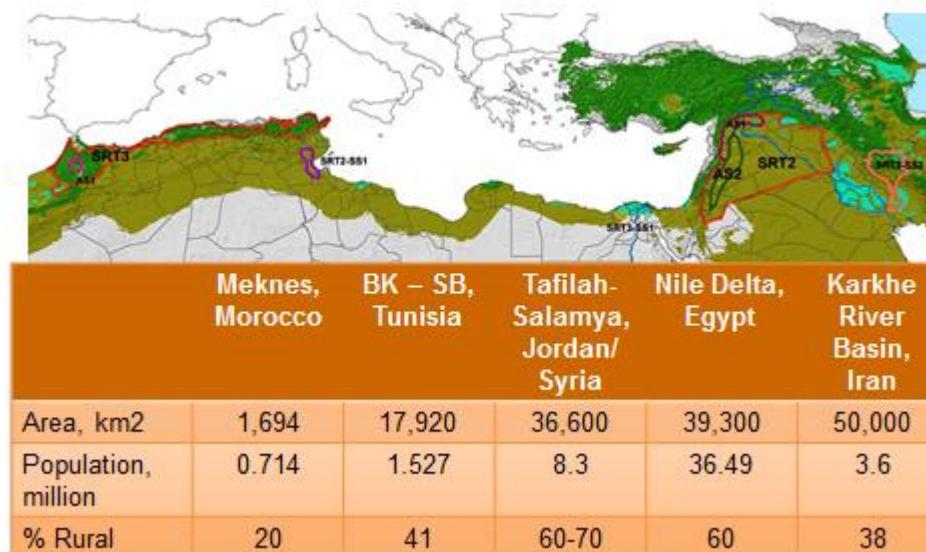
<b>Agropastoral Systems</b>	Agricultural livelihood based on small ruminants, barley crop, small scale irrigation	Overgrazing, feed imbalances, land degradation, water scarcity, climate variability, conflicts over resources, youth unemployment	<ul style="list-style-type: none"> <li>▪ Tafilah-Salamya, Beni Khedache-Sidi Bouzid,</li> <li>▪ Karkheh River Basin</li> </ul>
<b>Intensive rainfed Systems</b>	Wheat-based cropping system, land fragmentation, horticulture is intensifiable and market-oriented including for export, intensive dairy cattle production	Land degradation, nutrient deficiencies, water scarcity, climate variability, youth unemployment	Meknes-Saies, Karkheh River Basin
<b>Tree-based Systems</b>	Mixed tree-crop-livestock, variant of agropastoral (Jordan and Tunisia: olive-figs - almonds-barley - sheep) and intensive rainfed; rainfed (Meknes: wheat-fruit trees-dairy cattle)	Fast degradation of natural resources, overgrazing, land degradation, climate variability, youth unemployment	Tafilah-Salamya, Beni Khedache-Sidi Bouzid, Meknes-Saies
<b>Irrigated Crop Systems</b>	Market-oriented vegetable and fruit; high yielding wheat and forage crops, dairy cattle.	Land constrained by groundwater depletion, salinization, heat stress, youth unemployment	Nile Delta

### 2.7.5 Research hypotheses

- The use of innovation platform (IP) will help halt land degradation and restore ecosystems and improve livelihoods
- Rangeland production systems can be made less risky and more resilient by integrated technical, institutional and policy innovations that aim at rangeland rehabilitation and sustainable management
- Irrigated production systems can be sustainably intensified through policies and institutions that ensure efficient use of land and water resources.
- Use of innovation systems approach will enhance the adoption and utilization of improved technologies, markets and policies

- System analysis of production and market system performance will allow optimal intensification of the production and market systems and the assessment of potential impact of innovations both in socio-economic and ecological terms.
- Some form of farm aggregation (association/ organized farmers groups) will lead to the realization of economies of size, thereby leading to increased access to innovations, improved market efficiencies, competitiveness and value addition
- Rainfed wheat-based system can be sustainably intensified and diversified through crop-tree-livestock integration, agricultural innovations, and institutional arrangements providing pathways out of poverty
- Equitable distribution of responsibilities and benefits along the value chain among men, women and youth will enhance development of the target areas;
- Achieving gender equality will greatly contribute to the elimination of hunger and poverty through achieving equality between women and men in sustainable agricultural production and rural development efforts.

### 2.7.6 Working scale



## 2.7.7 Collaboration frameworks and partnerships working mechanisms

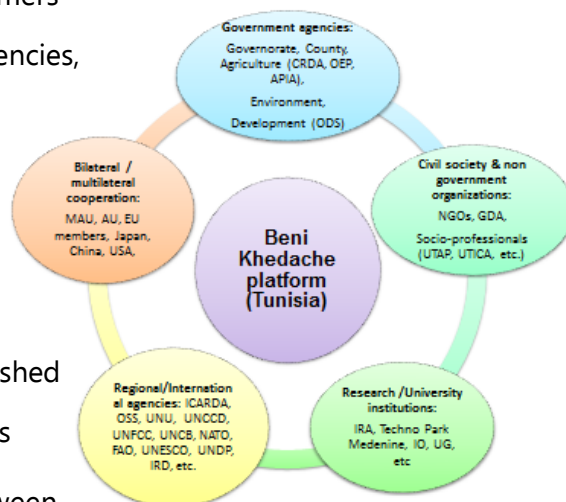
- ICARDA is nearly the only center intervening in NAWA flagship. ICARDA developed over decades a strong partnership with NARES over NAWA region

- Partners:

- Local partners:** NARES, Universities, farmers' organizations, NGOs, development agencies, Private sector, Decision makers

- Regional and International agencies:** ARI (CIRAD), ACIAR, FAO, IFAD, AFESD, EU, GTZ, UNDP, etc.

Example: Beni Khedache site, Tunisia



- For each site a NARES-ICARDA team is established involving both research centers and universities
- A MOA of agreement is being signed between ICARDA and NARES
- ICARDA regional/country offices are in charge of the daily budget management
- For each site an ICARDA focal point and NARES focal point have been nominated
- For each activity a leader from ICARDA and a leader from NARES is nominated

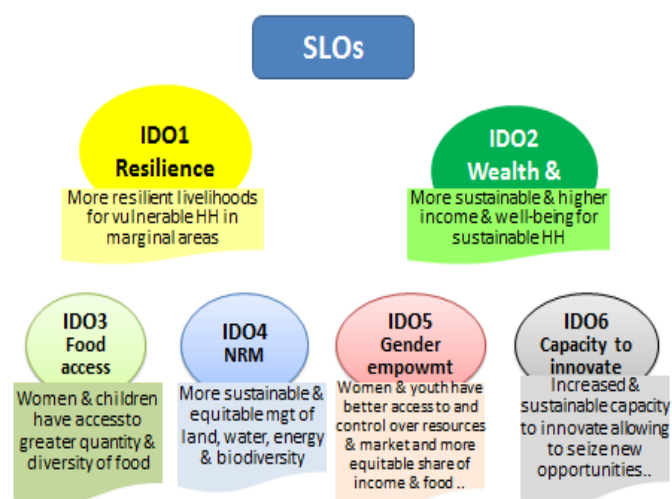
## 2.7.8 Highlight on major achievements

### CRP-DS revised IDOs

### Phases 2014 (with little variation between ALSs)

Discovery	Proof of concept	Pilot
Policies on natural resources	Water harvesting & soil conservation	Water & land productivity in irrigated & rainfed system
System vulnerability	Managing rangelands	Conservation agriculture
Bio-economic farm models	In situ agro-biodiversity	Livestock productivity
Innovation platforms & scenarios	Seed systems & dissemination	Cereal & legume systems adaptation
High-value chain clusters		Cereal & legume system IPM-
Post-harvest & market access		
Gender in Drylands		
Aggregation for smallholder		
Managing salinity		





- Joint research teams established for the five sites in NAandWA region with a total number of 50 scientists from ICARDA and more than 100 scientists from NARS. Planned activities are being implemented at the five sites.
- 20 technologies/practices are under research in 4 ALSs (pastoral, agropastoral, rainfed, irrigated) over a total area of 38000 ha and where 5260 farmers are collaborating with the program.
- 25 to 40 % of these technologies/practices have an explicit target of women farmers and this ratio will be increasing in the future.

	<b>IDO 1 resilience - Analysis of systems vulnerability</b>	<b>IDO1, IDO2, and IDO4 - Conservation Agriculture</b>	<b>IDO1, IDO2, and IDO4 - Conservation Agriculture (capacity development)</b>
<b>Objective</b>	Determine the causes of system vulnerability and local coping mechanisms	To adapt conservation agriculture for rapid adoption by smallholders in the context of produce more food/feed with less resources and inputs	<b>Participation in training courses:</b> 4 members of CRP DS team (2 from Tunisia and 2 from Jordan) participated in



<b>Achievement</b>	<ul style="list-style-type: none"> <li>On-going establishment of a baseline data by characterizing the communities in the target sites;</li> <li>A questionnaire was prepared and developed for baseline surveys in the target sites of CRP1-1.</li> <li>Secondary data were collected, and rapid rural appraisal (RRA) was completed in Morocco and a draft report on "System vulnerability and production system dynamics in the Sais region of Morocco" was prepared.</li> </ul>	<ul style="list-style-type: none"> <li>Conservation agriculture (CA) practices continued to expand to over 39,000 ha for nearly 5080 farmers in NAandWA (Jordan, Syria, Tunisia, Morocco, Iraq).</li> <li>The key driving force for this expansion is the conception and production of locally-made low cost zero till seeders in partnership with the private sector.</li> <li>Two projects funded by ACIAR are having considerable success in promoting conservation agriculture in Iraq and Syria (west Asia) and Algeria, Morocco and Tunisia (North Africa).</li> <li>Results showed an increased cereal yields by 15-19% and net income by 29%.</li> <li>In Iraq, the total area under conservation agriculture reached in 2012/13 10,800 ha (<a href="http://bookshop.cabi.org/?page=2633&amp;ndpid=2627&amp;site=191">http://bookshop.cabi.org/?page=2633&amp;ndpid=2627&amp;site=191</a>), (<a href="http://www.icarda.org/tools/conservation-agriculture-yield-lower-cost">http://www.icarda.org/tools/conservation-agriculture-yield-lower-cost</a>)</li> </ul>	<p>international training workshop on Agro-ecological monitoring held in Amman, April 3-12, 2014.</p> <p><b>Traveling workshop:</b> members of CRP DS from NARS and young scientists from ICARDA participated in the traveling workshop on CA in Algeria, Morocco and Tunisia under the framework of ICIAR CANA project</p> <p><b>Participation in the international congress on CA (Canada, June and July 2014):</b> members of CRP DS from NARS in Tunisia and Morocco and young scientists from ICARDA participated in the International Congress on CA held in Canada on June 2014 and about food legume under CA in Canada, July 2014</p> <p><b>Post-Graduate studies on CA in the action sites: 3 PhD students</b> (2 from Tunisia and 1 from Morocco) are preparing a PhD thesis on CA in the action sites.</p>
<b>Phase</b>	Discovery	Pilot/Outscaling	

## IDO1 Resilience-IDO4/NRM - Livestock

**Objective:** Boosting Resilience and Productivity of the livestock production systems at the household level through a more sustainable and integrated mobilization of existing resources and innovative perceptions to attenuate the impact of environmental and economic stressors.

**Phase:** Pilot

Technical platform	Type of activities and quantified target	State of progress as to the 2014-2015
System characterization	Conducting livestock production system characterization (100 HH in El-Krak, 200 HH in Sidi Bouzid, 150 HH in Meknes, 50 HH in	30%

	Chefchaouane)	
Feed resources and feeding system improvement	Updating a feeding survey, highlighting the major factors for nutrient deficiencies and assessing efficiency of water productivity for livestock (30 flocks in Sidi Bouzid, 20 flocks in Jordan, 6 dairy herds in Mekness)	50% for sampling activities
Animal health and diseases	Epidemiological surveys updating dominating animal diseases in Sidi Bouzid and in El-Karak	20%
	Prevalence and risk factors of major zoonotic sheep and goats abortive diseases (Toxoplasmosis, Brucellosis, Chlamydiosis) in Jordan and Tunisia (New activity)	10%
Animal products quality, safety and processing	Sheep and goat milk quality and processing (25 sheep milk and 20 goat milk processors in Jordan and Morocco respectively)	30% ( <i>see next slide</i> )
	Safety of sheep milk products in Jordan (120 samples of Jameed, Bulk milk samples; <i>linkage with CRP Livestock and Fish</i> )	30% for sampling activities
Sheep genetics (Sidi Bouzid, Tunisia)	Identifying crossing practices and their impact on productivity (identifying fattening and breeding practices; value chain analysis of fattened lambs; mapping spatial distribution of crossing practices)	53 GPS coordinates and associated data (20%)
	Identification of genetic markers for productive and adaptive traits (prolificacy, parasite resistance)	Elaboration of an appropriate recording scheme for phenotypic data
Integrated interventions aiming at boosting flock fertility and reducing offspring losses (El-Karak, Jordan) Animal products quality, safety and processing	Ram breeding soundness examination in Eraq and Khrisha villages (86 rams and bucks examined)	Recommendations on ram keeping/culling, Data collected for further analysis and reporting
	Systematic ultrasound-based pregnancy diagnosis of sheep flocks and alternative measures to reduce bareness	Due at the end of mating season (July-August)
	Reducing prevalence of neo-natal mortality and addressing risk factors	Due to start before the lambing season (September)

## IDO1 Resilience-IDO4/NRM – Livestock/ Capacity development

Short term courses and trainings	long term DEGREE trainings
<ul style="list-style-type: none"> <li>• Sheep breeding: data recording, management and valorization (Amman – Jordan 5-7 May 2014)</li> <li>• Jameed, Butter and ghee processing in 5 women-led processing units (El-karak, Jordan April-May and June 2014)</li> <li>• Technical itineraries to improve fertility in sheep and goat breeds (El-Karak – Jordan April 2014)</li> <li>• Goat milk processing and impact of new fermenting cultures (Chefchaouane-morocco June 2014)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>4 PhD in Tunisia:</b> crossing and fattening practices; genetic markers for productive and adaptive traits; water productivity by sheep and goats; etiology of small ruminants abortive diseases</li> <li>• <b>1 Master in Morocco</b> on water productivity for Dual purpose milk and meat cattle production</li> </ul>

### IDO1/Resilience-IDO4/NRM Rangeland management

**Objective:** Enhancing resilience and productivity of the pastoral and agro-pastoral production systems at the community level through a more sustainable and integrated mobilization of existing resources and innovative perceptions to attenuate the impact of environmental and economic stressors. **Phase: Proof of concept**

Short-term courses and trainings:	Long-term courses:
<ul style="list-style-type: none"> <li>• JICA Training on New techniques for sustainable sheep and goat production held in Jordan (26 January – 6 February 2014)</li> <li>• Group training on Agro-ecological monitoring held in Jordan (Lead by Mounir)</li> <li>• Group training on Agro-forestry practices (Alley-cropping) held in Jordan</li> <li>• Seminar on best practices of Cactus in Iraq (Lead by Paolo – 17 April 2014)</li> <li>• Field day to promote cactus in Iraq site (Lead by Hichem - 28 April – 2014)</li> <li>• Field day on grazing management in Majdya site (Lead by Abu Zanat – 27 May 2014)</li> </ul>	<ul style="list-style-type: none"> <li>• 1 PhD student on cactus (University of Palermo, Italy)</li> <li>• 1 PhD student on integration of alley cropping and CA (INAT, Tunisia)</li> <li>• 1 MSc on cactus genetic variation (UNIVERSIDADE FEDERAL RURAL DE PERNAMBUCO Brazil)</li> <li>• 1 MSc on halophytes (University of Science de Sfax, Tunisia)</li> <li>• 1 MSc on halophytes eco-physiology (University of Copenhagen, Denmark)</li> </ul>

- |                                   |  |
|-----------------------------------|--|
| • Field day Zammour (Lead by IRA) |  |
|-----------------------------------|--|

## **IDO1 Resilience-IDO4/NRM - Agrobiodiversity**

### **Objectives:**

- Assess the status and trends of agrobiodiversity in selected sites using eco-geographic/botanic surveys
- Use of GIS/RS tools to assess the changes in agrobiodiversity
- Develop and recommend management plans to promote in-situ conservation of dryland Agrobiodiversity in the selected areas

### **Achievements**

- Cultivation of local and exotic medicinal and aromatic/herbal plants as a source of income to support the in situ conservation and sustainable use of Dryland Agrobiodiversity [Erak site, Crocus sativus, Thymus spp, Salvia spp, cut herbs (Rocca, Basil, Thyme, etc.)]
- Workshop on MAPS:
  - Development of concept note of the regional strategy for conservation and use of MHAP.
  - Draft ideas to implement sub-regional projects on establishing value chain on MHAPs
  - Develop a list of mechanisms for collaboration in research for utilization of MHAP genetic resources at NAandWA region (Regional network for promoting the conservation and sustainable use of MHAP in NENA region)
- Assess and monitor Agrobiodiversity and its trends using ecogeographic/botanical surveys (Transects and quadrats methods for natural habitats) and farming system surveys in Jordan and Tunisia sites

## **IDO2/Wealth and wellbeing – Cereal and Legume system adaptation**

- Test and validate with farmers the performance of advanced breeding lines of cereals and food legumes for improved tolerance to abiotic and biotic stresses in wheat-grain legume cropping system in Meknes and Nile Delta

- Release farmer's preferred varieties among wheat and food legumes elite advanced lines to fit better the users requirements and to facilitate their adoption

2 on-farms demonstration trials of advanced lines : Sebt Jehjough and Sidi Sliman were implemented for participatory evaluation	<b>Sebt Jehjough</b> <b>Lentil:</b> 13 advanced lines + 2 checks <b>Chickpea:</b> 7 advanced lines + 2 checks <b>Faba bean:</b> 11 advanced lines + 2 checks <b>Durum wheat:</b> 16 advanced lines + 4 checks <b>Bread wheat:</b> 10 advanced lines + 2 checks	<b>Sidi Slimane</b> <b>Chickpea:</b> 7 Advanced lines + 3 checks <b>Faba bean:</b> 11 advanced lines + 2 checks <b>Durum wheat:</b> 16 advanced lines + 4 checks <b>Bread wheat:</b> 10 advanced lines + 2 checks
--	---	---

## IDO2/Wealth and wellbeing – Cereal and Legume IPM

### Objectives -

- On- farm promotion of already available IPM options to increase crop productivity
- Development of new IPM options for the management of emerging biotic constraints for the cereal and food legume systems, and
- Human capacity building

### Achievements

- Two ALS: Intensive rainfed (Meknes) and irrigated (Nile Delta)
- Phase: Piloting
- In both sites 2013/14 season data are under preparations
- In Nile Delta, IPM of parasitic weeds on faba bean gave 22.4% yield advantage
- IPM of faba bean virus gave promising results in Egypt
- In Meknes sites, IPM of Parasitic weeds on faba bean showed promising results
- Weed surveys in the action sites showed *Bromus* sp. can cause 68% decrease of crop yield in highly infested fields.
- Two researchers were trained in plant viruses detection techniques

## IDO2/ Wellbeing – Seed system and dissemination

### Objectives

- Analysis of cereals and legumes seed system constraints

- Initiating alternative seed delivery systems using Village-Based Seed Enterprises (VBSEs)

### **Achievements**

- Understanding the cereal (wheat) and legume fabab bean) seed system constraints in Meknes site
- Development of alternative seed delivery system:
  - Six communities of 60 farmers with 600 ha of land identified
  - Seed (40 q) of new legume varieties for local seed production provided
  - An integrated seed processing machine ordered and delivered
- Capacity development:
  - 6 communities and 300 farmers benefited from technical backstopping
  - 3 integrated mobile seed processing machines provided to pioneer farmers

### **IDO3/Women and children have access to greater quantity and diversity of food**

**Objectives:** Identify options for new income generating activities and employment opportunities for women and youth in selected value chains to improve households' livelihoods (Assess gender barriers to greater access to natural resources (including land), inputs, credits and markets, and for sustainable management of natural resources) ; (Develop and test new mechanisms for empowering rural women and youth to equitably share responsibilities and benefits of agricultural development

**How:** Gender Mainstreaming of technologies related to Crop-Livestock Systems and Collecting Sex Disaggregated Data in all CRP-DS sites for Gender Analysis

### **Gender Mainstreaming/Integrative Research (Technologies at the Center)**

Major Objectives	Achievements
Gender Mainstreaming of technologies related to Crop-Livestock Systems in Karak, Jordan	<ul style="list-style-type: none"> <li>-Identification of main technologies utilized in crop-livestock systems and related conditions for adoption</li> <li>-Collaboration with 6 extension and research staff from NCARE and a graduate student in gender studies from the University of Guelph, Canada</li> <li>-Farm visits and interactions with farmers</li> </ul>

Analyzing and Collecting Sex Disaggregated Data in all CRP Dryland Systems Action Sites	-DS Baseline Survey engendered in collaboration with Cheryl Doss, Yale University -Collaboration with the International Centre for Women's Leadership, St. Francis University, Nova Scotia, Canada for capacity development of biophysical scientists
---	--

## **IDO4/NRM and IDO1/Resilience –Soil and Water Conservation**

**Objectives:** Introduce, test and promote soil conservation and water harvesting interventions to optimize the use of land and water resources, improve productivity and reduce land degradation.

**Methodology:** Soil conservation and water harvesting interventions will be implemented as a land management packages (appropriate technologies integrated with water, crop and soil management packages through participatory approach). Modelling and observatory systems will be used to ensure positive impact and to test scenarios under different climate change and land use patterns. These tools should facilitate out-scaling to similar environment and enhance adoption at large scales.

**Sites:** Tafila and Salamyieh (Karak and Majidya ; Beni Khedache -Sidi Bouzid; Karkheh river basin

**Phase:** Proof of concept/pilot

### **Beni Khedache and Zoghmar**

- Data collection (site presentation, stock-take and projects on water and soil conservation management, ...)
- Preparation of a questionnaire concerning water and soil conservation techniques
- 2 PHD students engaged on modeling water balance and solid transport in semi-arid areas and agro economic aspects and gender issues
- Drafting reports on:
  - ✓ analysis of actual situation and problems in the study site,
  - ✓ Identification and characterization of the experimental fields
  - ✓ collection, analysis and preparation of input data for modeling



**Tafilah – Salamyia site:**

- Water harvesting techniques and planting of shrubs in addition to grazing management conducted with local communities in Majidiyya and Muhareb showed the potential for improving rangelands' contribution to livestock feeding and the reviving of native species including some wild relatives of crops of global
- More than 3 pastoral communities were shown to be making profit from the area rehabilitated.

**Soil and water conservation in the Jordanian site**

- Watershed modeling and monitoring activities continue in Al-Majidiyya site
- Water harvesting and soil conservation interventions (Vallerani intermittent pits in 30 ha) in Erak watershed - Karak
- Soil conservation, intercropping and erosion monitoring experiment (University of Jordan station – Shafa Badran)

**IDO6/Capacity to innovate/ Policies on NR**

**Objectives:** evaluate the impacts of water, energy and land policies on rangeland ecosystems, on use of farm resources and on livelihoods of small holder farmers

**Methodology:** Literature surveys; Existing household surveys; Econometric analysis; General equilibrium

**Outputs:** to produce empirical evidence, analysis and recommendations on water, energy and land policies. It is also expected to organize one sensitization workshop in Morocco and in Tunisia, and to produce at least two policy briefs.

**Outcomes:** Increased awareness of policy makers and relevant influential stakeholders on the need for action to promote more sustainable practices of water use reduce. Increased participation of stakeholders (farmer, professionals, and policy makers) in the dialogue on water management.

**Achievements:**

- Review of current water management policies were completed in Egypt, Jordan, Morocco and Tunisia.
- A large global conference was held on water and food security attended by about 300 participants, including about a dozen ministries and national agricultural leaders. Case studies of national policies were presented, addressing water and food security. The meeting included a dialogue among professionals and policy makers on how to address the twinned challenges of water and food security.

### **IDO6/Capacity to innovate/ IPs and Innovation clusters**

**Objective:** Assist stakeholders to form innovation platforms that have influence over the enabling environment which supports agricultural research for development and link that to community based development activities-

**Focus:** to create strong policy and institutional support for agricultural innovations and out-scaling of them for greater number of beneficiaries

#### **Multiple level approach:**

- i. Area based learning platforms that contextualize the need for specific research and support services,
- ii. Regional innovation platforms
- iii. National innovation platform

**Achievements:** Five innovation platforms (IPs) are being initiated for the five sites and involving all stakeholders, including community representatives, extension, development agencies, NGOs, local decision makers, scientists, and private sector.

#### **Progress:**

- 6 learning alliances initiated in partnership with national partners:
  - Meknes site, Morocco (Sidi Slimane, Bittit, Ain Jamaa);
  - Medenine, Tunisia (Beni Khedech);
  - Karak, Jordan (Al Erak, Al Kresha)
  - 2 learning alliances initiated by ICARDA in 2013 (Egypt, Southwestern Morocco), under an IDRC funded bilateral project, are being monitored and studied;

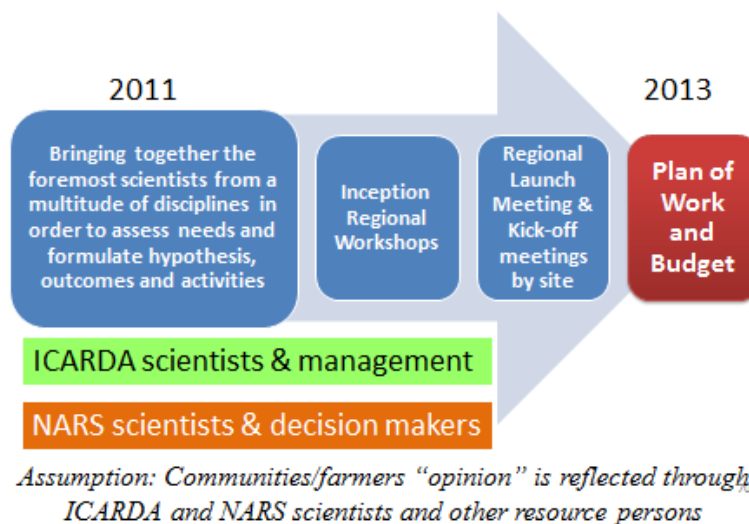
- Each learning alliance has identified commodities of priority that are being studied by the post-harvest loss and market access activity (value chain analysis);
- Assessments of pathways for research and farm advisory services to effectively utilize well organized local organizations as conduits for scaling out agricultural technology and best production practices
- Guidelines for facilitating the institutionalization of innovation platforms, with common understanding among scientists and partners documented and utilized- in progress;
- Analysis of farm advisory services, in order to understand potential avenues available for enhancing adoption, adaptation and broad uptake of technologies and best production practices
- Development of a compendium of technologies, best production practices, approaches, social and institutional innovations for each action site:

#### **ID06/ Capacity to innovate – Post-harvest and market access**

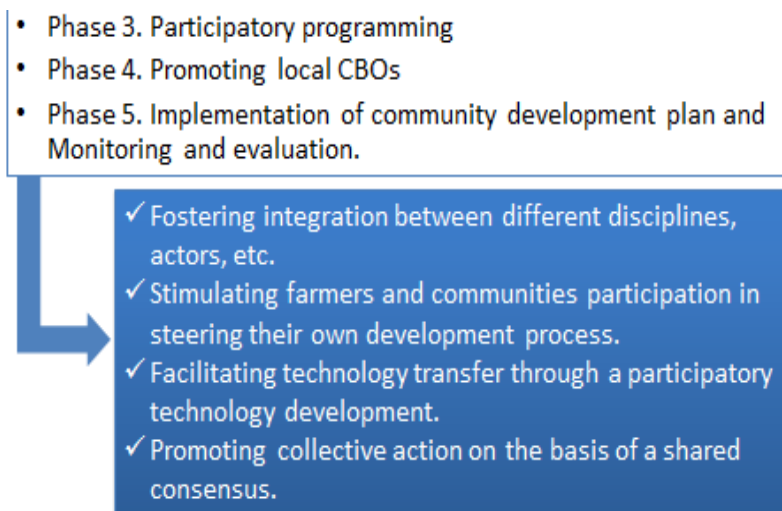
<b>Morocco</b>	<b>Egypt</b>	<b>Jordan</b>	<b>Tunisia</b>
Potatoes and Onion	<ul style="list-style-type: none"> <li>• New Land-Nubaria: Citrus (Oranges), Buffalo milk</li> <li>• Old Land – Sharkia: Tomatoes, Buffalo milk</li> <li>• Salt-Land – Port-Said: Buffalo milk</li> </ul>	<ul style="list-style-type: none"> <li>• Erak: Olive trees</li> <li>• El Khrishet Village: Livestock and livestock products</li> </ul>	<ul style="list-style-type: none"> <li>• Sidi Bouzid: Lamb</li> <li>• Beni-Khdeche: Olive trees</li> </ul>

- Diagnostic and selection of the relevant stakeholders in the value chain of the selected crops: Producers, input providers, traders, agro-processing, regulators, quality, wholesalers, retailers, and consumers.
- Mapping the challenges for smallholder market access: Review of literature on institutional arrangements in collective marketing.
- Marketing survey, supply chain mapping and post-harvest management (on-going)

## 2.7.9 The inception phase



### Establishing IPs through Community development plan and learning alliance



**Phase I:** Community characterization

**Phase I and II:** Participatory diagnosis and planning, and initiation of CBO

**Phase IV:** Participatory programming

### What does it mean for the whole program?

- There is need to understand and move from progress at the production system level- a framework should now be developed at production system level (fully design a research system)

- We need to develop a framework at the regional level that would take into consideration the two agro-ecological zones. Develop a program that will address our needs and investments in window 1 and 2. Maybe develop a common program framework then integrate and fit in the different special projects. ***Big focus on the umbrella then take into consideration the different projects. Picture of big umbrella (how would the big umbrella look like?)***
- We have been looking at production systems, marketing systems, livelihood systems – how will the programme position itself across these systems? Where would it balance?
  - 2 months ago a livelihoods systems framework was developed with 7 agricultural ecosystems
  - Systems consist of process and approaches. Entomological view looks at systems while epistemic/epistemology view focuses on the weak areas and addressed the as a system.
- What is the “value proposition”? Why should money be invested in the Drylands ecosystems? What is the value of working together?
- What mechanisms exist for rolling out technologies? What is the role of other partners/stakeholders in scaling up the technologies (government, research institutions, extension)? What are the mechanisms for up scaling?
- What mechanisms exist to monitor technology adoption?
- What is the role of CRPs/centers?

*We are still doing business as usual – characterization etc. how do we get the involvement of other partners in setting the research questions especially the youth and women farmers who may have different perspectives on the research questions? The current set up - scientists define the questions and bring relevant partners on board to meet. We should have other partners on board from the onset in setting up research questions.*

Research agenda in the systems approach should look at what we want to address then develop the research questions. But we don't have the balance yet for the "systems thinking".

**Integrated approach** – we are referring to 3 pillars i.e. natural resource management, crops and livestock genetic improvement and socio-economic development and policy aspects. We need to go back and analyze the action sites based on these 3 pillars.

## 2.8 Reflections on lessons and critical challenges for progress and impact on DS program

To enable participants scrutinize lessons and implementation challenges across the regions they were given a task as shown in the box and the discussions are detailed below.

### Analysis of presentations

What can we learn from this region – for other regions and the programme?

What are the 2 most critical impediments/challenges for progress and impact in this region?

### 2.8.1 What we can learn

<ul style="list-style-type: none"> <li>• Transects give large variation of context relevant to up-scaling</li> <li>• We like the transects</li> </ul>
<ul style="list-style-type: none"> <li>• Strong opportunity for capacity building</li> <li>• Capacity development – degree and non-degree training</li> <li>• Capacity building - research to farmers</li> </ul>
<ul style="list-style-type: none"> <li>• Tying innovation platforms to system approach rather than value chain</li> <li>• Linking community development and innovation platforms</li> <li>• How was earlier experience particularly innovation platform of SSA challenge programme used</li> </ul>
<ul style="list-style-type: none"> <li>• Lessons from scaling out e.g. NARES – ICARDA relationship is good for scaling out</li> </ul>

<ul style="list-style-type: none"> <li>• Long history of engagement and opportunity for partnerships</li> <li>• The link to private sector</li> <li>• Involvement of many centers and partners in characterization of system</li> <li>• Evidence of good inter – center relationship</li> <li>• Partners well recognized</li> </ul>
<ul style="list-style-type: none"> <li>• Bio-economic models</li> <li>• Bio-economic modeling versus systems research</li> <li>• Clarity in use of models to support scaling</li> </ul>
<ul style="list-style-type: none"> <li>• Centralized economy is a constraint of the implementation of innovation platforms</li> <li>• Overlap in SRT1 and SRT3 – in some community not one solution for everybody</li> <li>• Where are different strategies for SRT1 and SRT2</li> </ul>
<ul style="list-style-type: none"> <li>• emerging trends over time i.e. not static</li> </ul>
<ul style="list-style-type: none"> <li>• good livelihood analysis – integration of bio-physical and socio economic layers</li> </ul>
<ul style="list-style-type: none"> <li>• spatially explicit</li> </ul>
<ul style="list-style-type: none"> <li>• very visible science</li> <li>• there is good framework for systems approach</li> <li>• good systems approach in India to learn from</li> <li>• multi-scale hierarchy very good</li> <li>• nice to show quantitative results</li> <li>• clear sequencing of research steps</li> <li>• good attempt to present and analyze data within systems approach</li> </ul>
<ul style="list-style-type: none"> <li>• contribution to conservation bill as a policy change</li> </ul>
<ul style="list-style-type: none"> <li>• activities not linked to outcomes</li> <li>• activities not mapped to IDOs</li> </ul>
<ul style="list-style-type: none"> <li>• Consider resilience at intra household and inter household level</li> <li>• Performance indicators are clear with sound data analysis at household scale</li> <li>• Activities are well integrated using systems approach</li> </ul>
<ul style="list-style-type: none"> <li>• Unclear development and adoption of technologies</li> </ul>



<ul style="list-style-type: none"> <li>• Mechanisms for dissemination of innovations are not clear</li> </ul>
<ul style="list-style-type: none"> <li>• Solid research questions</li> <li>• Prioritization of the many research questions</li> <li>• Clear and testable hypotheses</li> <li>• Relevant research questions and tools e.g. development of vulnerability framework</li> <li>• Better linking/mapping the tools and interventions to research questions</li> <li>• They showed testable hypotheses and activities are organized around IDOs , phases and action sites</li> <li>• Regional problem diagnosis "land degradation"</li> </ul>
<ul style="list-style-type: none"> <li>• Report by site not center</li> <li>• Report by programme is coherent rather than institutional fragmentation</li> <li>• Never report by center CRP)</li> <li>• Difficulty of putting things in the context of system approach</li> <li>• Make sure the science results are at least 50% of the report</li> <li>• All reporting and learning should follow the "continuum" diagrams</li> <li>• Presentation of activities around IDOs</li> <li>• Strong inter-center collaboration – need to be better shown</li> <li>• Activity based presentation of results is not helping to understand integration at site level</li> <li>• Mapping of research to IDOs and phases of research (aligning activities to IDOs)</li> </ul>
<p><b>WAS –</b></p> <ul style="list-style-type: none"> <li>• lots of activities</li> <li>• Competent team</li> <li>• organized</li> </ul>
<p><b>SA:</b> More balance in what information is presented so as to understand the vision/structure of south Asia</p>

## 2.8.2 Critical impediments/challenges for progress and impact

### How to integrate different scales and scale out/up interventions

- The multi-scale approach but more clarity is needed
- Scaling domain – definition of scale, place dry impact (field site, partners, influence)
- field site with action site impact
- good model presentation : need more facts/figures for outscaling
- the methodology itself is not fully effective in reaching all stakeholders
- the need for more specific and quantitative results by scale
- need framework systems approach - is core for scaling
- criteria for Household typologies (vulnerable, intensifiable household systems, wealth, gender etc)
- better elaboration of on the scale of implementation is important
- clear thematic interventions – how to integrate when scaling up
- need a quantitative target for scaling up
- integrated thematic research areas, very small size to be representative for implementation and out scaling
- no clear out scaling strategy
- Innovation platforms – source or conduit for innovation action
- Methodology to define feedbacks and interaction between scales – farm, farming, watershed
- An articulation of scale, but it's not clear how this scale is informing technology development
- Unclear pattern about how to move forward after the development of a detailed typology
- Scaling - all regions fail at how impact is to be logically achieved (at scale)
- Are they using "nested" approach fully?

### **How to develop a framework for coherent systems research and its operationalization**

- Framework for system research
- Develop stems expertise in the region
- Still asking what is "systems approach"

- Integration of natural science and social sciences should start at earlier stages
- Integration
- Lack of systems analytical framework
- The need for common/shared action sites for all partners to enhance integration
- Demonstrating that there is advance in system understanding/output
- Feedback system from IQ back to research activity
- Moving towards a system framework
- Two pronged approach to systems –
  - bring organizations together
  - bring projects together
- Where is the systems research/approach?
- Diagnosis of system - technologies are not clear where they fit in the research system
- No integration in the systems context – how these technologies are integrated and how to implement them/apply
- Fragmentation and lack of integration - needs a programme
- Programme first, then map activities
- Framework for learning (alignment ) – programmed by activities not outcomes
- Define research activities at action site level than regional level
- Systems research from the outset (entry point), not packaging research outputs
- Unclear inter-linkages between activities
- What about integration – organizing activities across action sites and retro-fitting to an IDO
- Make the plan of work and budgets (PoWB) living, breathing and exciting
- No focus on integration
- Criteria used for selection of the action sites are clear
- Planning was integrated, execution was piecemeal
- In addition to coordination, funds for synthesis, learning and next steps
- We need to see a cross cutting research programme
- Missing synthesis across the different flagships

- Organize cross-region thematic groups/meetings to harmonize methodologies and approach
- Budget – allocate to support synthesis and integration across regions
- Regional budget allocations should be regionally determined to meet CRP deliveries
- What are the regional level activities and how to find resources – flagship projects not funded

### **How to develop partnerships for scaling (research in development)**

- Strong recognition that adoption is constrained by institutional issues
- Thinking within centers
- The cross-center integration challenge still looms large
- Many centers can/are working together???
- Once CGIAR center – challenge of establishing relevant partnerships in other CGIAR centers
- Lack of centers coordination
- Partnerships – not real integration, just each CG center is have a piece of the “pie”
- Link with dryland cereals CRP
- Need for a strategy to overcome legacy issues
- Stronger NARS – CG partnerships when one center was involved
- What strategies do we have to engage others (other than an open invitation)?
- Provide more information on partners – core to out-scaling
- Lack of interaction between research and development
- Partnerships model?
- Unclear on involvement of NARS
- How are centers and partners working together in dryland systems mode
- Private sector involvement?
- Partnership is about sharing more than just the responsibility of doing, but also in sharing finance, reporting and sharing benefits
- Lack of operational innovation platform by commodity

## **How to develop learning oriented monitoring and evaluation system to enhance performance of the CRP**

- Assessment of the change
- Lack of quantification of success/generic results
- Lack of quantification of impact
- Learning how resilience is measured and assessed
- Quantitative and focused results are needed
- More information on benefits and beneficiaries of new technologies
- How to move from baseline analysis to new interventions
- We should translate data and analysis into solutions responding to demand

## **How to deal with the diversity exhibited from the regions**

- How people obtain livelihoods and where it is invested in the regions
- The socio economic aspects of transformation is missing
- Land ownership – how to overcome issues
- What is the innovation system

## **Cross cutting**

- Highly centrally planned economy= makes it difficult to have policy issues and socio economic components
- Risk of spreading thinly – instead of focus including socio economic characterization
- Reconciling differences in market functionality for resilience versus intensification
- Identify market system – adopt, adjust and innovate
- Gender based differentials lacking
- Lack of gender issues in socio economic cluster and in house hold typology

## 2.9 Reaching an effective and efficient DS research with impact at scale

The aim of this session was to identify impediments to more rapid progress towards CRP objectives and propose solutions towards greater impact in the balance of Phase 1 and as a basis for a strong case for a Phase 2. Participants were given the task shown in the box and the discussions are detailed below.

### Learning from the regions

1. Looking at the presentations/the work in the regions:
  - a. If you had to start again, what would you do differently to reach an effective and efficient systems research with impact at scale?
  - b. Looking at our goals, what needs to be done in the next year to have an integrated and coherent CRP? and how?
2. What do you require as services from the “central unit” to support you in the regions?

Facilitator + rapporteur (2 Page report)

### 2.9.1 If you were to start again what would you do different to reach an efficient and effective systems research with impact at scale?

- Learn from analysis of strengths and weaknesses of current activities
- Align with regional policy makers, programs and development organizations like ECOWAS, CORAF and work through them for scaling
- Specify and characterize target region, biophysics and socio political, relevant stakeholders, needs, opportunities and constraints and capacity building
- Train the regional team in foresight, scenario planning and systems thinking and terminology
- Invest in developing the concept (by bringing a small group of expert) of dryland system research

- Criteria for projects will be based on the match between project goal and DS research concept
- Identify projects missing to meet goal of dryland system research
- Selection of action sites that will meet criteria of dryland system research
- Revise the number of sites based on available funds
- Invest in capacity building of all the participants involved in implementation of the system research
- Identity/know the ALSs – typologies
  - ✓ Understand through detailed characterization - define entry points (challenges, constraints, potentials, sources of livelihoods, opportunities) – biophysical and socio-economic
  - ✓ these should fit to the 'strategic agenda' of each country
- Develop research questions (given the information above)
- Develop testable hypothesis
- Framing of system research agenda= define and have clear understanding of system research, (what it is and how we can implement it)
  - ✓ Harmonize on the methodology for systems research (We don't know it now/or don't agree on what it involves)
- Develop **the impact pathway with all partners** – including short- and long-term plans
- **Participatory/integrated implementation** - This involves re-validation with communities
- Fully characterize the agricultural systems with partnerships
  - ✓ Bio –physical and social – challenges, constraints; sources of livelihoods and opportunities
  - ✓ Baselines



- Framing of a systems research agenda and reach common understanding and consensus (not done)
  - ✓ What is meant by systems research
  - ✓ Set of testable hypothesis
  - ✓ Research questions, develop impact pathway and partners
  - ✓ Common methodology for systems research
  - ✓ Validation with communities of research agenda
- **CA** – should develop a problem tree that would be transformed into objective trees and guide integration of research. E.g. salinity -- . would have meant better logical frameworks and resource allocation.
- **ESA** – identify partners to go along with the problem analysis/ interventions to achieve objectives and go to scale.
  - ✓ Problem diagnosis using systems perspective done better.
- **SA**: should have developed a project on the basis of that diagnosis with sufficient time.
  - ✓ Options for developing a project: joint resource mobilization; commitment to the FPs and more transparent resource allocation.
  - ✓ Structural issue: need to develop the motivation for the systems approach.
- **WA**: managing the issues as a system is more of social experiences- separate the science into three bits. Innovation is not around the science but the adoption.
  - ✓ Went to regions too quickly but no thematic research leadership...

### 2.9.2 Looking at our goals, what needs to be done in the next year to have an integrated and coherent CRP? and how?

- **Global level**
  - ✓ Common methodology on system approach: what it is, what does it involve, how can it be done

- ✓ **How? This should be agreed**
- ✓ Cross Flagship interaction: share lessons
- **Flagship level**
  - ✓ Partnership – not able to work together
  - ✓ Go to site and ‘take off your center coat’
  - ✓ Scale of intervention and unit of analysis
  - ✓ Develop **performance indicators**, what scale are these?
  - ✓ Strategy for scaling up beyond action site (including methodology)
  - ✓ ‘Bounding **conditions**’ for scaling up – ‘how far’ and to what system (we need to develop clear strategy) – example **recommendation domains** identified
- **Integration** - Getting partners working together on the action sites and develop joint project proposals
- **Knowledge management –**
  - ✓ Synthesize our knowledge and achievements
  - ✓ Develop examples of successful interventions and case studies on systems approaches
  - ✓ Improve quality of our messages
- **Management** - Activate action site management
- Complete characterization, perform systems analysis on intervention options based on constraints within systems
- Develop capacity in integrated (socio-ecological) systems analysis
- Get someone from outside (private enterprise) to advise on foresight and prioritizing activities and investment
- Focus and re-align our agenda (based on above)

- Develop a conceptual frame work of system research for dryland, which should be a central document. Such a document should be concise.
- Identify projects that are needed in the research portfolio and strengthen them, if needed bring in new projects
- Identify projects not contributing to conceptual frame of DS research, and reform them.
- Scale of intervention and unit(s) of analysis
- Performance indicators and their baseline and quantification
- Scaling up beyond the action site (from action site to the flagship region and system level)
- Create cross flagship activities.. force the development of a programme.. Sometimes Top Down helps. Missing the thematic leadership....
- Accountability important.
- Develop strategies for cross-cutting issues?
- How it helps to have thematic leadership – provides intellectual attention and incentives.
- Need coherent vision of systems approach.
- NGO: clarify roles/ responsibilities of partners... and what this means.

### **2.9.3 What do you require as services from the “central unit” to support you in the regions?**

- Support maintenance and improvement of coherence in terms of framework and approach
- Guidance on expectations program management
- Facilitate cross regional exchange
- Support obligations such as in data management and reporting
- Good capacity building in the system research and system research support
- Timely and effective communication mechanism among all participants and staff.

- Supporting the resourcing of activities
- Inter-Regional technology (IRT) exchanges
- Learning, knowledge exchange platforms
- Effective/efficient coordination (at different level)
- Financial resources
- Intellectual leadership: vision for systems as research method and objective; plus an implementation framework.
- Cross-flagship science exchange.
- Better regional and central information exchange. ... M&E.
- Does the IDO framework work for a systems approach?
- Help understanding the IDOs, ALS, outputs, outcomes... some outcome pathway training so we can help our partners.
- Make us excited about the CRP again!
- WANA: need strategy for outscaling – new sites? New bilaterals. Learning sites versus long term action sites.
- Data management? Important for knowledge sharing.
- Simpler M&E?
- Assistance identifying indicators for monitoring and reporting.
- Also finding data?
- Guidance on resource allocation and mobilization: planning to ensure key activities are financed... also need help integrating across separately financed activities.
- Centre commitment of funds to CRP activities in an integrated region.

## 3 Grounding the discussions: Field Day

Visit to El-Karak field site where DS CRP activities are implemented in two Villages - Eraq and El khreisha. Participants had an opportunity to get the picture of the DS realities and challenges when they observed the sheep milk processing and Awassi sheep flock at khreisha. Water harvesting, tending of olive orchards and small scale family farming were witnessed at Eraq.



### 3.1 Implemented activities

#### Sheep milk processing

Towards energy and water saving procedures for safer and more nutritious products and women-led income generating activity.



#### Awassi sheep flock

Improvement of sheep productivity by mitigating the feed gap, maximizing fertility and reduction of disease incurred losses.



### Water harvesting and olive orchards

How to reduce the impact of drying springs and a more capricious trend in rainfall. Olive orchards are an ancestral agricultural activity in Jordan and the main focus for both men and women in the community.



## 3.2 Impressions from the field

### Table discussions – impressions from the field

What are some of your key insights in view to the overall Drylands systems program which you gained yesterday?

### Key lessons and observations from field experience

- Learning from the environments - It is a really complex and emerging agricultural system. Farmers are working in a complex system. It was a confirmation of complexities in Drylands systems and a critical reflection is needed to understand the Drylands – scarcity of resources particularly water and coping mechanisms.
- Impressive resilience and innovation by community to improve their livelihoods in the complex circumstances e.g. aromatic crops, chicken/egg incubation. How does the CRP

impact on these initiatives? It is critical to discuss with the community what the implications are of taking specific paths, technologies and innovations. What are the benefits and demerits (tradeoffs)

- There is need for investment in the region as it seems there is modest government intervention and extension is minimal. On the other hand the community has big expectations from CRP and therefore need to manage these expectations.
- Not much science is on the field site e.g. animal health is a big scope for research. The science part was not clearly articulated but in the maps the crops and livestock were clearly depicted. Science could be integrated in diversification of products and processing of the milk products. Research can be conducted to analyze the problems e.g. quality, technology.
- **Social dimension** – lack of youth in agriculture especially by the boys (girls seemed more focused). Generally agriculture at all levels is getting less interesting to youth. E.g. at university level enrolment to agricultural courses is low. How can we deal with the bulging population of youth? How can we bring science into making agriculture attractive eg use of mobile phones and other emerging technologies?
- **Social/economic problems** – unemployment of university graduates – there is scope for research. How can we create business opportunities and employment opportunities – make agriculture financially rewarding and technologically challenging/impressive?
  - There are issues of tribal systems/clan based systems. Some livestock are also not considered valuable. The use of grey water – used only for specific crops (affects water saving technologies and how multiple demands for water can be solved – domestic, agricultural). Need to develop systems for re-use/recycling of water – how can we innovatively overcome cultural barriers on re-use of waste water?
- Capacity building and infrastructure – there is room for infrastructure development, the tools were simple/basic. The question is do we want to keep the systems simple or should we partner with other innovators to improve the infrastructure and capacity. Infrastructure limits interventions.



- Site selection – the indication of a participatory approach is a plus (positive) how the sites are not representative – different settings may not be represented for outscaling.
- Interventions in line with community demands/needs should be developed – water harvesting, veterinary issues should be taken into consideration.
- The dairy programme (cheese processing) needs quality assurance and standards to enable more options for marketing. Certification of farmers produce needs approval and standards to be met.
- Complementarity – activities may not strictly be CRP work as it came out they have been ongoing and have interventions from other partners.
- Learning across regions – need for technology transfer to southern Asia who have many goats and sheep but do not produce any products e.g. cheese producing technology
- Indication of strong partnerships among stakeholders – NCARE, ICARDA, community, government - is a good initiative. Relationships should also be built between the community and industrial units. The effective engagement of the community ensures ownership.
- What is the real potential to scale as there are many components – watershed, crop management, livestock management? The elements are not in a systems manner. How do we therefore link to systems approach – how do the different components link together to form a system?
- **Complex socio-cultural systems:** what is the role of science to help the communities adapt to their current challenges? What is the potential impact we can achieve if most income is from non-farm activities? The livelihood strategies indicate minimal income from agriculture. What is our role? What are we doing?
- **Systems approach** – was not clear there seemed to be fragmented activities. There is need to stress the importance of systems approach. We need to have information - on social trends, historical perspectives, population movements, potential markets etc.
- **Knowledge management for adoption** - How do we develop niches within action sites for adoption and up scaling of technologies?

## 4 Exploring critical themes to the success of Drylands

The session was aimed at digging deeper into the challenges and assess how such work is best designed, organized, and coordinated based on four recurrent themes - partnerships, scaling and scale, learning oriented M&E system and common framework and integration.

### Group work on challenges – DS CRP

#### - Partnership -

1. What are the underlying issues in this cluster and your experience?
2. What do we really want to achieve with partnerships: what type of partnerships are we looking for?
3. How to develop effective and efficient partnerships for scaling? Strategies and principles
4. What needs to change in the CRP to enable such partnerships?

**BE SPECIFIC AND CONCRETE as much as possible!**

Please choose a **facilitator** and visualize the discussions on flipcharts / cards

Please nominate a **rapporteur** who writes a **2-3 page summary report** for the documentation.

**Please present the outcomes of your group in plenary in max 10 minutes (flipcharts or electronically)**

### Group work on challenges – DS CRP

#### - Learning oriented M&E system -

1. What are the underlying issues in this cluster and your experience?
2. What do we really want to achieve with a learning oriented M&E system in this CRP?
3. How to develop an effective and efficient learning oriented M&E system at regional level and programme level?
4. What needs to change in the CRP to enable learning and adaptation in a rigorous manner?

**BE SPECIFIC AND CONCRETE as much as possible!**

Please choose a **facilitator** and visualize the discussions on flipcharts / cards

Please nominate a **rapporteur** who writes a **2-3 page summary report** for the documentation.

**Please present the outcomes of your group in plenary in max 10 minutes (flipcharts or electronically)**

### Group work on challenges – DS CRP

#### - Common Framework and Integration -

1. What are the underlying issues in this cluster and your experience?
2. What is the value proposition of this CRP as a system CRP- which convinces donors to put 150 M into it? What do we really want to achieve with integration / coherence and focus in this CRP?
3. How should a common framework for systems research in this CRP look like? Suggest a possible frame and focus also on the science in it (incl 'new science')
4. How should then a common operating model look like:
  - what functions and processes at what level?
  - What institutional arrangements?
  - What capacities are required to implement this successfully and by whom?

#### BE SPECIFIC AND CONCRETE as much as possible!

Please choose a **facilitator** and visualize the discussions on flipcharts / cards

Please nominate a **rapporteur** who writes a **2-3 page summary report** for the documentation.

**Please present the outcomes of your group in plenary in max 10 minutes (flipcharts or electronically)**

### Group work on challenges – DS CRP

#### - Scaling and scale -

1. What are the underlying issues in this cluster and your experience?
2. What do we really want to achieve in scaling up / out and in integrating scales?
3. How to go about it: strategies and actions?
4. How can we harmonize the way we work at scale across the regions?

#### BE SPECIFIC AND CONCRETE as much as possible!

Please choose a **facilitator** and visualize the discussions on flipcharts / cards

Please nominate a **rapporteur** who writes a **2-3 page summary report** for the documentation.

**Please present the outcomes of your group in plenary in max 10 minutes (flipcharts or electronically)**

## 4.1 Scaling and Scale

### What are the underlying issues in this cluster and your experience?

1. **Livelihood systems:** Our focus is to **improve livelihood systems** (that depend to some extent but often not entirely on agricultural practices) not agricultural systems per se
2. **Different livelihood options:** Contrary to assumptions inherent in the sustainable livelihoods approach, in dryland contexts, **livelihoods may not always manifest system properties at household level** but different livelihoods may be interlocked, so that change in one affects others, and the system boundary is around the interlocking set of livelihoods.

3. **Interactions between livelihood systems:** Resources used differently by people with **one type of livelihood may impact on those with another type of livelihood** and so understanding power and the dynamics of autonomy (a system property describing control of the flow of information and material, into, out of, and within a system) are essential.
4. **Equity:** Meeting CGIAR goals (SLOs) **requires improvement of equity** (a system property describing distribution of inputs, outputs and control of flows) making this an essential system property for us to consider.
5. **Non-linear approach:** We are not starting at the beginning and working sequentially from start to finish with the dryland systems programme, but **intervening in multiple ways, and at multiple points**, in a dynamic innovation system with many feedback loops (non-linear, complex systems).
6. **Scale of impact:** Unlike commodity programmes, our **systems research operates largely at the scale of impact**, by embedding research within development practice, which is the only way to bring sufficient resources to bear to explore systems research at scale. This can only be done through partnership with development organizations.

### **What do we really want to achieve in scaling up/out and in integrating Scales**

1. **Scaling up of processes and not technologies?** Working at the scale of impact, requires re-introduction of formal systems methods to complement participatory action research. Historically participation has replaced systems methods, implicitly on the grounds that the 'farmer' provides the systems integration. This creates a scaling problem – **the assumption is that following intensive participatory research with particular farmers or communities, successful innovations can be scaled up and out to other farmers and communities**. This is often not the case because context varies at fine scale so that other farmers and communities need different innovations or the innovations to be adapted to the local context. Sometimes **the 'innovation process' can be replicated**, but this alone is very expensive and if outputs of participatory research are to be relevant to millions of farmers, then it needs to be organized at this scale, taking account of variation in context. The **output is understanding what options (innovations or**

**interventions to enhance local innovation) work in what contexts** (such understanding is generally applicable).

2. **Systems research is site specific.** That is, it focuses on improving systems in a particular geography. While it generates generally applicable understanding of what options are relevant in different contexts that can be scaled out (see 7), this is achieved bottom up at each action site, rather than top down through comparative analysis across action sites. This means that **globally relevant results should be emergent properties of the research complex across sites** (that have sufficient commonality of method and reporting to enable this), rather than the subject of a deliberative process to generate them.

### **How to go about it: Strategies and actions?**

1. **Scaling domain:** We use the term innovation system to refer to the constellation of actors (institutions and individuals), their knowledge, and their interactions, that generates and tests options to improve livelihood systems. This leads us to define a key scale of operation for the dryland systems programme at the administrative unit (usually a district in Africa that we refer to as the scaling domain) at which agricultural innovation can occur and can be fostered. These scaling domains comprise heterogeneity. We use the term, innovation platform to refer to the mechanism for injecting systems methods into the innovation system, which will require capacity and institutional development amongst actors to cope with application of systems methods at scale. This can be pragmatically envisioned as a co-learning cycle.
2. **Operational domains:** The primary focus of our place-based research is the Action Site. This may have a number of operational scaling domains within it at which innovation platforms are established. Action sites (transects in WAS and DS) deliberately comprise a range in context. Scaling up involves spreading adoption within the site; scaling out involves adoption of outputs from the action site to relevant contexts beyond the site itself.

## **How can we harmonize the way we work at scales across the regions?**

1. What scale research should operate and integrate
2. Scaling up and out

## **What scale research should operate and integrate**

- Variability in biophysical and socio-economic environments
- Representativeness of the target area or similarity of environmental units
- Type of intervention/process e.g., large agro-pastoral systems or farms or market chains
- Target an area where farm typology remains constant or ecology starts changing
- Number of households covered
- Relevance to local conditions e.g., district in India is different from district in Jordan
  - ✓ Community scale to watershed level for which the DS research is relevant
  - ✓ District- intermediary scale
  - ✓ Flagship region
  - ✓ Political constituencies

## **Scaling up and out –Action site**

- Not scaling the technology but methodology
- Requires consideration of policies, institutions
- Leveraging on developmental expenditure is crucial to reach the targets
- Time and scale factors
- Minimum criteria for dissemination
- Direct/indirect applicability of solutions
- Domain-varies from one innovation to the other
- Create visible impacts
- Cost efficiency/potential for reaching targets- essentially at action site level

## **Science of scaling - Issues**

- Probably need research on scaling strategy?
  - Spatially explicit Integrated models to predict impacts
  - How to understand and deal with heterogeneity?

- Linkage between scales for operationalizing the scaling up

### **Quick comments from the participants:**

CRP is scaling up processes/methodologies and not technologies, but these processes cannot achieve food security. On the other hand we should find out and learn why some technologies scale out fast to help with successful strategies for scaling up technologies.

System research is site specific; however we are keen to avoid the site specific approach. This calls for analysis of our experiences across countries and regions. It may also entail commissioning an impact assessment of what we have achieved in the Drylands system. Tension between site specificity and general applicability of systems research calls for understanding of system applicability to enable up scaling.

## **4.2 Partnerships**

### **What are the underlying issues in this cluster and your experience?**

- Coordination among centers
- Role and involvement of the national counterpart
- Integration
- Resource (Funding)
- Lack of strategies on how to get partners together
- Differentiate categories of farmers typologies
- Representativeness
- Effectiveness in communication between us and the partners

### **What do we really want to achieve with partnerships:**

- Impact pathway
- Livelihood



- Enhance system research
- Improve the science quality
- Integration of activities on the ground
- Better target of technologies of intervention

### **Categories of partners**

- Research partners (NARS, ARIs)
- Policy makers
- Development partners (FAO, IFAD, WB, BMGF...)
- Delivery partners (extension service, agribusiness, services provider, private sector...)
- Clients we are serving

**Large spectrum of partners - Need to allocate their role along the impact pathway!**

### **How to develop effective and efficient partnerships for scaling? Strategies and principles**

- Empower the partners to participate and have influence in the decision making
- Partnership identified based on clear societal need
- Definition of responsibility for different partners
- Trust in partnership and common shared goals and values
- Identification by all partners of the project plan (ownership)

<b>Strategies</b>	<b>Principles</b>
Credibility and transparency Mutual respect Equality Accountability	IP issues need to be addressed at earlier stage Partner should fit for purpose and have incentive to participate Capacity to deliver (complementarity)

### **What needs to change in the CRP to enable such partnership?**

- More attention to SRT1 on partnership and innovation
- Engagement with regional policies on agricultural research and development

- Attitude of CG centers towards the partners and vice versa
- Sufficient funding to partners
- Clarify the role of different partners for budget allocation

### Quick comments from the participants:

There is need to emphasize more on the development partners – the sooner we link our work with development partners the more we will realize impact on what we are doing especially by linking with national strategies in the different countries.

It is important to consider the power relations with partners as well as understand the political economy. Find out who is against our ideals and how can we bring them on board.

It is critical to express the role of global forum and regional forums for agriculture as they are significant in driving CRP agenda.

The role of the private sector (both agricultural and non-agricultural) in addressing sector issues e.g. outgrowers should be illustrated.

Where is the win –win position of partnership of the two poles i.e. NADS and CG centers?

Partnerships in the systems based approaches need to address the complex needs from disciplinary approaches.

Partnerships in the conventional sense have been based on money/funds, but the new approach is “what is the value added by each partner e.g. currently national research are the main partners for CRP, but what about other development partners? What is their contribution, what is their added value? Partnerships should now be collaborative based on common vision. ***Shift from resource based partnerships to value added partnerships.***

## 4.3 Common Framework and Integration

### Underlying Issues

- Need a unifying definition to systems approach
  - In context of improving livelihoods in the dry areas

- Identifying main constraints as entry point
- Synergies multiple interventions and how interventions affect systems
- Boundaries can be set by stakeholders

### **Added Value of CRP DS**

- Broad statements to achieve the IDOs at a large scale through similarity mapping and development partners
- Informed development, with a particular focus on knowledge-based proposal
- Development dimension to reach the 16% of 2.5 billion people
- Non-linear assumptions greater potential to deal with uncertainty

### **New Science and Common Frame**

- New Science is Livelihood Science
- About overcoming constraints: 'whatever it takes approach' – what can we do in our mandate area.
- About synthesizing, modelling, integrating
- Dealing with uncertainty, building synergies, risk management
- Knowledge and data science
- Look at relationships (increase understanding of systems with feedback loops)
- Embracing heterogeneity as an asset at different levels
- Jargon terms can be data science and knowledge system science

### **Operating Model**

- Open mind
- Link with development and national development strategies early on
- Agricultural livelihood is the target but need to look at above and below that
- Bringing in more socio-economic and policy scientists that can deal with systems approach
- Also need system expert

- Capacity building for biophysical scientists (inside and partners) for system approach
- Can hire experts but need in-house receptors (two way capacity building)

### Quick comments from the participants:

The entry point has been analysis of systems – what are the socio economic interventions and technology interventions, where and how do we integrate them?

Examples of science of systems approach include: studies in remote sensing, simulation, information flow into knowledge, data sets and knowledge systems. The aim is to capture trade-offs, analyse and understand them and assign monetary values to these indicators e.g. environmental aspects and social aspects of interventions.

Integrated analysis that considers socio cultural, political dimensions etc requires specific expertise which is not readily available with the CRP – have we identified partners who have this expertise? How will we address systems analysis expertise deficiency? What processes and mechanisms can we open up within the CRPs to reach out to these platforms with the expertise? – There are many partners within CG where we seek complementarities on capacities we lack therefore we should focus on our mandate. Eg there is a group currently working on trade-off analysis in Wageningen, there is also a resilience and alliance group.

We need within CRP a facilitating unit to coordinate these learning experiences. We need a huge capacity strengthening exercise/program within CRP

We need aggressive efforts to improve our capacity to address socio economic issues. Before defining a science framework we should define the scope of the program. We are not doing well in understanding the gaps in the system and working on them eg social processes and social designs such as women's capacity to innovate, making agriculture attractive to youth

## 4.4 Learning oriented M&E System

### Why discuss M&E

- How to develop learning oriented M&E system to enhance performances of the CRP

- Assessment of the change
- Lack of Quantification of success/ generic research
- Impact
- Learning how resilience is measured and assessed
- Quantitative and focused results are needed
- More info on benefits / beneficiaries of new technologies

### **Underlying Issues**

1. Why do we need M&E? To achieve outputs, outcomes and impact through targeting. To reflect progress across CRP IDOs, outcomes, cross-cutting issues.
2. The M&E should have clear objectives and a primary role in any intervention undertaken by the project.
3. To achieve the overall goal (it is required by the CO)
4. Measurement (Flagship specific indicators)
5. Credibility
6. Dissemination
7. Reference/Baseline
8. Frequency
9. Learning. Definition of Learning oriented M&E. What it is its role and components?
10. What is M&E? Are two distinct processes: a) monitoring and b) evaluation. Both can be done from the Donor side and from the project site. The evaluation can be internal and external.
11. Adequate combination of qualitative and quantitative data
12. Support to Gender analysis along the program
13. Should reflect efficiency, effectiveness, relevance, sustainability, and impact.

### **Priorities from the Group**

- Limited knowledge on how learning process is embedded in the M&E

- We don't know how to establish a friendly reporting structure
- We learn more from evaluation since the way our project is structured does not help to learn from monitoring.

### **What do we really want to achieve with a learning oriented M&E system in this CRP?**

1. Learning and improvement
2. Consolidate lessons learnt (best practices and failures)
3. Adjust deviations timely (Identify constraints and how to adapt the program).
4. Better (logical) planning to achieve impact

### **How to develop an effective and efficient learning oriented M&E system at regional level and programme level?**

1. Establish an M&E knowledge management time. It should be allocated for each FP. This implies budget allocation and more workload on current staff.
2. The system should have its three component hardware, software and orgware.
3. M&E should develop a qualitative monitoring to be independent
4. It should be a simple system to be used
5. It should be developed on the basis of bilateral projects reporting
6. It needs to be compatible with other donor/CRP reporting; the CRPs/Centers need to push the consortium to do something about it since we cannot have different and constant reporting.
7. It should capture quality info through informal communications (face to face, phone, skype...)
8. Specific tailored trainings should be provided at different level of CRP DS doers/practitioners combined with training on result-oriented research (design, implementation and M&E)

### **What needs to change in the CRP to enable learning and adaptation in a rigorous manner?**

1. More structure personal contacts

2. Change in mind set of CRP DS
3. Willingness to share knowledge, information and data
4. Shifting mindset from center focus to CRP
5. Focal point coordinator should have control over the funds/budgets
6. M&E teams across CRPs
7. Should meet at Consortium Level

### **Quick comments from the participants:**

There are two key functions of M&E – management tool and research function/research impact assessment. All levels should be assessed and this needs a detailed project monitoring plan with tools ie indicators, timelines and activities at IDO level and flagships level.

For M&E to function, accountability is fundamental. It needs a transparent way of sharing information and have common way of reporting.

Quality management of performance is based on contracts (meeting expectations) but how do we do learning in the M&E framework? How can we judge and monitor the quality of our science?

We therefore need to consider process monitoring where the fundamental issue is to improve methodologies and processes. But we should also do strategic monitoring i.e. beyond the numbers to see how the programme is moving and the impact.

## 5 Consolidating the ‘Systems approach’

The presentations were aimed at enlightening participants on the *systems approach* - what it consists of and exactly how they might use it. This would enable participants look at what opportunities there are to strengthen the scientific foundation via cross Action Site collaboration, sharing of expertise, tools, and approaches and through partnerships with other institutions.

### 5.1 Reflections on a “systems approach” for Drylands CRP

Presentation by Brian Keating

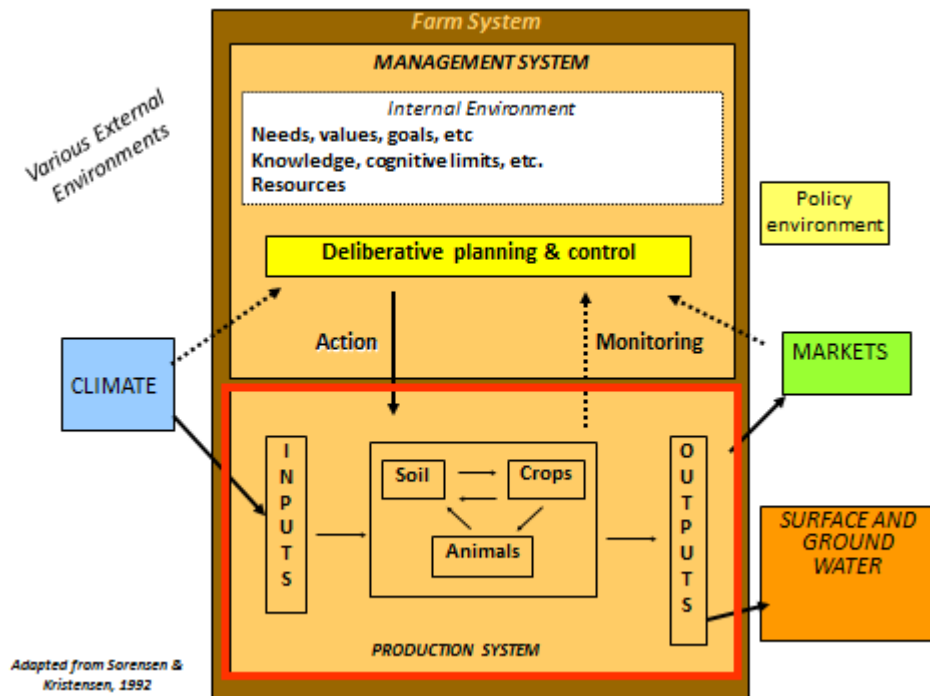


#### 5.1.1 Four Self-evident observations

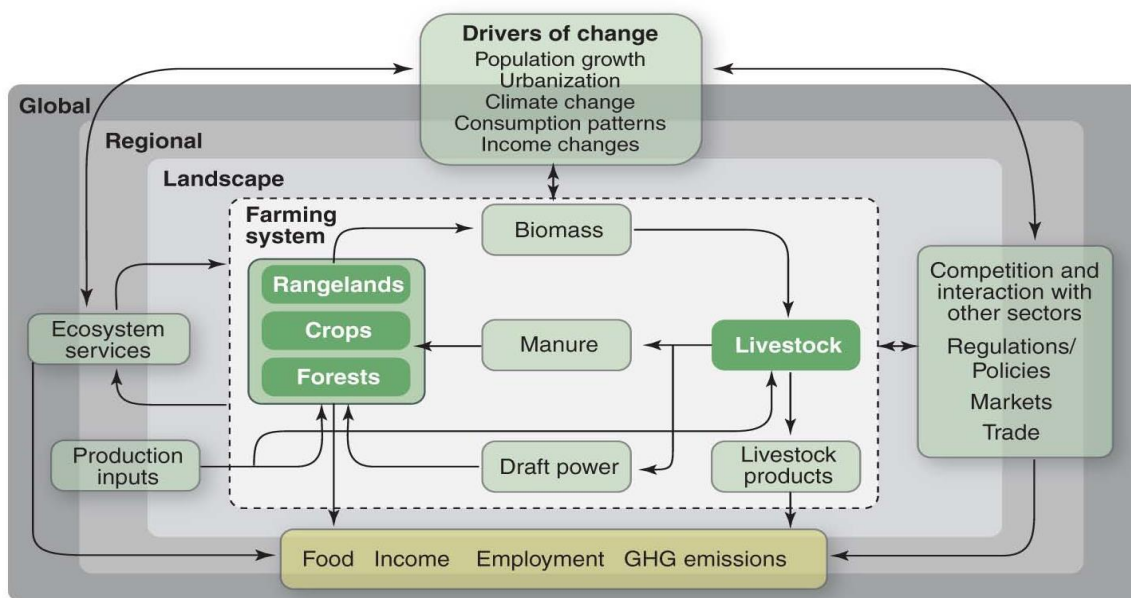
1. Agriculture is part of a “human activity system” with production and management elements

**Systems focus**

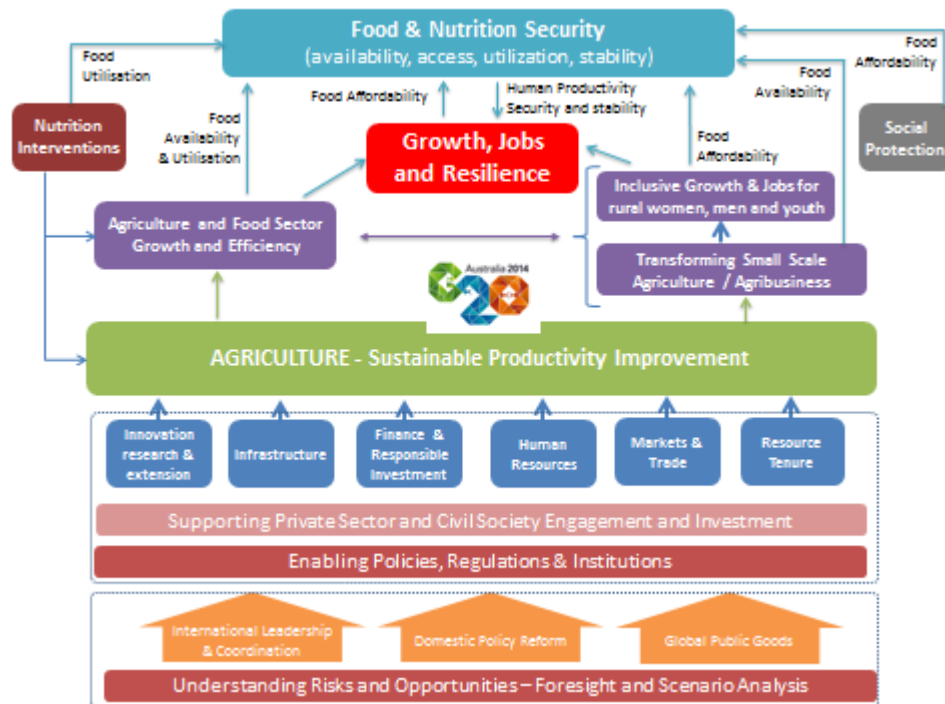




## Hierarchy of scales and multiple drivers of change



2. Agriculture is only part of a systems approach to food and nutritional security and poverty reduction

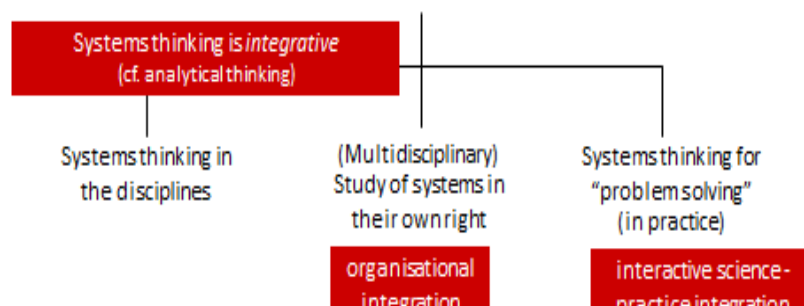


### 3. Our systems approach should be focused on “problem solving” at the science-practice interface (Impact focused)

#### Systems thinking - systems practice

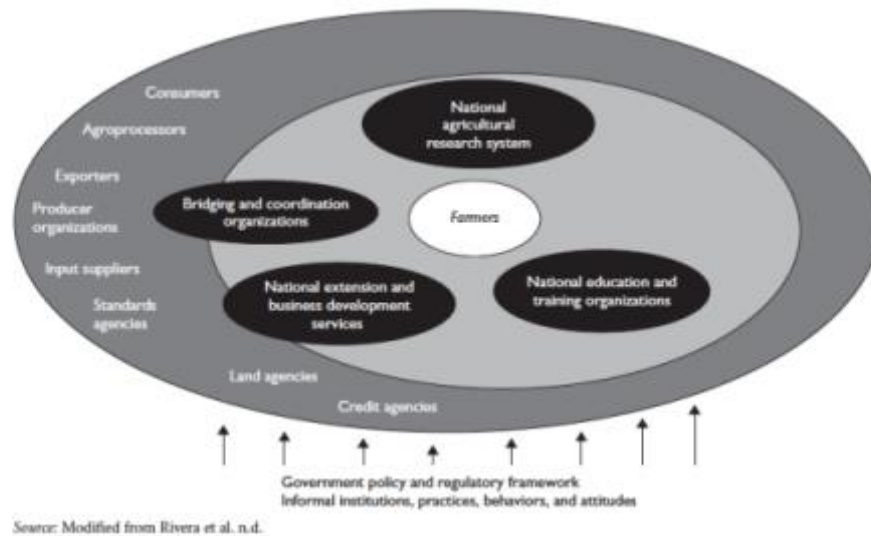
- Creation of knowledge *relevant to* system design and management --- but there has always been the problem of “**adoption**”.
- Use of scientific knowledge in **intervention** in system owners’ *design* and *management*
  - This is the essence of “systems PRACTICE”.
  - Embedded in a strong “problem solving” paradigm

#### The Systems Movement



### 4. Innovation in agri-food systems needs more than just research

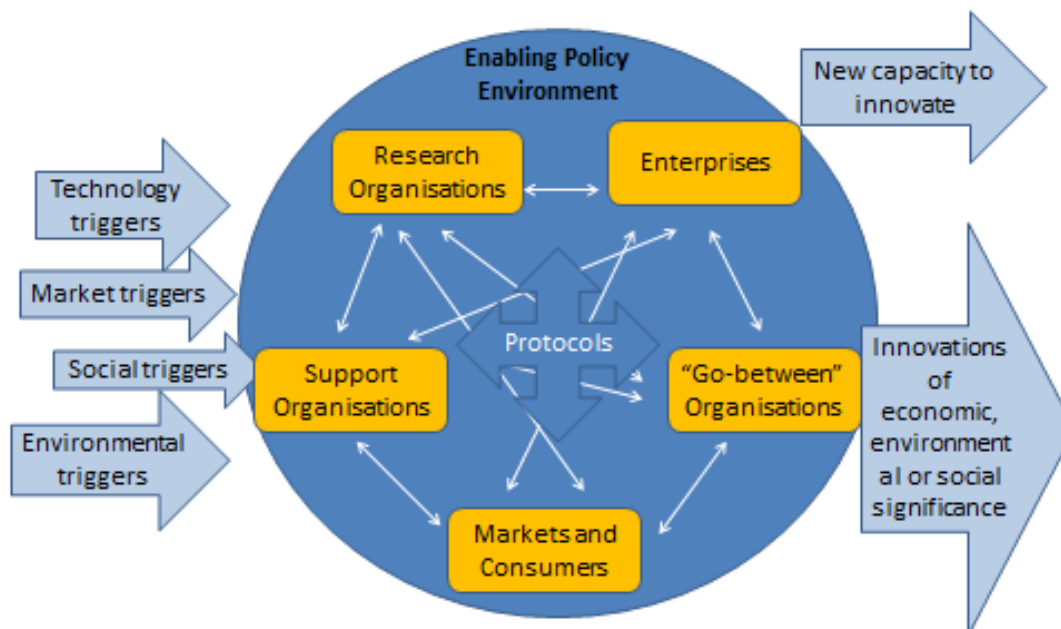
## What is innovation?



= **The conditions that are needed to enable innovation.**

**Definition:** A network of organizations, enterprises, and individuals focused on bringing new products, new processes, and new forms of organization into economic and social use, together with the practices or institutions and policies that affect their behavior and performance.

### 5.1.2 A dynamic view of “Innovation systems”



Adapted from A. Hall (2012) Partnerships in agricultural innovation - Who puts them together and are they enough? In OECD Conference on Improving Agricultural Knowledge and Innovation systems

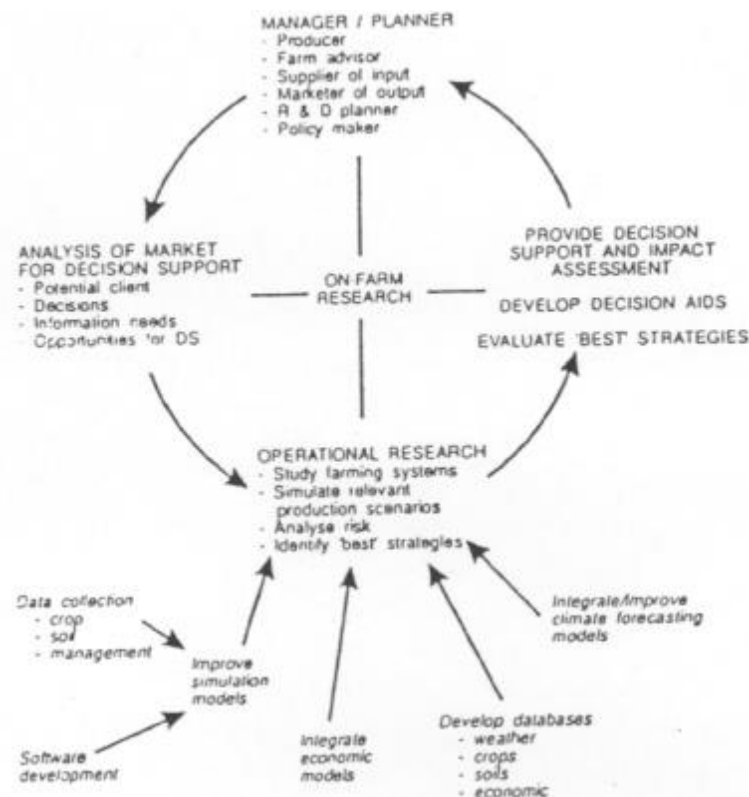
## History of systems research methods

*A Research Typology (Oquist, 1978) Acta Sociologica 121, 143-163.*



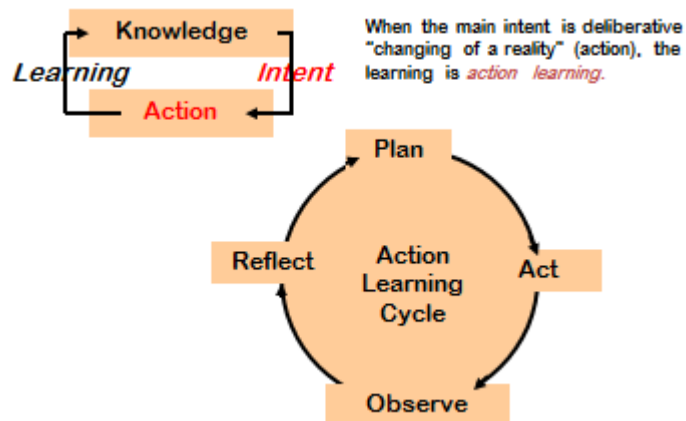
*Each type assumes and builds on the prior type*

## Linking Operations Research to FSR

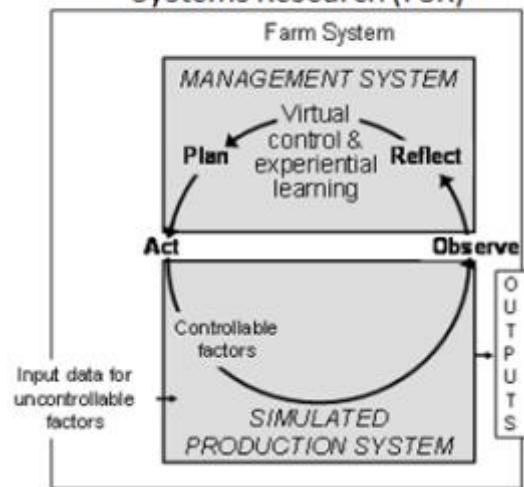


In the late 80's and early 90's, McCown and colleagues combined the "simulation modelling of agricultural systems with the client-orientation of FSR"

## Action Learning



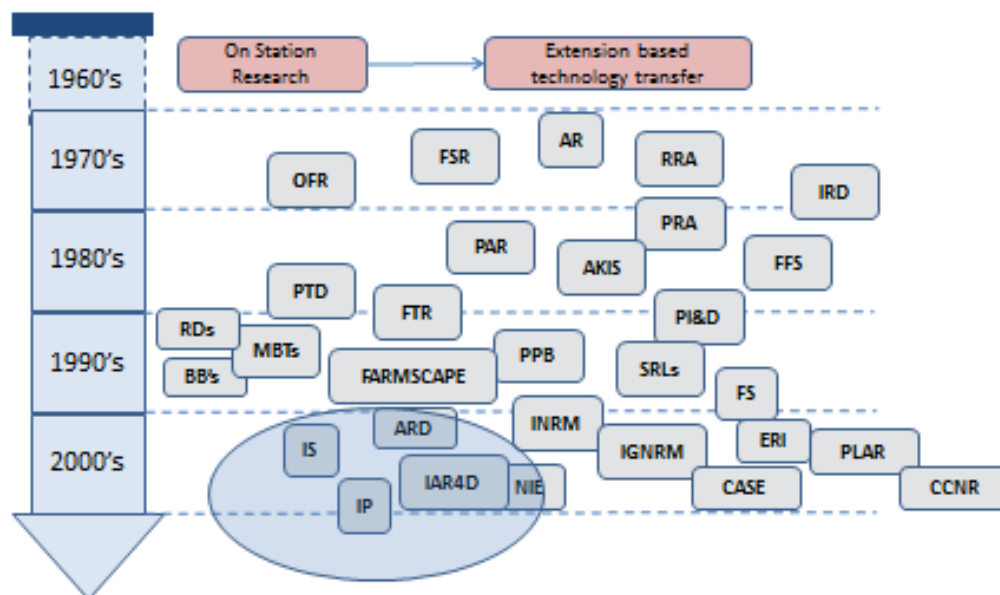
## An elaborated view of Farming Systems Research (FSR)



## Models and on-farm participative research

- On-farm ==> Relevance
- Participative ==> Ownership and relevance
- Systems Analysis (incl. Models)==> Explanation and generality
- Generality
  - Extrapolation in time (over variable seasons)
  - Extrapolation in space (other soils, climates, livelihood circumstances)

## A crowded history of research for development approaches



### 5.1.3 What trends can we observe?

- Moving from descriptive to predictive/diagnostic approaches including the use of systems analysis and modelling tools
- Increasing participation from a broader range of actors
- Emergence of a value chain focus to complement an on-farm focus
- Increasing recognition of the significance of enabling institutions and governance
- Contested paradigms; hard systems vs soft systems; positivism vs constructivism; researcher knowledge / farmer knowledge
- Greater recognition of social equity and gender issues

### 5.1.4 Some propositions for Drylands to consider in shaping a “systems approach”

#### 1. A systems approach shaped by problem solving “in practice”

A “**systems approach**” that is best defined in terms of the outcomes we seek.

- That is, it is a “whatever it takes” approach to improving food security, reducing poverty and enhancing resilience in the world’s drylands.
- Our approach does not prejudge the need for a particular technology, a particular commodity-related intervention or a particularly disciplinary consideration.
- Approach draws upon diverse sources of scientific and local knowledge to improve the food security and livelihoods of the dryland peoples.

#### *Systems research at the scale of impact*

#### 2. Agricultural Livelihood System

The **primary focus** for our systems approach (**level n**) will be the “agricultural livelihood system”.

- That is the set of farm, farming and human activity systems that determine the livelihood opportunities for agricultural households, enterprises or communities.
- Implicit in this focus is consideration of the food and nutritional security, health and well being, employment and income generation of dryland peoples.

### 3. Systems Context

Our **systems context (n+1)** is the wider environmental and institutional setting

- Including government policy, business activity, input and output markets, value chains, knowledge systems, social and cultural norms, gender bias etc.
- We consider this wider context to be the “innovation system” and we recognise scientific research is only one part of the innovation process, albeit a potentially catalytic or transformational part

### 4. Science based diagnosis and intervention design

Our **explanatory insight (n-1)** comes from our descriptive and predictive capacity around the key components and the many interactions that shape agricultural livelihoods.

- Components include but are not limited to crop, livestock and tree options and technologies within farming systems, agricultural inputs and output availability and prices, natural resources used in farming in particular soil fertility and water management, tillage systems, energy systems, labour and capital, nutrition and health consequences of diets, education systems and off-farm income generation .....
- We can't discard our scientific method/value-add in our efforts to get more participative and relevant

### 5. An evolving research methodology

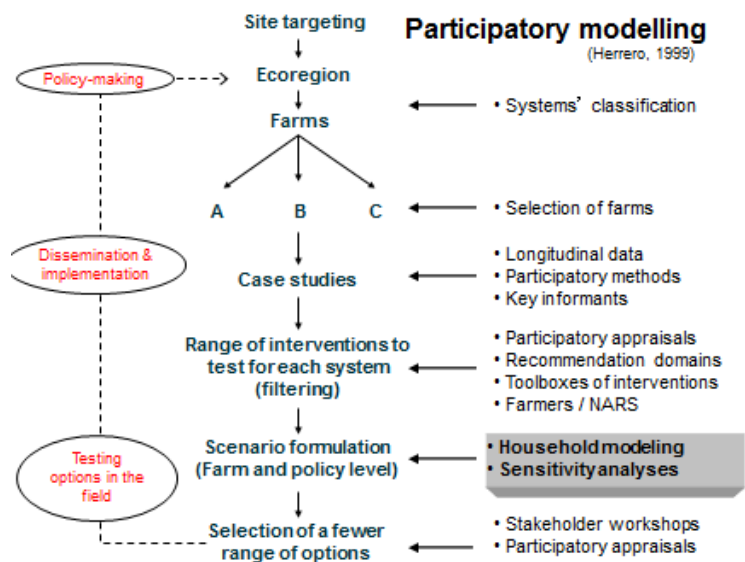
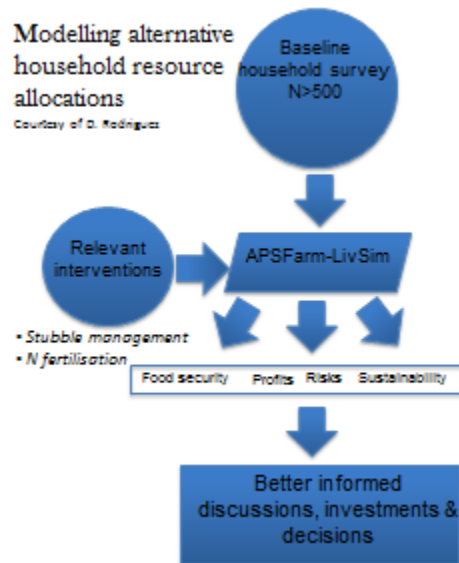
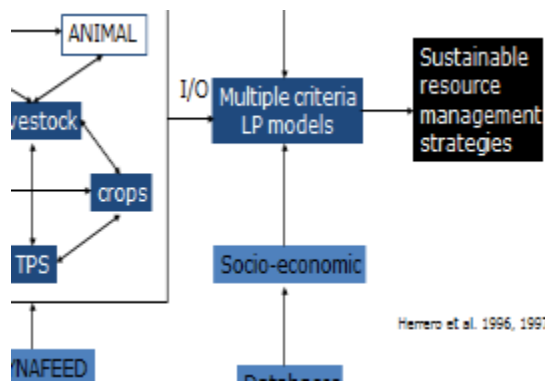
**Diagnosis of constraints and opportunities** at the agricultural livelihood level will be our primary entry point for “discovery” science in dryland systems.

- These will be holistically analysed for development constraints in order to identify the system bottlenecks and effective remedies.
- For the latter we will draw upon indigenous knowledge as well as technological discoveries and developments from other CRPs and the wider agricultural RandD system.

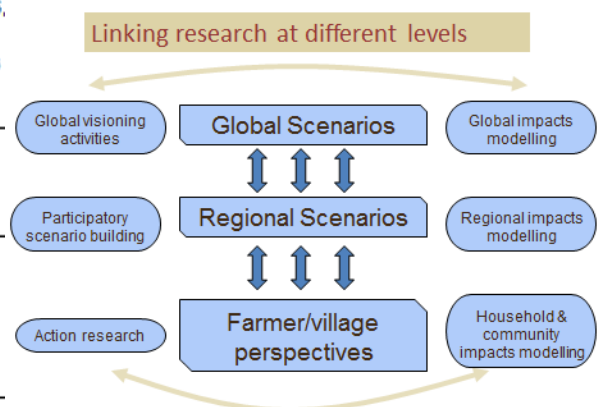
### 6. “Fit for purpose” participative approaches



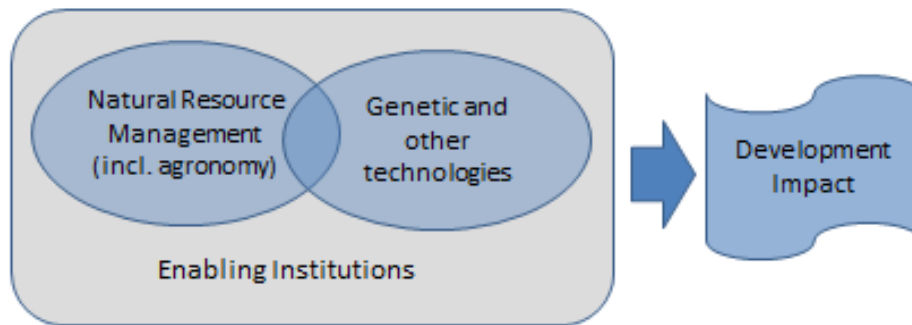




Phenotype	programs	et al., 2004)
Crop-Soil	- identification of optimal agronomic practices and/or varietal adaptation	Simulation Models (CERES, GRO models)
Farming System	- farming systems design within soil, climate and management constraints	Systems Simulation models (e.g., APSIM, DSSAT, CROPSYS)
Farm Household / Enterprise	- optimal resource allocation (inputs, labour, enterprise mix) to raise farm productivity	Bio-economic optimisation models (e.g. MIDAS, MUDAS); NUANCES
Regional Dynamics	- cross-sectoral responses to change drivers and intervention strategies	CGE Models, Regional Stocks and Flows, Agent-based models
National Economy	- impacts of interventions in the agricultural sector on economic growth, employment, balance of trade etc	National CGE models (e.g. MONASH) or stocks and flows models (e.g. ASFF)
Earth Systems/ Global Economy and Trade	- climate change impacts on global food supply and agricultural trade	Global Trade models (e.g. GTAP, IMPACT, IFPRI models)



**A more integrative approach in the CGIAR ?**



### Quick comments from the participants:

***What is the unit of analysis for the systems research? Can we use action sites, patch situations smaller situations in the action sites e.g. specific crop, community etc.?*** In principal we don't go for one unit of analysis, but always focus on the different perspectives needed to understand - a single unit of analysis is therefore not ideal. We also need to look at who our audience is, farmers, policy makers so as to determine the types of analysis to conduct.

### What does it mean for the drylands system?

Cross cutting research methods – there are interdependencies. There is need for capacity building on these methodologies. There is also need for integration of different methodologies and interventions.

There is need for constant feedback and knowledge sharing. Data sharing and utilization and diagnosis are critical for better interventions. Farmers' innovations need to be up-scaled.

Research systems and practice is a great way to address the DS, it needs to be structure better for implementation. How to integrate the various researches – water research, livestock research, socio-economic research

Tools for participatory approaches - learning alliances, innovation platforms. It is important to pick out priorities and main challenges.

To apply systems approach effectively there is need to re-consider the partnerships ie reinforce some of them, discard others and bring new ones on board. There is need to boost engagement

of private sector through various approaches e.g. innovation platforms for processing and marketing stages.

There is a lot of scope to analyze lessons learnt. The conceptual approach should therefore be shared with the people we are working with.

## **5.2 Injecting systems methods into Drylands systems**

### **1. Livelihood system focus**

- Our focus is to improve livelihood systems (that depend to some extent but often not entirely on agricultural practices) not agricultural systems per se.
- Because we are interested in sustainable livelihoods, this draws in the environmental integrity required for livelihoods to be sustainable.

### **2. Interlocking livelihoods**

- Livelihoods may not always manifest system properties at household level but different livelihoods may be interlocked, so that change in one affects others, and the system boundary is around the interlocking set of livelihoods.
- Resources used differently by people with one type of livelihood may impact on those with another type of livelihood and so understanding power and the dynamics of autonomy (a system property describing control of the flow of information and material, into, out of, and within a system) are essential.

### **3. Equity**

- Meeting CGIAR goals (SLOs) requires improvement of equity (a system property describing distribution of inputs, outputs and control of flows) making this an essential system property for us to consider.
- There is an explicit need to address equity in relation to gender.

### **4. Non-linear, complex systems**

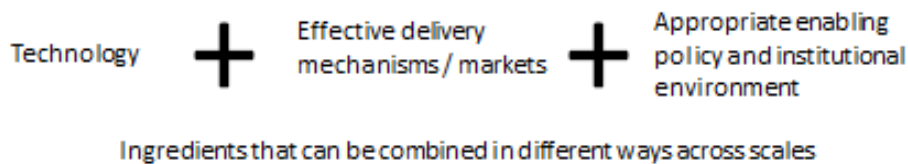
- Dryland Systems does not start from the beginning and work sequentially to an end point BUT intervenes (at various points) in a dynamic system with many feedback loops.

## 5. Systems research at scale of impact

- Unique selling point
- Embeds research in development
- Requires partnership with development partners and their spending (leverage)
- This is the only way to get sufficient resources to work at scale of impact
- Identifies fundamental research issues that spin off (some to commodity programmes)

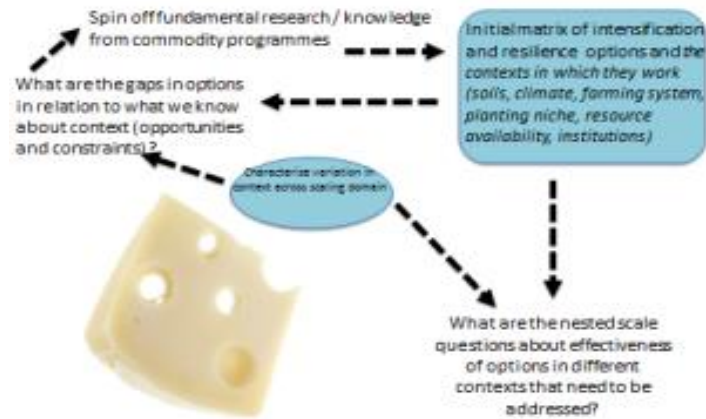
## 6. What to scale up?

- PAR replaced systems methods (farmer or community integrates)
- Options refined through PAR at a few sites don't scale because context varies, BUT
- Scaling only innovation processes (rather than options to improve livelihood systems) is not cost effective. Options are:



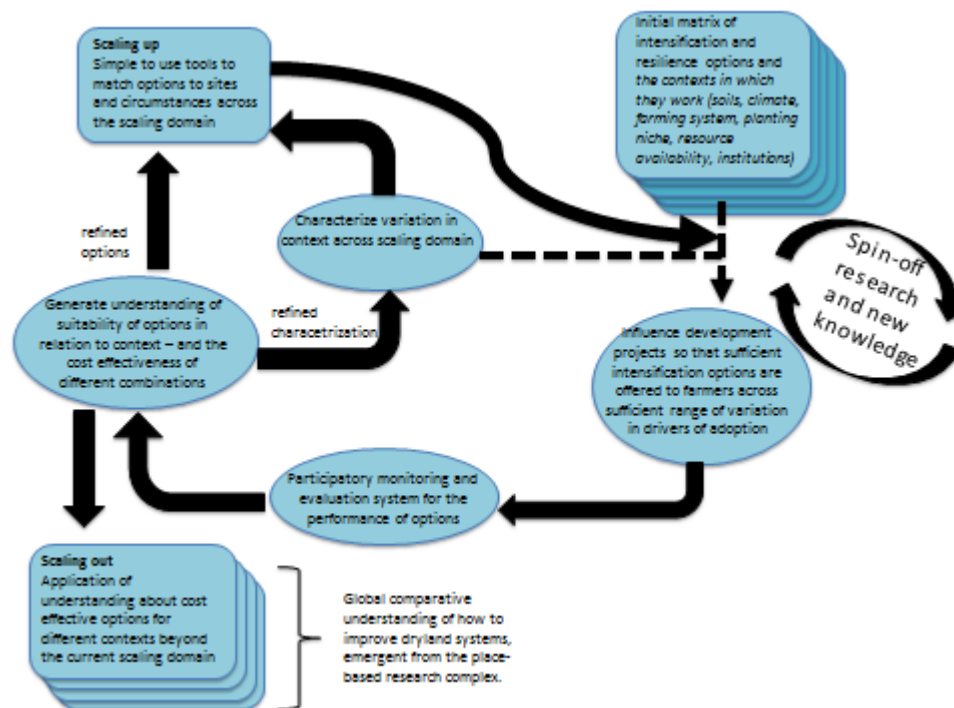
## 7. Understanding options x context

- Research at scale generates understanding of what options work in different contexts (this generally applicable)
- The contextual factors that matter will vary amongst Action Sites (though there will be some commonality)
- Putting what we already know and are already doing within an options x context matrix is an immediate way of 'systematising' what we are doing.



## 8. Place based research

- Focus is to improve livelihood systems over a defined geography (action sites)
- This generates generalisable knowledge by understanding options x context (requiring action sites to embrace sufficient range in context)
- Globally relevant results are emergent from the place-based complex



## What does it mean for the drylands system?

Level of innovation platform (minimum operation platform) has to be big enough to achieve impact. In a larger innovation platform how do we factor insights of local realities as they get lost

when you move higher the scale/innovation platform? Critical difference between operating at scale and community level – understand the context, what factors to focus on, characterization. Think globally but act locally.

To what extent can we out-scale when the agricultural system is dominated by outside factors – the private sector, NGOs?

**“Is there a way in the next two years to develop an exemplary framework on what future of project portends?”**

## 6 Creating a common research and collaboration framework at programme level, across regions and initiatives

### 6.1 Towards systemic research questions

What are the mechanisms on how to bring it all together – develop clear overarching systems research questions that would encompass the main things we are considering for solutions. The following task guided the participants in elaborating the questions.

#### **Group discussions - Towards systemic research questions**

What are the top 3 fundamental research questions for which this research program tries to find answers and solutions

Research questions should be:

- **Systemic**: focusing on key issues in Drylands and their interaction in the system
- **Below IDOs** – above regions
- Clearly recognizable for **Drylands**
- Formulated as **“how to...”**

**The research questions were clustered in the following manner:**

### **Diagnosing ALS and identifying entry points**

1. How to implement diagnostic analysis with all partners
2. How can the different inter-related factors and incentives contributing to ecological, economic, social resilience in dryland systems contribute to sustainable livelihood options?
3. What the alternative options to improve system performance and what policy instruments are need to operationalize these alternatives?
4. Within the action sites how do we most effectively prioritize investments in drylands development to address diverse, nested constraints and opportunities
5. Once an investment is made what are the key constraints/incentives to changing/optimizing the dryland systems (system analysis)
6. What re the potential consequences of removing those constraints?
  - a. Socio-economic and bio-physical
  - b. Action site level
  - c. ALS and interrelations
7. How to use emerging social, technological trends in addressing dryland systems (constraints, trends, context, options)
8. Farmer income/well-being: how can the dryland system increase of secure farm income and other assets so that farmers are better positioned to improve their livelihoods(health, education, nutrition, shelter etc)

### **Transfer examples through innovation mechanisms/processes (adaptation, PTD)**

1. How to develop technical, social, economic, institutions, innovations to increase resilience to ecological and economic need shocks and diversify/improve livelihoods and equitable benefits
2. How to transform current dryland agricultural livelihood systems into more resilient and productive and sustainable system

3. How to bring innovations to make dryland systems more resilient to drought and climate change
4. How can agricultural research for development (AR4D) in dryland systems reverse trends of natural resource degradation while improving livelihoods
5. Within action sites – how do we effectively incorporate local knowledge and perspectives with global scientific approaches and policy
6. How to improve water management in the context of dryland systems
7. How to influence policy to improve efficiency of ALS in the drylands
8. Why is agriculture increasingly not attractive to the rural youth? How to provide options and incentives to attract them?
9. Natural resource management: considering trade-offs of intensification and resilience enhancement how to achieve sustainable and equitable use of natural resources considering social and gender inequity, resource limitation and over utilization as drivers of change and options to change for the thorough innovation and an enabling environment

### **Catalyzing development at scale**

1. How to assess scalability of technological processes across countries
2. What is the extrapolation for scaling out of an intervention (scenario analysis)
3. Agree impact is aimed at (who, where, when)
4. Within the action sites: how do we nurture the emergence of global relevant outcomes from place based research?
5. How to measure and quantify the impact of a system research including potential trade-offs
6. Within the action sites: how do we effectively work across public and private sectors to speed up innovations and scale out benefits?
7. Adoption: how do we promote adoption while taking a livelihood perspective and understanding farmer decision making regarding adoption, capturing farmer



perspectives including benefits, synergies, constraints, tradeoffs and risks – using a multiple constraint approach in problem solving

8. How to promote adoption within livelihoods context
9. How to analyze systems in the context of dryland

### **Below are comments from participants:**

Are we on the same page – understanding of livelihoods includes wide issues such as health, education, democracy etc. for example DS CRP and ICARDA leading the CRP are not in the business of education and health, their mandate is in agriculture and in this case livelihoods means improving farm income to enable farmers access other needs. The other broader livelihood components beyond ICARDA are addressed by other partnerships. Increased income has impact on the other livelihood components i.e. better access to education and health. We need therefore to convince policy and institutions and target beneficiaries about our ability to improve incomes.

There is an important role to be played by CG centers – to the big array of partnerships and their different mandates: national institutions, communities, private sector and the governments.

Participants agreed on the need to put efforts to dividing and segregating the complex aspects of the system and where DS CRP interventions can impact – simple procedures divided into components tht connect to the larger picture.

There is need to define key terms and provide general meanings e.g. agricultural livelihood systems. The language used must be commonly understood in the DS CRP. ***What are the useful concepts that will help reduce complexities? Language demystification to help communicate effectively.***

Formation of interdisciplinary and multidisciplinary teams – teams composed of different fields of expertise; gender experts, water specialists, nutritionists etc. This is to facilitate synergies and complementarity where each discipline should articulate its role in the whole system (total picture). The teams will fluctuate based on the needs e.g. water, markets, health – needs flexibility in addressing the problems identified.

The aim is to bring the socio-economic change – identify community needs then develop socio-economic technology innovations for intervention.



## **6.2 Synthesis of research questions into broad clear over arching goals**

- A. How to identify best entry or leverage points for change in Agricultural Livelihood Systems, through integrated science-based diagnosis of socio-economic, gender, political, ecological drivers and trends and resulting constraints, opportunities, and options in context?**
- B. How to promote a transformative environment through innovation mechanisms, processes and capacity that optimally use natural, physical, human, financial, social capital to reduce vulnerability and sustainably intensify agriculture?**
- C. How to catalyze development at scale through prioritization of investments, impact assessment and strategic alliances between the CRPs and public and private sector development stakeholders?**

### **Main general questions driving the Dryland systems research**

#### **I. Diagnosing Agricultural Livelihood systems and identifying entry points**

How to apply science –based diagnosis of Dryland systems constraints, and opportunities with full account of the contextual and historical trends of the ecological, social , economic and political factors

## **II. Transforming through innovation mechanisms/processes**

1. How to build the capacity of men and women farmers and livestock keepers in dry areas to innovate for improving their livelihoods
2. How to combine the limited natural resources with policy and intuitional support to optimally uses these resources and reduce the vulnerability to water scarcity in dry areas
3. How to combine natural resources with market opportunities to sustainably intensity and increase farm income in the more favorable dry areas

## **III. Catalyzing development at scale**

1. How to apply science in assessing the scalability and measuring the potential impacts of innovations at scale for supporting decision-making in development investment
2. How to develop effective and strategic alliances with development community (national governments and international development investors) and secure long term joint commitment to out-scale proven research outputs to larger number beneficiaries.

### **Comments from participants to the research questions**

The questions can be further discusses and developed during the IITA conference scheduled for October 2014.

Some key terms need to appear in the overarching questions e.g. systems research, Drylands/dry areas, poverty, synergies, trade-offs. Other components should come in the sub questions.

There is no reference to systems approach within the research questions – should we only put it in the larger framework? The “task force” should explicitly express the systems approach within the research questions.



## 6.3 Integrating learning into the regional flagships

This session was to help achieve a concrete way forward on how to work so that the regions can have a basis for working on in the program.

### Group work on integrating the learning into the regional flagships

#### 1. How to integrate our learning here into your flagships – what do you need to change until 2016 in order to successfully implement the CP

Consider:

- a) Implementing the systems approach
- b) Science and new science
- c) Synthesis research
- d) Knowledge management
- e) Communication / visibility (addressing the image problem)
- f) Partnerships for impact
- g) Scaling up / out
- h) Incentives

Please come up with the main points for change you need to make

#### 2. How will you operationalize these changes and develop a more coherent flagship aligned to the overall research questions?

Please come up with concrete actions and broad plan

#### 3. What are the critical gaps in terms of capacity or implementation support you have and how should they be addressed?

**BE SPECIFIC AND CONCRETE as much as possible!**

Please choose a **facilitator** and visualize the discussions on flipcharts / cards

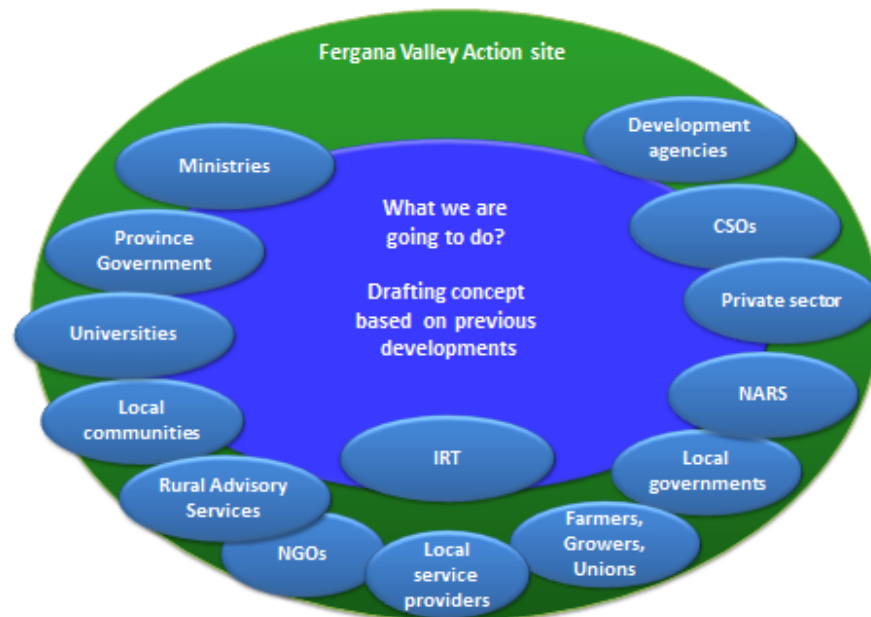
Please nominate a **rapporteur** who writes a **2-3 page summary report** for the documentation.

**Please present the outcomes of your group in plenary in max 5 minutes – only the main points (flipcharts of electronically)**



### 6.3.1 Central Asia flagship project

What are we going to do?



Identifying problems to address

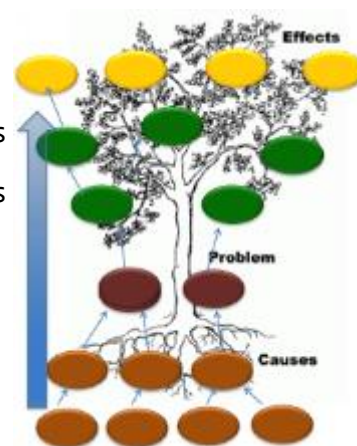


## Structuring problems

Community based Multidisciplinary Research Partnership Identifies main issues, and then draws up a "Problem tree" using causalities approach, labeling:

- Socio-economic issues
- Institutional and management issues
- Technological issues
- Environmental issues
- Economic issues (value chain)
- Policy issues

While identifying objectives, they are not necessarily to be addressed by Interdisciplinary Research Team, but they could be important when formulating policy changes required for achieving IDOs, when the CRP DS products are up-scaled.



Objectives	Description	Indicators	Partners	Risks and Assumptions
Goals / Impact				
Outcomes				
Outputs				



### Identifying roles of IP actors:

	Facilitators	Contributor	Beneficiaries
Researchers	x	x	x
Farmers, Pastoralists		x	x
RAS		x	x
Policy makers		x	
NGOs		x	x
Universities		x	x
Development agencies			
Input suppliers			
....			

	IDOs			Policy aspects				
				Ac 1	Ac 2	Ac 3	...	
Outcomes								
Outputs								
Activities	Inputs							

**How to integrate the learning here into the CA flagship project? What do we need to change until 2016 in order to successfully implement CRP DS?**

### A. Implementing System approach (**conceptualization, ensuring “buy-in” by local partners**)

- Working with small group to formulate clear **concept of System approach** taking into account previous developments
- **Brainstorm meeting with stakeholders** on “What we are going to achieve”
- Planning the progressive Capacity building program on system analysis
- Conceptual model of Action site on which system approach can be based
- **Change mind** set of researchers and to those who involved into Multidisciplinary Research Team
  - ❖ by putting together on the ground
  - ❖ by demonstration progress and communication
  - ❖ by agreeing what is the system approach and get common understanding
  - ❖ participatory and inclusiveness of defining and implementation of interventions
- Translate the concept into local language and **communicate to the local governments /** counterparts



#### A. Implementing System approach (**involvement of local partners**)

- Inventory of NARS 5-year, 3-year, and annual research agenda and identify where CRP DS system research can be help
- **Embedding system research in NARS program** , that will ensure 'buy-in' by local partners
- Identify those from NARS / Local partners who can co-implement agreed interventions
  - ❖ Analyze all issues across disciplines at national / action site level
  - ❖ Set-up a mechanism with local partners for M&E of the system approach progress
  - ❖ National partners will work with local partners and obtain feedbacks from actions sites, collect primary data and process then and carry out the research
- Re-packaging, reformulating and **fine-tuning interventions with local partners** involved in interdisciplinary Research Team to fill gaps and enhance linkages between different disciplines

#### B. Science and new science

- New science is **interdisciplinary**
- Identification of key science issues in term of **system approach**
- New science can be in place in the "**hard component**" of the research is modernized, management is atomized, that would require the improving **soft component**, e.g. Improving capacity
- Establishing **Centers of excellence**
- Engaging **ARI**
- New science to resolve issue at the focus of system approach
- Empower farmers with **capacity in decision making**

#### D. Knowledge management

- **Knowledge synthesis, generation, packaging and dissemination** (knowledge platform) of sustainable land management practices in Central Asia (**CACILM Phase-ii**)
  - ❖ Knowledge synthesis (existing knowledge and knowledge gaps identification)

- ❖ Knowledge generation about approaches and technologies (filling knowledge gaps)
- ❖ Typology of stakeholders and knowledge dissemination pathways
- ❖ Knowledge exchange on technical packages
- ❖ Capacity building and sustainable access to knowledge
- ❖ Enhancing evidence-based knowledge
- ❖ Policy dialogue to facilitate adoption of technologies
- Selecting and prioritization of most promising technologies and approaches, description and presenting them in in standard format
- Development of similarity maps where selected SLM technologies and approaches can be applied
- Development of a web-based knowledge platform

#### E. Communication / Visibility

- Improve **public relation**
- We need to develop bilateral projects, and have some products to expose, before communicating donors
- Target audience should be **regularly informed** about the progress
- Using **social networks and blogs**
- Conduct thematic **e-consultations**

F. Partnership for impact	G. Scaling up / out	H. Incentives
<ul style="list-style-type: none"> <li>➤ <b>Innovation platforms</b> approach</li> <li>➤ <b>Regional forum for AR4D</b></li> </ul>	<ul style="list-style-type: none"> <li>➤ <b>Strategy for scaling up</b> based on system analysis and extrapolation domains</li> <li>➤ Addressing the <b>issues that preventing us from scaling up</b></li> <li>➤ <b>Involve policy makers</b> in prioritization of activities and decision making</li> <li>➤ Ex-ante situation endorsement</li> <li>➤ Expertise</li> </ul>	<ul style="list-style-type: none"> <li>➤ Specific, tailored</li> <li>➤ <b>Funds</b></li> <li>➤ <b>Bonuses, rewards</b></li> </ul>

## How we will operationalize these changes and develop a more coherent flagship aligned to the overall research questions

- Concentrate efforts in **one action site**
- Developing **work-plan** for first year
- **System analysis**
- Developing coherent proposal for donors with work-plan for next two year
- Engage external resources for system analysis
- Defining the concept of “**operationalizing the best fit**” as the process of characterizing the context through identifying **bounding conditions** (funding, policies...), understanding the attributes of actor groups, and recognizing independent factors, in order for system approach to be as relevant, effective, and efficient as possible.

## What are critical gaps in terms of capacity or implementation support we have and how they should be addressed?

- Identify **capacity gaps** at levels: IRT, Multidisciplinary RT, Action site level
- Develop a **strategy** for capacity development
- Identify different **methods** for building capacity
- How can CRP DS doers contribute to **make agriculture more attractive to youth**?

### 6.3.2 Eastern and Southern Africa flagship

#### Systems approach

- Significant discussion on working at action sites and linking this to activities outside action sites in the perspective to bringing things to scale
  - Options for joint research and scaling possibly larger in larger bilaterally funded projects, discussion on where we work together as a group
  - No conclusion, but needs further reflection
- Understanding systems research is prerequisite
  - Systematic diagnosis of constraints and opportunities (scaling domains, options, critical analysis)

- Develop options by context with livelihood perspective
- Collect baseline data through HH surveys, spatial data
- Consider both indigenous and improved
- Team composition, skills, turnover and leadership
- Develop operational framework for systems research
- Identify partners from public and private institutions (research education development finance)
- Identify potential large bilateral projects and other activities that we can be linked with
- Revisit and explore the big messages to communicate

**How will you operationalize a more coherent flagship aligned to the overall research questions?**

- Constitute management team from IRT with clear ToR and authority that can take programmatic decisions
- Identify funding gaps and collaboratively develop bilateral projects within or outside action sites

**Critical gaps in terms of capacity or implementation support and how should they be addressed?**

- Lack of common understanding about the systems research and pragmatic ability to implement systems methods within (and between) flagships
- Data collection and archival system – Research methods group
- Operation through innovation platform

### **6.3.3 NA and WA Flagship**

**How to integrate our learning here into FP? – What do you need to change until 2016 in order to successfully implement the CRP?**

**a. Implementing the systems approach**

- Development of the community action plan
  - Participatory characterization of the community

- Formalize the IP
- Identify the vis-à-vis (Help for the community organization)
- Start work with the community: Participatory diagnosis of constraints, identification of potentialities and possible solutions (involving research, development, extension and farmers)
- Creation of database
- Implementation of research activities
- Helping the community for seeking for potential donors for the development interventions
- Select site coordinator familiar with the system approach
- Need to involve Experts in system approach and train research team on system approach
- Change in mind-sets (from commodity-oriented to system-oriented)
- Integrate biophysical and socioeconomic research

#### **b- Science and new science**

- Implement large scale experiments using appropriate methods (e.g. Randomized control trials at the village level)
- Bio-economic modeling
- Tradeoffs analysis

#### **c- Synthesis research**

- By thematic area and across all the sites within a region (eg. NRM, regional trade, etc.)

#### **d- Knowledge management**

- Include local and scientific knowledge, data collection, validate, website, sustainable bases

#### **e- Communication / Visibility**

- Circulate the information within the action site: SMS - Oral work (Miaad) – weekly markets
- Communication between the five regions (websites, Facebook, twitter, )

#### **f- Partnership for impacts**

- Link with development projects in the action site
- Promotion to favor the venue of other donors to invest in the region (NGOs, other CG-centers)
- Identify outcomes and impact case studies and document them for communicating research results
- The first partnership should start with the community – creation of legal entity at the level of the community in charge of the project

#### **g- Scaling up/out**

- Develop similarity maps
- Make projections of benefits at scale to engage development investment
- Raise awareness of decision makers

#### **h- Incentives**

- Train the young people, support them to find funds
- Help the farmers with inputs

#### **Critical gaps**

Capacity development in IP/ community action plan

### **6.3.4 WAS&DS Flagship**

#### **BLENDED issues and actions and critical gaps**

##### **a) Implementing the systems approach**

- Including the range of variation within action sites via multiple interventions sites
- The way WAS&DS work presented should be changed to report per activity or per IDO
- The KKM and WBS sites are a very mature sampling strategy
- Request from centres that we need more leadership
- Expand the range of partners to improve capacity building and implementation
- Need to improve mode of presentation and how thoughts are organized
- Need to create science that addresses social needs

- Critically examine how our minds are trained to critically examine – learn to stand in each others' shoes and think in a 'new' systems way

#### **b) Science and new science**

- Systems science (in our context) is a new science and that is why we are struggling with it - stop expecting ourselves to automatically adapt
- Recognize the emotional, social, cultural and intellectual journeys – individually and collectively
- Quantitative and qualitative designs and tradeoffs
- Including more variables but in a smart way
- Not just about raising productivity by elevating from poverty (broader system) – i.e. from agricultural system to livelihood system
- Risk vs productivity – e.g. the same resource (e.g. quantity of water) has a different value in the two situations
- Payment for ecosystem services
- New science to confront the "tragedy of the commons"
- Reassess satellite and other sites for representative issues – e.g. water management options
- Train people

#### **c) Synthesis research**

- Define "synthesis"
- Synthesis existing knowledge to address the systems issues
- What product should this be at the program level – e.g.
  - i. synthesis of extension
  - ii. agricultural content management
  - iii. by technology – e.g. poultry, small scale irrigation
  - iv. synthesis of institutional approach
  - v. synthesis of systems approach
  - vi. historical contexts

#### **d) Knowledge management**

- E.g. promoting farmers' understanding of managing indigenous species
- Data management
- ...

#### **e) Communication/visibility**

- What we want to research and why
  - i. Drylands
  - ii. Systems
  - iii. What/why is it different
  - iv. Stand up and say "it is a new science" (recall 4 stages of acceptance of a new idea)
- What are the consequences of excluding Drylands from a research agenda?
- Demonstrate that it is new
- Show we are "cutting edge" and we are moving towards a goal
- Impression from outside that centers do not mention the program – only what is done per center
- Put DS on business cards
- Aggressive approach to marketing DS
- Elevator message
- TV, brochures, flyers (billboards?)

#### **f) Partnership for impact**

- Capitalize on the strong culture of NGOs in West Africa
- Involve NGOs at the beginning of projects
- Work through CORAF on selected projects/overviews etc. – opportunity to follow-up with international doors – link with all DS to build synergies

#### **g) Scaling up/out**

- It is complicated
- Centers should not commit to this (it has been a 40-year discussion)



- Need to present all available information and interpretations and increase visibility for development institutions to take on
- Ensure there are for a for these
- Focus on youth projects

#### **h) Incentives**

- Scientists want to publish – encourage publishing in multi-disciplinary journals
- Elevate the status of success stories – rewards for these???
- Develop incentives for other partners and actors

### **6.3.5 South Asia Flagship**

#### **How to integrate our learning here into your flagships – what do you need to change until 2016 in order to successfully implement the CRP**

Largely the system has been well characterized across all of the actions sites with established frameworks. But a working document describing the sites, constraints and vision for the project and scale up should be implemented. Synthesizing and integrating the information at the site level is so far limited so simple methods it together, e.g. newsletter, joint meetings at sites and with farmers; will assist in this respect. Plans about what we want to achieve are largely missing.

Innovation platforms have been established however farmers have been so far not included. But farmers have been strongly engaged. 15 IP's have been established across the 4 action sites.

Site similarity maps will now be developed.

The use of existing information has been collected however systematic analysis of the data has so far been limited.

Communication has been weak and reporting to M&E. Creation of a wiki space for South Asia for establishing better communication.

**New science** – finding science questions: using the farm household analysis to identify typologies, income gaps, opportunities for interventions by typology, simulation of climate

scenarios, risk analysis of technical options, tradeoffs. New science is more at the level of integration.

**Knowledge management** – standard Meta data format, data archiving,

Focus on how cash crops might affect the livelihoods rather than the technical aspects of for example vegetables and glasshouses.

Find generic issues that are applicable to other regions.

**Partners** - In general good partnerships with NARES, NGO's, however so far private partners could be now cultivated as development partners.

Seed systems are considered as a high priority for

New developed activities around foci, for example seed systems, NGO partnerships, banking and insurance, and develop an IP around this set of different partners.

**Incentives** – for partners is to build more trust and encourage small NGO's by recognition.

Scaling up and out needs the local government has to be on board and convinced of out messages- therefore in future they need to be better engaged so that there are no barriers to scale up.

### **How will you operationalize these changes and develop a more coherent flagship aligned to the overall research questions?**

- Develop a reviewed master plan for South Asia that has the full and unconstrained aims, and attempt some of this at least at one site.
- Facilitate the creation of a community of practice for some common methodological aspects:
- Data repository – the creation of databases to capture information.

### **What are the critical gaps in terms of capacity or implementation support you have and how should they be addressed?**

- Data management
- Protocol on data sharing.

## Listening to all flagship regions, what do we think?

- We remain with current sites but should be flexible to incorporate any new sites
- What is the new science for Drylands CRP? Eg use of infra-red cameras, geo mapping, remote sensing, risk management, nonlinear feedbacks, and big data science – none of the regions has clearly articulated the “new science” well.
- Need common definition for systems research/science – what are the elements?
- Incentives for operationalizing systems science:
  - Level of designing activities at design level
  - Build teams to do activities so that everyone knows their role in addressing the various components
  - Management at action sites as well as regional level
- Specific activities and budgets should be allocated for FP while center activities should also be articulated.
- Scaling out should be done in partnerships and may also require further training
- Need to popularize systems science for Drylands
- Need to mobilize capacity and expertise available within DS to make things work.
- Leadership should be provided to harness diversity in the CRP – to help in sequencing and uniformity in approach. Focal points in the different centers should ensure activities and outputs of the different CRPS will be articulated properly/clearly.

## 7 Cross-cutting themes

### 7.1 Implementing Gender Mainstreaming in the DS CGIAR Research Program

Presented by Jennie Dey de Pryck - GFAR/GAP Senior Gender Adviser and ICARDA Consultant



#### Progress in implementing gender mainstreaming in CRP

##### Why mainstream gender in AR4D?

FAO's SOFA 2011 estimated COSTs of "lost" production by neglecting gender:

- Women:
  - Represent 43% of world's agr. labor force
  - farm as efficiently as men if they have same technologies, knowledge, inputs, services
  - suffer huge gender inequalities in access to productive resources incl. land, markets and control of product/income
- Many gender inequalities due to structural forces, social norms and values

*Reducing the gender gap in farmers' access to productive resources could raise yields on women's farms by 20-30 %. This would raise total agricultural yields in developing countries by 2.5-4 percent, reducing the number of hungry people in the world by 100-150 million*

## DS CRP Gender Strategy (GS) and Gender Work Plan (GWP) Goal

The **overall goal** is: *to promote gender-equity in access to and control of agricultural assets, technologies, services, products and income in dryland systems in order to enhance the food security, wellbeing and resilience of poor vulnerable households, especially women and children*

## Reversing gender gaps in knowledge and practice in DS research

Opportunities to reverse gaps vary by Flagship and ALS:

- Focus on integrating gender into *ex ante* diagnosis and throughout research cycle (complementing traditional CG focus on *ex post* gender impact assessments)
- Improve knowledge of (changing) cultural, normative and institutional **causal** factors of gender inequalities
- Address socio-economic differentiation and power relations between and among women/men
- Disaggregate data by sex AND socio-economic class, age, ethnicity etc. and info on gender relations and power dynamics
- Increase knowledge of gender roles/dynamics (by class) in community NR and marketing orgs
- Harness opportunities from broad economic, social, technological, policy change processes

## GS and GWP 2014-16: Key objectives

- Mainstream gender within 2-3 major technologies in each Flagship, esp. to integrate gender (and related socio-econ. differentiation and institutional issues) into:
  - *ex ante* diagnostic phase and throughout research cycle
  - CRP's overarching *systems* framework
- Undertake 2-3 *strategic* research programs across Flagships to generate context-specific comparative knowledge/learning to strengthen policy and gender mainstreaming in future research

## Technology innovation areas for gender mainstreaming 2014-16

1. Livestock: improved livelihoods for women in crop–livestock systems (IDOs 1,2,3,5)

- India (Rajasthan), Jordan (Karak)
- ICARDA, ICRISAT

## 2. Seed systems: mainstreaming gender into research and action on seed systems (IDOs 1,2,4,5)

- Egypt, Morocco; Mali, Ghana; India; Rasht Valley, Fergana Valley
- Bioversity International, FAO, Agricultural Research Center (Egypt)

## 3. Agricultural water management (IDOs 4,5,6)

- Chinyanja Triangle (Malawi, Mozambique, Zambia)
- IWMI, CIAT, ICARDA

## 4. Engendering innovation platforms (IDOs 5,6)

- All Flagships
- ICARDA, ICARDA-CAC, CIP, ICRAF

## Strategic gender research topics 2014-16

### 1. Gender equity in decision-making and access to/control over agr. labor:

- Kafr El Sheikh, Noubariya (Egypt); Chinyanja Triangle (Malawi, Mozambique, Zambia)
- Bioversity International, IWMI, ICARDA, FAO

### 2. Gender-responsive policies:

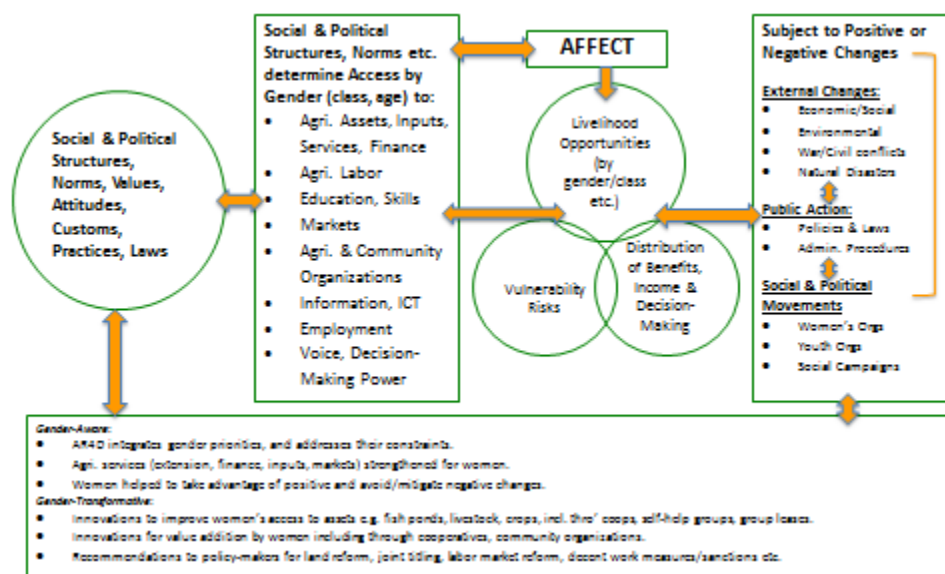
- Chinyanja Triangle (Malawi, Mozambique, Zambia)
- IWMI, CIP, CIAT, ICARDA

### 3. Gender-responsive extension/veterinary services:

- All Flagships
- ICRISAT, ICRAF, ICARDA-CAC, ICARDA-WANA

**NB: ICARDA contributing to strategic Cross-CRP Study on Gender Norms and Agency with studies in Morocco and Uzbekistan**

## Theory of Change in GS and GWP



### ToC: a tool to guide CRP research

- Draws on work by Reeler (CRP ToC), Kabeer, Rowlands
- Shows root causes of gender inequities are underlying social and power structures, and social norms, values, practices. These vary by class etc.
- Guides identification of CRP research priorities, questions, methods, targeting
- Helps identify gender-aware and –transformative AR4D interventions
- Provides framework for assessing CRP outcomes

### Gender-blind, -aware and –transformative development

- **Gender-blind development:** excludes women or brings them in on terms that reproduce their secondary status
- **Gender-aware development:** brings economic and welfare benefits to women and their families but does NOT challenge the status quo (can lead to unanticipated transformations)
- **Gender-transformative development:** promotes structural changes to address power inequalities
- ***Gender-aware and gender-transformative approaches not mutually exclusive***

### Gender-transformative approaches (GTAs): Some caveats

- Elaborated conceptually (e.g. in AAS) but limited implementation experience and lessons learned
- Easier to implement in situations of enabling change (joint husband-wife land titling, gender equitable family/inheritance laws)
- Can provoke conflicts (intra-household, community)
- Often better to build confidence among women and in community with gender-aware approaches before attempting GTAs
- Participatory action research with women and men stakeholders critical to support *their* goals (respecting their risk aversion)
- More effective if work with grassroots dev. partners and policy makers
- Ongoing DS WANA studies identifying cultural, normative and institutional causes of gender inequalities as basis for embarking on GTAs

### Mainstreaming gender in technology innovation: e.g. improved livelihoods in livestock

#### Some research questions:

- Who controls income from different products in livestock VC?
- Who decides over marketing of livestock products?
- What is the labor allocation for livestock activities (by gender, age, employ. status)?
- Who has knowledge of livestock prod/processing/storage at HH and community level?
- How can women's access to new technologies be improved?
- Are DS technological innovations harming women (e.g. increasing unpaid work)?

#### Outputs

- Literature survey ('15), research report and research paper in ISI journal ('16)
- Methodology developed on integrating gender in livestock-crop systems ('15)
- Awareness and capacity-building workshops for scientists on how to integrate gender ('15)



## **Outcomes**

- Improved livelihoods for women targeted by CRP innovations
- Methodology used by other livestock/social scientists (CG, NARS)

## **Strategic gender research: e.g. smallholder extension/veterinary services**

### **Research questions regarding extension/service systems in the 5 Flagships:**

- What constraints/opportunities do women face in accessing and benefiting from extension/services?
- What are the institutional arrangements for (public/private) extension/service systems? What are their strengths and weaknesses in serving women?
- What are best practices and lessons learnt for mainstreaming gender in extension/service systems?
- How and who in the extension/service systems negotiates trade-offs in harmonizing priorities?
- How can women's access to information on CRP technology innovations improve?
- What and how gender considerations are addressed in national/regional extension policies?

## **Outputs**

- Constraints/opportunities for improving extension/service systems identified by gender categories (ongoing '14-'16)
- Research report ('15), Research paper in ISI journal (on methodology) ('16)
- Gender-responsive extension technology package developed [veterinary, labor saving, high-yield, small-scale, etc.] ('15)
- Gender-balanced capacity building strategies for extension professionals dev'd ('16)

## **Outcomes**

- Gender-responsive extension/service technology package integrated in each Flagship's extension systems
- Gender-sensitive approaches adopted in national/regional extension policies/ programs
- 10 % increase in women's participation in Flagship extension/service systems ('16)

## **GWP: Budget**

- Budget for gender mainstreaming to come from Flagship budgets
- Budget for cross-Flagship strategic research (IDO5) – special budget line in CRP Director's budget
- Approx. 10% of total CRP budget allocated to gender (in practice likely to be more)

## **Gender-related (on-going) solutions for more rapid progress towards CRP objectives**

### **1. Science Plans:**

- Integrate gender and socio-econ differentiation into DS *systems* framework (socio-ecological systems) and ToC
- Unpack Flagship ALS social systems with typologies (and ToC) highlighting structural causes of socio-econ and gender differentiation/inequities, effects of change and implications for CRP AR4D

### **2. Capabilities:**

- Identify needs and implement awareness-raising and CB for biophysical and social scientists, gender specialists, in collaboration with other CRPs
- Develop/adapt manuals and tools for CRP gender work
- Train women scientists in leadership, management and negotiation; provide mentoring

### **3. Organizational structures:**

- Senior Gender Scientist/Coordinator to be member of RMC
- Gender Focal Points (GFPs) to meet regularly and interact virtually
- GFPs to join core research teams with biophysical scientists and strategic CRP meetings

### **4. Implementation:**

- Strengthen multidisciplinary research teams incl. gender/social scientists
- Enforce accountabilities for gender: incentives and sanctions

### **Governance:**

- Ensure at least 25% of Steering Committee members are gender-responsive (25% = min. effective %)

### **Partnering:**

- Other CRPs, NARS, UN, NGOs/CBOs in joint activities, sharing experience/learning
- Policy makers/dev. partners incl. UN, NGOs/CBOs, GFAR/GAP to disseminate/upscale outputs for wide impact
- CG Gender and Agriculture Research Network for joint conceptual/methodology dev. and sharing experience/learning

### **Leadership arrangements:**

- Appoint women scientists to senior CRP positions
- Encourage scientists/managers to partner with policy makers/dev. partners
- Provide women scientists leadership and management training, and mentoring

### **Elements (on-going) on gender for DS “Action Plan” (including CO interactions)**

1. Integrate gender and socio-econ. Differentiation and their structural causes into:
  - DS *systems* framework and ToC
  - Action Site typologies and gender-sensitive hypotheses on system intensification
  - Diagnosis of problems/entry points incl. (conflicting) needs of different gender target groups for innovations and possible trade-offs
2. Strengthen monitoring of gender outcomes to provide CO/partners evidence of good practices in mainstreaming gender

### **Quick comments from the participants:**

The process started with a workshop in Malawi and thereafter another workshop in Amman.

Training and mainstreaming gender from top management down to the community is critical e.g. on tools for screening gender sensitivity and all other aspects (covered in gender strategy). This calls for identification of training needs on gender mainstreaming.

## 7.2 Shifting the goal post – from high impact journals to high impact data

Presented by Anja Gassner - World Agroforestry Centre (ICRAF)

**CGIAR consortium is now officially “open access”**

This was approved by CGIAR Consortium Board October 2, 2013

The policy is applicable both to new data as well as retrospectively to legacy data:

1. Data shall be made open access as soon as possible and in any event within 12 month of completion of the data collection or appropriate project milestone
2. Existing and future databases shall be made Open access
3. Datasets shall be made open access after the publication the data replicates is published.

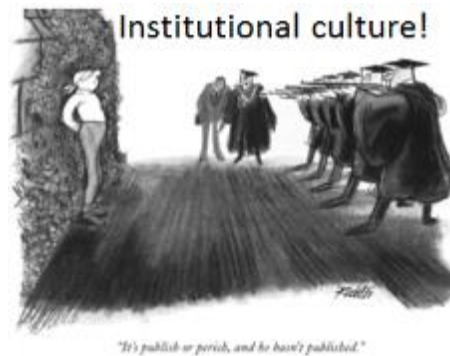
The consortium policy provides two options that allow centers to decide when and what kind of research data should be made open access

1. Data sets that are regarded as not of value to others (draft, poor quality or incomplete) are exempted from this policy (Section 4.1.1. Openness). This option is important if data collection is done by partners and is not in our full control.
2. Completion of data collection is a relative term and independent of funding (unless stated otherwise in the grant contract) and project closure. Thus it is up to the center to define this on a case by case basis and allows control over the actual release date.

Common Misconceptions	The “selfish” scientist?
<ul style="list-style-type: none"><li>• Open Access means that I share all my data</li><li>• Open Access means that I do not have time to use the data for publications</li><li>• Open Access means that I will not be recognized for my work</li><li>• Sharing data means I share all my data</li></ul>	<p>“Like too many publicly funded ARIs, some Centre and System-wide programs seem to treat data as proprietary”</p> <p><b><i>The CGIAR at 31: An Independent Meta-evaluation of the CGIAR (2004)</i></b></p>

## Sharing Data?

- Data that has already been used for a publication  
"**replication data sets**"
- Descriptions about your Data – "**Metadata**"
- Data publishing!



## ICRAF's Research Data Management Policy

1. **Projects are responsible for ensuring that research data is described by appropriated Metadata throughout their lifecycle.** Metadata should be in compliance with the Simple Dublin Core requirements, or globally accepted metadata standards for specific data types

2. **Every project shall upon closure provide a list of all data sets** produced by the project to the regional coordinator and the GRP leaders, who will make recommendation regarding the identification of high value data sets, both to the Centre and our partners. These **high value data sets shall be submitted to the institute repository.**
3. To improve scientific publications, consensus with scientific peers and public trust in the quality of our research outputs the Centre will provide institutional support to ensure that all necessary raw data will be made public to reproduce or replicate every scientific publication that is based on research data. **Scientists are required to submit necessary raw, verified data for every scientific publication in standard file formats.**

#### Office of the Deputy Director General - Research Research

- Research Data Management Policy (Nov-2012)
- Research Misconduct Policy (Nov-2012)
- Intellectual Assets Policy (Nov-2012)
- Research Ethics (Mar-2004)
- Invasive Alien Species (Jun-2004)
- Genetic Resources (Mar-2004)
- Indigenous or traditional knowledge (Apr-2005)
- Enhancing Research Quality (Mar-2004)

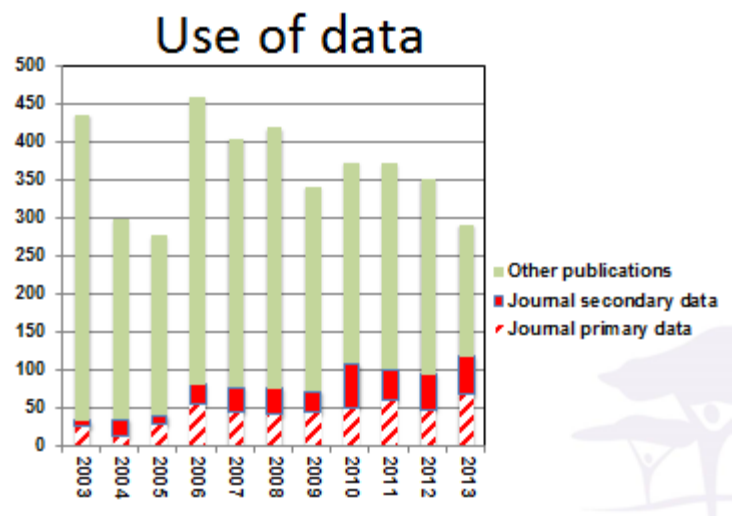
## Shifting the goal post from high impact journals to high impact data

Anja Gassner<sup>1</sup>, Luz Marina Alvare<sup>2</sup>, Zoumana Bamba<sup>3</sup>, Douglas Beare<sup>4</sup>, Marichu Bernardo<sup>5</sup>, Chandrashekhar Biradar<sup>6</sup>, Martin van Brakel<sup>7</sup>, Robert Chapman<sup>8</sup>, Guntuku Dileepkumar<sup>9</sup>, Ibnou Dieng<sup>10</sup>, Sufiet Erlita<sup>11</sup>, Richard Fulss<sup>12</sup>, Jane Poole<sup>13</sup>, Mrigesh Kshatriya<sup>11</sup>, Guvener Selim<sup>14</sup>, Reinhard Simon<sup>14</sup>, Nilam Prasai<sup>2</sup>, Maria Garruccio<sup>8</sup>, Simone Staiger Rivas<sup>14</sup>, Maya Rajasekharan<sup>14</sup>, Chukka Srinivasa Rao<sup>9</sup>

### Open Access?

Open Access is a means to an end:

- Better quality data
- Better quality publications
- Higher usage of data (internal & external)
- Higher Recognition for "Techis"
- More transparency

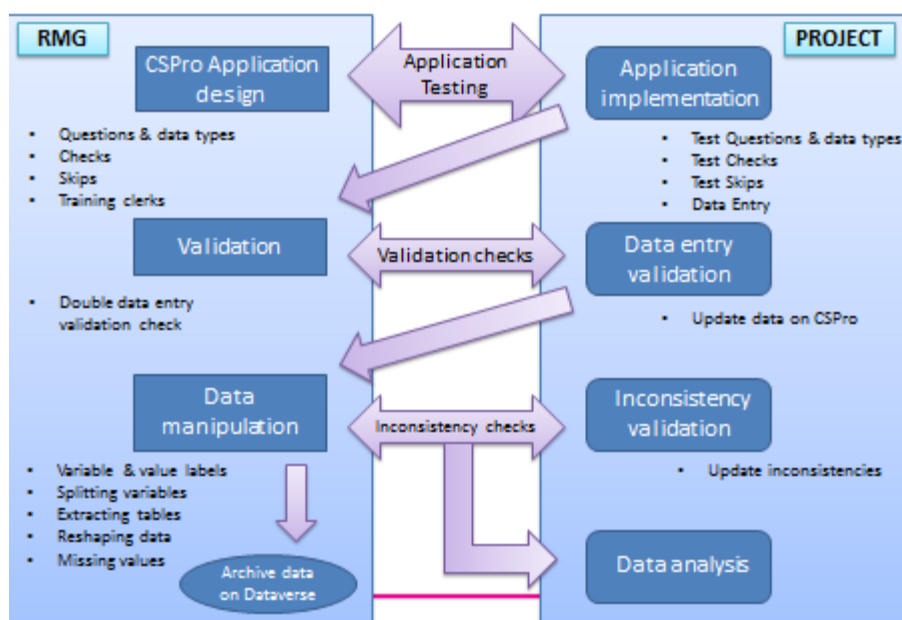




## The Team



## RMG Data Quality Workflow



## How to get started

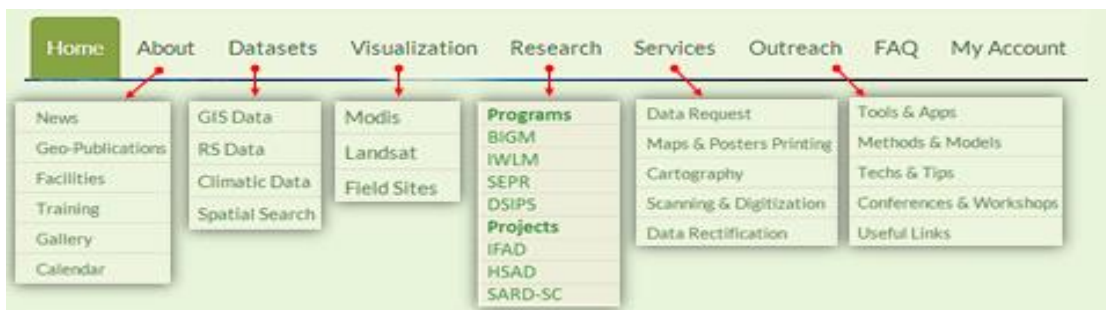
- Research Data Policies at Centre level
- Adoption of OAI-compliant data repositories
- Linking data and publications



- Ethical committee to be established in all Centers
- Clear guidelines on authorship attribution
- Zero tolerance of scientific fraud
- Specific funds to publish high value legacy data
- Building a joint M&I and research method team

**Agro-Ecosystems (GeoAgro)** portal, part of the CRP Drylands Systems integrated systems research portfolio. This online resource provides comprehensive information encompassing all geospatial genres in a streamlined system: remote sensing, GIS, and spatial modeling. **The unique features of GeoAgro portal include:**

1. Unified and streamlined geospatial technologies that can help deliver integrated systems research on time, while maintaining the highest level of fidelity.
2. Advanced, well-designed, and highly usable products that define new standards for applying landscape to on-farm applications.
3. Databases, products, and services that support the entire information lifecycle, transforming multi-source content into dynamic information at frequent intervals.



### Quick comments from the participants:

There is need to develop a system to enhance and assure data quality.

Data harmonization is needed across different scales and regions to be able to use it.

Intellectual property protocols for data sharing should be shared and discussed with partners to understand the expectations of all.



What is the strategy for sharing the information with users especially NARS who are basically the producers and users of data and how to engage the community? There are people and methods in the system (team) for data quality management, streamlining methodologies and communication of the processes.

## 7.3 Emerging issues

Groups	Task for Groups
<ol style="list-style-type: none"> <li><u>1.</u> <u>New technologies</u> (attract youth and create jobs)</li> <li><u>2.</u> Out scaling CGIAR legacy innovations with private sector (Richard)</li> <li><u>3.</u> Innovation platforms/out scaling</li> <li><u>4.</u> Data management (Anja)</li> <li><u>5.</u> Synthesis research (Fergus)</li> </ol>	<ol style="list-style-type: none"> <li><u>1.</u> What are the issues in these cross cutting topics which need to be integrated in our work?</li> <li><u>2.</u> How should they be integrated and at what level?</li> <li><u>3.</u> What are concrete next steps to integrate, when and who will drive it?</li> </ol>

### 7.3.1 New technologies – attracting youth into agriculture and creating jobs

#### Issues which need to be integrated into our work?

- Destigmatisation – counteract aversion to farming. How will we convince them?
- Policies that encourage youth to agriculture
- Formal academic training not conducive to reversing that trend
- Need for overhaul of academic curriculum – fish pond story
- In Egypt – giving land to graduates – 60% sold the land – others stayed – what can we learn from that. They were provided training. Imposing penalties could work? Giving credit is a good mechanism, incentive/backstopping/mentoring
- Services in city are more advanced – need to reverse this trend – decentralize – involve youth in providing these services e.g. solar energy
- Opportunity for employment in agriculture is not well targeted – when they are engaged, the focus is on becoming farmers but there is a whole range of other activities and roles

- Make students interested in studying agriculture – but how? Differences across regions. Partnerships with NGOs?
- How good is this academic training at the university to make the link with the real development?
- Is there enough wealth in the dryland systems to support the employment - less profitable than other sectors?
- In some countries- just not profitable. Food needs to be more expensive or smaller workforce working more efficiently and producing more food.
- Social issues – youth often still live in parents houses and it's the parents taking key decisions about what happens and the youth tend to work for free
- Climate change – resource degradation – system is not producing reliably – getting private enterprise – Banks involved. Carrying capacities already exceeded. Things are saturated – where can they go? What can they do e.g. field trip in Jordan
- Example in Germany – instead of farm divided between children – the eldest son inherits it – what is the incentive for women who cannot inherit farm – tied to the masculine identity. Ability to exit a situation is different between genders
- Land fragmentation – land is family – if you break the land you break the family. Land tenure issues are not conducive for attracting youth to agriculture
- Keeping livestock for social and financial emergencies – irony that livestock are kept to give children education that frequently takes them away from the farm
- Incentives to subsidize the feed if you have above 50 head of stock
- The youth want jobs (from two focus groups) – don't really know what they want? Depends on culture and whether they are given resources for individual or collective activities – collectives make the resources less accessible to the alpha male – but this is context specific – not in Mali
- Adjust training curriculum to address all the other off-farm aspects of farming attractive – e.g. business development in providing extension services – consultants
- What about the labour opportunities that are seasonal?

- Less diversification in DS systems – therefore they will look for off-farm job and not come back. Crop intensification – using high value crops in the system where value can be returned – if there is an activity in the off-season linked to market. E.g. ICARDA linked a school to a market in the US (fibre Kashmir)
- Keep it plants-based enterprise – look at agroforestry/tree crops and processing. If they are producing high value then they can be trained to process them – creating a whole chain of activities built around this
- Seasonal agricultural activities could be augmented with processing etc.
- When youth go to city and return then their interpretation about agriculture is amplified in a negative way
- From a mechanization perspective – maybe more value in vesting in small scale post-harvest – are the migrations more gender biased in different regions. Need equality in pay

#### How should they be integrated and at what level?

- a. Policy, community, household, credit, innovation platform, education, private industry, system thinking, service providers
- b. Sibiry – need a certain scale to influence – retaining rural youth and sending urban youth back to agriculture
- c. Need to better understand the needs of youth – e.g. in rural setting and urban setting

#### What are concrete next steps to integrate and when and who will drive them?

- a. Business planning – “*reruralentrepreneurialisation*” of farming
- b. Influence policy issues regarding migration...
- c. Primary school training
- d. Fences
- e. Mechanization – built locally but issues with operation and maintenance
- f. Communicating success stories via YouTube
- g. Cheap smartphones
- h. Integration of what youth wants into our system thinking

- i. On field trip – the agricultural college – many people go there and then return to farm and then the sons typically migrate to city. Girls stay at home, because it is a conservative society. These who study the arts remain at home. Creating a social problem. President of the agricultural social committee has 5 girls and 2 boys – only one girl employed – both boys gone to gulf
- j. Some cooperatives have been formed in some areas and get linked to other areas – we have many of these for adults but none really for youth – needs a leader – youth do not like working in the jamir cheese smell etc.
- k. In most cultures there is strict control of men over young women – particularly over young women before married etc. for protective reasons. So working in groups gives them more courage and will have more respect when they go back home – there are mechanisms for avoiding these problems
- l. Maybe in research design, the same way we do household surveys we need to survey schools and those that have emigrated to cities and other youth who might move to the
- m. Emphasis that gender is also male and how lack of income due to agriculture increases the pressure on men to marry and open houses and can lead to social dysfunctions
- n. Problem of extension communication in some of the key sites. How can we improve the extension services in ag. – young people, mobile phones, apps etc. and involve the mobile telephone providers
- o. **Quick-win** – how can we enhance the social responsibility of mobile phone distributors?

***Jennie Dey de Pryck commissioned to write a youth strategy as a consultant – identify special projects and needs a small group of people who are prepared to review. She was advised to consult from the papers of the youth and agriculture workshop which are available from APARI secretariat. They give insights on how to attract youth in agriculture and how to make agriculture intellectually attractive and financially/economically rewarding***

### 7.3.2 Out scaling CGIAR legacy innovations with private sector

Looking at what kind of investments to make in the Drylands, what situations would be attractive to the private sector e.g. fruit trees, barley, ornamental crops/medicinal crops and whom should we target – the giant companies, small scale enterprises.

Strategies for working with those making investments in Drylands and attracting new private investors:

- Track new investors in Drylands
- Have open access to public research by private sector
- Understand motive of private sector involvement in Drylands
- Job creation by private sector in Drylands
- Policy for engaging with private sector in Drylands e.g. engagement with world economic forum, world business forum
- Engagement with private sector that already have signed contracts with other development partners and signed up to agreements such as FAO guidelines, UN global best business practices
- How can CRP link to private sector funding
- Would private sector be interested in research on impact or scale e.g. similarity mappings
- Engaging with private sector can contribute to SRT 1 and SRT4
- Advance marketing commitments – commitment to fund research
- How to engage with private sector within CRP – scan ongoing engagements and be careful to know what we get into with the private sector.
- Private sector should be genuine about governance and social aspect issues in the Drylands e.g. job creation
- Can an advocacy group within Drylands CRP be formed to encourage private sector engagement and investment
- Develop business models linked to development funds

- Within CRP how can we undertake self-engagement – how do we position ourselves, how do we scan the types of engagements and private sector companies and how do we know what we are getting into.

### 7.3.3 Data and information management

#### Issues in data and information management

- **Rationale**
  - It is a CGIAR obligation
  - It fits in global concern on transparency of data and information accessibility (open access)
- **Awareness** - Awareness on this policy is unevenly distributed among CGIAR centers, raise awareness among all CGIAR researchers
- **Implementation**
  - Need clear guidelines
    - Data: check ICRAF web site which has adequate information on drylands
    - Information : CGIAR open access guidelines
  - Requires capacity to manage and archive data and information in harmonized way
- **FAQ** - How to go about secondary data the policy applies on primary data only

#### How should they be integrated in the DS and at what level?

- Needs to be organized at the level of the flagship and action sites
- These are to develop a policy considering
  - Duplication of effort is to be avoided
  - The policy is probably best implemented at the level of the scientist leading data and information production collection

#### Next steps to integrate, when and who will drive it?

- Develop DM and information protocol for field site and action sites by 30 September
- field site coordinator to lead the development of these field site level protocols
- Best to develop a harmonized structure to be used across Flagships

- Propose Anja and Michael to outline a protocol, share with field site coordinators for feedback and share revised outline by July 20 for completion by the field site coordinators

### 7.3.4 Innovation platforms/out scaling

#### Definition

- Start with : the identification of major development challenges and solutions and then identify who can play part in bringing these solutions (power and influence mapping)
- We cannot give solutions and expect that people will accept it, research and development have to use community-based approaches to work with the community and illustrate the value of these solutions.
- It is forum for partnership: For scaling out with learning cycles in connection with inputs/output market with private sector involvement
- IP: is a dynamic process an evolving and self-learning process
- Other IPs may already be operating, we can learn from and link with them
- Should take different forms depending on the enterprise
- It has to be engendered

#### Issues which need to be integrated in our work?

**Main purpose:** Mobilizing stakeholders as learning process, to bring about change through science at scale, and to show tangible economic benefits

#### Scale/level:

- Community: mobilizing beneficiaries and linking with other change agents
- Regional, district levels: mobilizing more wider stakeholders who can influence policy and institutional factors that affect out-scaling research impact

#### What level: community, regional, national?

- Example: In FARA: IP is by commodity but in systems research we cannot organized by commodity because of the complexity of issues involved

It should be part of the integrated system and included crops, markets and natural resources.

#### Innovation platforms

- The IP: should be interdisciplinary and inter-sectoral to address all aspects of agriculture/livelihoods; include private sector (input suppliers, traders).
- Example:
  - Some extension/advisory, research, information centers, and farmers and private sector
  - Actions should be clear

### Tools

- PTD
- Participatory methods
- Community-based approaches
- Community/farmer organizations
- Instructional analysis
- Power/influence/and effect analysis

### Next steps:

- Formation of Community-level platforms as a learning mechanism
- Formation of policy level platforms (at a later stage)
- Who will drive it:
- identify facilitators (capacity enhancement of relevant departments)

**Who will drive it:** identify facilitators (capacity enhancement of relevant departments)

*People engage in IP based on what they will gain and once this is fulfilled they may get out. Therefore IP should be flexible. Quality of IP depends on the "objective" – what is the gap being addressed?*

## 7.3.5 Synthesis research

**Global synthesis** – agreed there is no need to have top down global hypothesis, rather we should have bottom up hypothesis from place based research.

The bottom up approach needs to be articulated clearly and communicated to ISPC.



**Glossary of concepts** - There is need to have common terminologies and commonality of understanding in Drylands systems. The group recommended a website page to help in demystifying and clarifying what is meant by systems methods in Drylands.

**Clarity on scale of operations** – are we clear and comparable on our scales of operations at the flagships

If we achieve research at the scale of impact – it means we are actually doing synthesis research. This is a selling point for the DS.

### Next steps for Drylands systems synthesis:

- Need to have a context matrix (analysis and synthesis) for action sites
- Gap analysis will show key problems not being addressed for a particular context by the current research being undertaken
- To be done in the next 9 months – after which we will be able to show (to the consortium and outside world) what we have done and how systems approach helps to make practical progress in addressing issues.
- The added value is – operating within systems methods helps us to do things differently in the future

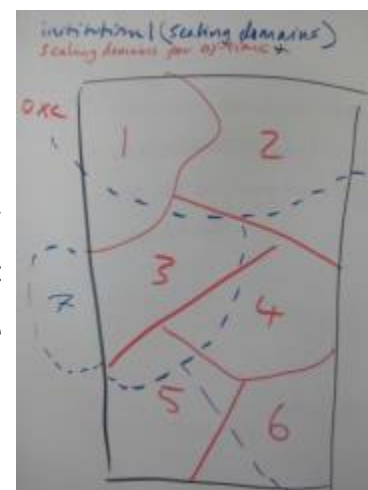
### Options by context matrix

Need a manual or set of steps for the context matrix - details of every step and decisions should be articulated (the devil is in the details)

### Steps: institutional (scaling domains for options)

The context X options matrix helps us to demonstrate what options we are working on, and which ones we are not.

Within action sites there are institutional and administrative boundaries which may be formal or informal. There are also agro-ecological boundaries, watershed boundaries etc. which do not necessarily coincide with the administrative boundaries. Therefore



we decide pragmatically the set of institutional scaling domains and innovation platforms.

### Context by options domain for a particular scale e.g. on ALS within an action site

Contextual factors →			
Options ↓	Land tenure	Community	grazing control
Pasture reinforcement	Communal/individual	Fractured/ co-operative	None/managed

You have a series of options and a series of contexts. Do the options deliver solutions to the gaps, for some contexts and not others? Therefore what else do we need to do? What are the research questions?

- The matrix will indicate solutions for different contexts and prioritization
- Options will be multi-scaled and this will bring out research questions which will push us to seek for relevant partners.

### What is the systems component in this approach? Looks more like expert knowledge cooperation.



Sharing of a short video on “building resilience for smallholder farmers in marginal dry lands” by communications team

## 8 Preparation for phase II

Through this sessions participant will discuss where Drylands wants to be and what are the impediments and solutions for reaching this goal by 2016? What are the thoughts on a road map for Drylands through 2016? These will then lead to structuring the outline of an action plan and assign responsibilities for writing and developing procedures for feedback.

### 8.1 Requirements for Phase II

**Presented by John Lynam**

Looking forward what should we focus on in the remaining period to drive us to phase II? What are we going to do and what is the way forward?

#### **Background on the evolution**

There are four simultaneous processes that will determine the framework for phase II. These will guide the definition of portfolios of CRPs and arrangements and individual requirements for individual CRPs:



- Medium term review – to be completed by December 2014
- Strategic research framework revision
- Development of CRP guidelines for phase II
- Independent evaluations of 15 CRPs

Taking major assumptions that there will not be major changes to the portfolio, the following set of dryland submissions are suggested:

#### **Value Proposition (strategy development encompassing prioritization, selection of action sites ie the overall strategy)**

- Rural Poverty and Drylands
- Integrator of Commodity and NRM CRP's
- Science of Sustainable Intensification and Resilience in Dryland Systems

#### **Systems Framework**

- The Science: system diagnosis, trade-offs, system performance, resilience
- System integration for impact: system leverage points vs moving beyond conservation agriculture
- Scaling within a systems framework: managing heterogeneity and integrating process and intensification techniques

## **Program Coherence**

- Not just five regional programs
- Integrating research questions
- Common methods
- A framework for synthesis
- Prioritizing, quality management, sequencing

## **Potential for Impact**

- Theory of Change: how to achieve program impact (Drylands and flagship)
- Scaling strategy: within action site, within region
- Methods for disseminating system outputs
- M&E and understanding farmer adoption

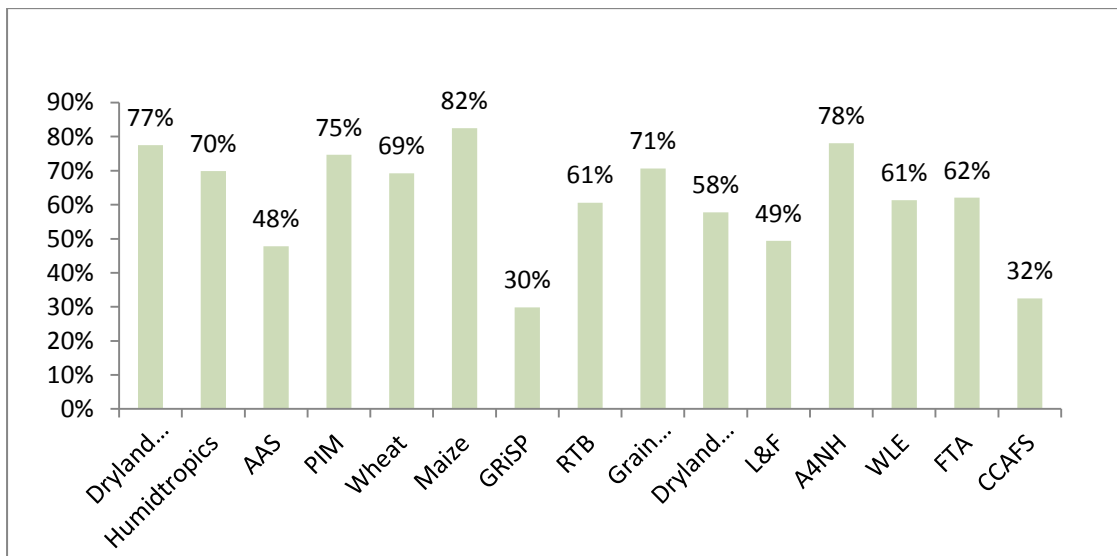
## **Monitoring and Evaluation**

- Integrates with program structure and program strategy
- Hierarchical: Action site, flagship, Drylands
- Process monitoring: IP's, scaling, action site implementation
- Experimental and quasi-experimental methods

## **Portfolio Management**

- Managing bilateral projects within a program structure: flagship and CRP level
- Joint resource mobilization
- Allocation of W1/W2 funds

## % of overall CRP budget derived from Bilateral and W3 sources



### Quick comments to preparation for phase II:

**Value proposition** – the regional presentations did not clearly show their value propositions. Each should look at how Drylands integrates into overall CRP. There is need to be clear on the Drylands system work.

**Systems framework** - looking at systems diversity; diagnosis of tradeoffs, performance and resilience: this requires regular reviews of the system with the intention of improving it and capturing emerging dynamics.

**Preparations for phase II** - since there is a lot of work to be done towards phase II a team should be formed to start thinking and working seriously on developing an action plan to address these issues on how to forward to phase II. We also have to prepare for the external review.

**Funding** – advising donors to drive funds through window 3 is risky therefore we should rally donors to fund directly through window 2 directly to the CRP. Rallying funds through window 2 is the best strategy. If the council can be convinced to earmark funding through window 2, it would be a great opportunity giving room for flexibility.

**Traffic light review of the various CRPs** – in the first review Drylands was mainly reviewed on green and Drylands outputs were appreciated. However there were some 3 oranges (no reds) – gender, internal management of program and lessons learnt. This is positive as the review showed that we can manage risks and implement the Drylands program.

## 8.2 Way forward

What	When	Who
<u>1.</u> Phase II proposal development → process plan, including phase I targets	September 2014	Director – Richard
<u>2.</u> Operationalization group → guidance note	End of July 2014	Director (Richard) and team
<u>3.</u> Strategy - what needs to be produced before phase II proposal	Continuous	Director (Richard) and team
<u>4.</u> Data/information management → strategy and guidelines	End of July 2014	Anja
<u>5.</u> Communication plan	Mid-August 2014	Director (Richard)
<u>6.</u> Capacity development strategy and plan	September 2014	Director (Richard)
<u>7.</u> Cross region communities of practice → volunteers, topics to be chosen	Continuous	Richard to coordinate + national coordinators
<u>8.</u> Work plan of flagships ≈ 18 months	1 <sup>st</sup> October 2014	Flagship coordinators
<u>9.</u> Workshop documentation	25 <sup>th</sup> July 2014	Anita + Jürgen
<u>10.</u> Coordination on CRP linkages		Director (Richard)



## Way forward (6 months) – some issues

- Operationalizing a coherent systems approach
- Operational structure
- Synthesis research
- Relationships with other CRPs
- Capacity/implementation support
- Phase II preparation
- Data/ Information management
- Communication (“image”)



The ultimate responsibility for Phase II proposal development lies with the lead center - the CRP director's office at the top but the process will be collaborative and consultative. The process will also be informed by other parallel processes – the internal audit process, the review and validation study, as well as the strategic framework while paying attention to the sustainable development course.

Since we don't have a lot of information for phase and are groping in the dark, the different flagships in the meantime have to formulate what to deliver to the director's office based on the outputs of the meeting in the next few weeks.

In preparing for phase II we need to position ourselves strategically by making phase I be judged as a success so as to give it leverage to be judged better and improve potential to be considered for phase II.

**Communication plan** - a deliberate strategy to popularize (sell or publicize) Drylands work is needed. Create positive thinking that Drylands are “leaders” and not “recipients” of outcomes. ***A draft communication plan is expected to be ready by august and finalized by September 2014.***

Immediate **operationalization** of choice of action sites – need a common approach and methodologies (Fergus to lead):

- Characterization of action sites which will determine options
- FP will undertake matrix versus context assessment - which will help build historical perspectives of action sites
- For the action sites – start to get convergence on where to build interdisciplinary teams
- Map existing and new bilateral proposals within CRPS.
- Institutional mapping exercise

**Operational structure** – may require devolving management and will depend on resources available. The intention is to give more authority to Flagships. Will also require a holistic scientist to handle issues at FP level and this will be discussed at senior management meeting.

**Coordination on CRP linkages** – consider formation of COPs to continually synthesize issues – initially engage people on electronic platforms. CoPs can be used as advocacy tools and communication tools. They are established on the basis of big themes whose discussions are facilitated and need to be concluded. Cross regional CoPS can initially be formed along the emerging issues as big themes i.e. operationalizing of IP, M&E and systems approach. At the moment banking on volunteers and the lead centers to spearhead and facilitate the CoPs.

**Flagships Work plans** - develop new work plans of 18 months' timeframe based on the new agenda (new thinking) and capturing new issues from the meeting. Although we already submitted WoPB - we are simply revising and integrating emerging concerns in the "pragmatic workplans". Therefore this is an informal approach to working better and these will give the new director a clearer picture.



## 9 Wrap up

### 9.1 Workshop evaluation

The workshop evaluation was conducted by the participants in their table groups and below is the evaluation.



- Good facilitation and running of workshop
- Learnt a lot from flagships – sharing of experiences
- Towards the end started understanding the whole DS program and not bits and pieces
- Understood gender as including men/women/youth
- Workshop gave answers to strategic questions
- Good participation by participants
- Accomplished/achieved the objectives of the meeting
- Good interaction among participants
- Excellent facilitation and facilitator
- Clear outcomes with clear lines of responsibilities
- Timing of the workshop was right and the workshop was essential
- Did not start with definitions and concepts and this helped to bring out diversity and perspectives from the different regions
- Taking stock of what we have and impressions for the future
- Reflection on what we want from the DS
- ISEC position paper helped to focus the meeting
- Movement between groups and tables was a good opportunity to exchange ideas
- Discussions were not CG centered.
- Integrated science approach was firmly present across the groups discussions

### 9.1.2 What participants feel could have been better

- The director should have coordinated communication and requests while factoring in the weekends (Saturday and Sundays are not working days)
- Long meeting (5 days)
- Time allocated to presentations by regions was very little
- Conclusion of the meeting was not well prepared – and people lacked energy
- There should have been clear instructions to flagships and coordinators – this would have enabled participants to be better prepared to bring science components to the meeting
- Clear instructions to flagships on format of regional presentations – for uniformity
- Introduction of key concepts should have been provided at the beginning of the meeting
- An expert should have been invited to give a lecture on systems thinking
- During the field trip – more time should have been given to the farmers to express themselves
- Timing of field trip was excellent – it was abridge of the two parts (taking stock of what we have and thinking about what we want to have in future) the impressions were instrumental in the thinking about the future
- Not enough discussions about organization at site level
- Lacked clear focus on participants to bring integrated science on the table
- Needed more emphasis on science
- In some instances participants were using sophisticated technology
- Few female participants in the meeting
- Low representation from development partners, CRPs and GFAD
- Lacked science and systems perspectives
- Spent a lot of time not being on the same page
- Needed clear guidance from the beginning
- Did not eventually arrive on the same page on some issues
- Meeting gave participants a clear understanding of DS

### 9.1.3 If we want to make this program a great success, the new director needs to:

- We should have clear lines of responsibilities from directorate to site
- Encourage and enhance communication across the regions
- Find time to visit all action sites of the programme (visit as many regions and sites as possible) – it would be good to see the directors face in the field
- Should be transparent and all inclusive
- We have confidence in him and look forward to good working relations
- See high rate of efficiency – after the meeting he needs to economize on his sleep – he should work on the 10 issues raised on the way forward as well as resource mobilization aspects and how to join on together on other issues
- Need to bring strategic partnership building – whom do we need as principal partners to work with and when to bring them on board
- Leadership – champion change agenda
- Value proposition to be made public
- Resource mobilization
- Give team strategic and scientific leadership

## 9.2 Closing Remarks

**On behalf of PICOTEAM Jürgen**

indicated that he was really excited about the meeting because it is the first time we have a program on the dimensions of the system which really make a difference on



all the things that have been worked on over the last 20 years or so. It is not unusual not to have a common perspective and agreement on theories and therefore starting on definitions is usually a dead end. After one year of implementation and trying out, he informed participants they will have more understanding/ intelligence and that is when they will start having areas for

integration on the concepts - the only integrator is the practice. He encouraged the team not to hammer definitions as they box the thinking. He noted the team was on good track and looked forward to the CoPs being established and trusted the team will eventually put things together and be able to put systems in perspective. Jürgen informed that he enjoyed the discussions and in some instances felt like joining, but had to stick to his facilitator role. Jürgen showed appreciation to Maarten who initiated the engagement and thanked Richard and the team for enabling him to facilitate the meeting. He also thanked Anita for silently sitting on the side and picking out all the issues to consolidate in the process document.

John Lynam informed that before attending the DS CRP science and implementation meeting he had attended regional workshops that were more budgetary and administrative focused. In discussing the work plans they realized there were structural issues to Drylands and therefore the meeting was recommended by the reflections paper. John acknowledged that almost all the objectives and expectations set out for the meeting have been achieved. The collection of projects and centers has now come together as Drylands programme. However John expressed that there were still lots of work to be done in the next two years and urged participants to maintain the momentum. There is a work plan and we have a sense of union –there is a sense of humans to Drylands and a common vision. He congratulated all and informed that ISAC looks forward to monitoring the progress and providing the required support and input.



On behalf of the ICARDA board Margret Thalwitz begun by thanking Mahmoud for inviting her to the science meeting and Maarten and Sara for including her in the preparations of the meeting. She also thanked ISAC, particularly John and his team for their contribution in the meeting, but also for drawing the DS attention on where to take stock – on the need to look back before looking forward



and draw out lessons. The board is keen on seeing all the CRPs succeed and definitely CRP 1.1 which had a difficult start and enormously challenging task. When she reports back she has two key messages – the high energy level in the team in all the activities (group works, presentations, field trip) and urged the team to keep the momentum. She looks forward to CRP 1.1 being an enormous input to the future of CG. Additionally the donors could be convinced that public research for development is the way to go and therefore the CRP needs to deliver a good story. Therefore in the next 18 months we have to establish the credibility especially to the wider audience. She urged participants not to go back to “business as usual”.

Richard giving an example of Batman who was supported by robin indicated that he had a lot of confidence in the excellent team in the DS and had faith the team will move the process forward. Richard shared that he took up the challenge of the director because he wanted to see the team make a difference to the people on the ground – those faced by harsh economics in the Drylands voice. He voiced the need to publicize and take out the real success stories of the Drylands. Richard recalled the work he did with Jürgen 12 years ago putting together the INRM (Integrated Natural Resource Management) and noted that what has happened since then is interesting – the approach had not been tried out and found wanting, but was only difficult and had not been tried out hard enough. Richard therefore urged the team to put efforts in trying to address the complexities of the systems approach. Richard said it was wonderful to be introduced and reintroduced to the team and looks forward to working with a strong team with strong ethics as that is critical for success of the program. He appreciated the informal conversations and rapport building.



Maarten informed that during the meeting several interviews were conducted and these will be used to publicize/communicate to the outside world what has been done. The presentations by Jennie and Anja will be put on slide share as well as the presentation on



systems research by Brian Keating. Maarten also informed of advertisements on three positions – ALS expert for DS CRP, communication program coordinator and social scientist that will go out and urged all to share them widely.

Mahmoud informed that when ICARDA was asked to take lead of the DS program, it certainly knew the complexities of the DS. These complexities of the challenges faced by Drylands cannot be resolved by working on one component alone.

Therefore the integrated systems approach is the only way to address the challenges of Drylands. Mahmoud appreciated the spirit in the meeting of addressing the challenges in the Drylands. He recognized there is a strong team and people who believe in the integrated approach despite the different interpretations and



thanked Brian for his presentation on the systems approach which gave more enlightenment to the team. Mahmoud thanked all who gave presentations and all for actively participating in the discussions. He appealed to all to ensure the spirit of integrated approach is implemented on the ground with all the partners and stakeholders. The challenges faced are beyond any one institution and therefore it is critical to have partnerships to be able to reach large scale impact. Mahmoud thanked John and all members of ISAK for their valuable contributions and raising important issues in their reflection and continued commitment in ensuring a clear roadmap is developed. Mahmoud also thanked Margaret for being available through all the five days of the meeting. He thanked all the national partners in the meeting, sister CG centers, ICARDA colleagues, Jürgen for directing and structuring the meeting, Anita the unknown soldier, Enrico and Sara for working behind the scenes and Maarten for spearheading the organization of the meeting. Mahmoud concluded by inviting participants to get time and visit the beautiful country.



## 10 Annexes

### 10.1 List of participants

Institution	Location	Name/Surname	Region	Email
	Kenya	John Lynam	ISAC	<a href="mailto:johnklynam@gmail.com">johnklynam@gmail.com</a>
		Richard Thomas	PMO	<a href="mailto:Richard.Thomas@unu.edu">Richard.Thomas@unu.edu</a>
	Italy	Jennie Day de Pryck		<a href="mailto:jenniedeydepryck@yahoo.com">jenniedeydepryck@yahoo.com</a>
		Margret thalwitz		<a href="mailto:mcthalwitz@gmail.com">mcthalwitz@gmail.com</a>
	Tajikistan	Nurali Saidov	CA	<a href="mailto:n.saidov@cgiar.org">n.saidov@cgiar.org</a>
Agropolis	France	Bernard Hubert	CIRAD	<a href="mailto:bernard.hubert@avignon.inra.fr">bernard.hubert@avignon.inra.fr</a>
Bioversity	HQ	Mauricio Bellon	ALL	<a href="mailto:m.bellon@cgiar.org">m.bellon@cgiar.org</a>
Bioversity	Kenia	Joseph Jojo Baidu-Forson	ESA	<a href="mailto:j.baidu-forson@cgiar.org">j.baidu-forson@cgiar.org</a>
Bonn Univ		Paul Vlek	ISAC	<a href="mailto:p.vlek@uni-bonn.de">p.vlek@uni-bonn.de</a>
Bonn Univ	Germany	Asia Khamzina	ZEF	<a href="mailto:asia.khamzina@uni-bonn.de">asia.khamzina@uni-bonn.de</a>
CDA	Nigeria	Dr Shehu Yahaya	WAS	<a href="mailto:suyahya2007@yahoo.com">suyahya2007@yahoo.com</a>
CIAT	Malawi	Lulseged Tamene Desta	ESA	<a href="mailto:ltdesta@cgiar.org">ltdesta@cgiar.org</a>
CIAT	Malawi	Zwide D Jere	SA	<a href="mailto:zwidejere@hotmail.com">zwidejere@hotmail.com</a>
CIP		Philippe Monneveux	ALL	<a href="mailto:P.Monneveux@cgiar.org">P.Monneveux@cgiar.org</a>
CIP	SWCA	Timur Abdurakhmanov	CA	<a href="mailto:t.abdurakhmanov@cgiar.org">t.abdurakhmanov@cgiar.org</a>
CORAF/WECARD		Aboubakar Njoya	ISAC	<a href="mailto:a.njoya@coraf.org">a.njoya@coraf.org</a>
CSIRO	Australia	Brian Keating	ISAC	<a href="mailto:Brian.Keating@csiro.au">Brian.Keating@csiro.au</a>
ICARDA	Lebanon	Mahmoud Solh	ISAC	<a href="mailto:m.solh@cgiar.org">m.solh@cgiar.org</a>
ICARDA	Amman	Hichem Ben Salem	ALL	<a href="mailto:H.BenSalem@cgiar.org">H.BenSalem@cgiar.org</a> ;
ICARDA	HQ	Ali Nefzaoui	NAWA	<a href="mailto:a.nefzaoui@cgiar.org">a.nefzaoui@cgiar.org</a>
ICARDA	CAC	Jozef Turok	CA	<a href="mailto:j.turok@cgiar.org">j.turok@cgiar.org</a>
ICARDA	Tunisia	Solomon Assefa Gizaw	WAS	<a href="mailto:S.Assefa@cgiar.org">S.Assefa@cgiar.org</a>
ICARDA	Ethiopia	Said Silim	ESA	<a href="mailto:s.silim@CGIAR.ORG">s.silim@CGIAR.ORG</a>
ICARDA	Uzbekistan	Botir Dosov	CA	<a href="mailto:b.dosov@cgiar.org">b.dosov@cgiar.org</a>
ICARDA	India	Ashutosh Sarker	SA	<a href="mailto:A.SARKER@CGIAR.ORG">A.SARKER@CGIAR.ORG</a>
ICARDA	Amman	Maarten van Ginkel	PMO	<a href="mailto:M.vanGinkel@cgiar.org">M.vanGinkel@cgiar.org</a>
ICARDA	Baghdad	Enrico Bonaiuti	PMO	<a href="mailto:E.Bonaiuti@cgiar.org">E.Bonaiuti@cgiar.org</a>
ICARDA	Amman	Dina Najjar	PMO	<a href="mailto:D.Najjar@cgiar.org">D.Najjar@cgiar.org</a>
ICARDA	Amman	Elsy Melkonian	PMO	<a href="mailto:E.Melkonian@cgiar.org">E.Melkonian@cgiar.org</a>
ICARDA	Amman	Sara Jani	PMO	<a href="mailto:S.Jani@cgiar.org">S.Jani@cgiar.org</a>

ICARDA	Uzbekistan	sharma Ram		<a href="mailto:r.sharma@cgiar.org">r.sharma@cgiar.org</a>
ICARDA	Jordan	Kamel Shideed		<a href="mailto:K.Shideed@CGIAR.ORG">K.Shideed@CGIAR.ORG</a>
ICARDA	Jordan	Micheal Baum		<a href="mailto:M.BAUM@CGIAR.ORG">M.BAUM@CGIAR.ORG</a>
ICARDA	Jordan	Theib Oweis		<a href="mailto:t.oweis@cgiar.org">t.oweis@cgiar.org</a>
ICARDA	Jordan	Aden Aw-Hassan		<a href="mailto:A.AW-HASSAN@CGIAR.ORG">A.AW-HASSAN@CGIAR.ORG</a>
ICARDA	Lebanon	Hassan Machlab		<a href="mailto:h.machlab@cgiar.org">h.machlab@cgiar.org</a>
ICARDA	Egypt	Marwan Owagen		<a href="mailto:M.Owaygen@cgiar.org">M.Owaygen@cgiar.org</a>
ICARDA	Jordan	Halim Ben Haj Saleh		<a href="mailto:H.BenSalem@cgiar.org">H.BenSalem@cgiar.org</a>
ICARDA	Jordan	Abdallah Alimari		<a href="mailto:A.Alimari@cgiar.org">A.Alimari@cgiar.org</a>
ICARDA	Jordan	Micheal Devlin		<a href="mailto:M.Devlin@cgiar.org">M.Devlin@cgiar.org</a>
ICARDA	Jordan	Rajita Majumdar		<a href="mailto:R.Majumdar@cgiar.org">R.Majumdar@cgiar.org</a>
ICARDA	Jordan	Mourad Rekik		<a href="mailto:m.rekik@cgiar.org">m.rekik@cgiar.org</a>
ICRAF	HQ	Jan de Leeuw	ESA	<a href="mailto:J.Leeuw@cgiar.org">J.Leeuw@cgiar.org</a>
ICRAF	HQ	Fergus Sinclair	ESA	<a href="mailto:F.Sinclair@cgiar.org">F.Sinclair@cgiar.org</a>
ICRAF	Mali	Patrice Savadogo .	WAS	<a href="mailto:P.Savadogo@cgiar.org">P.Savadogo@cgiar.org</a>
ICRAF	Kenya	Anja Gassner		<a href="mailto:A.Gassner@cgiar.org">A.Gassner@cgiar.org</a>
ICRISAT	HQ	Anthony Michael Whitbread	ALL	<a href="mailto:a.whitbread@cgiar.org">a.whitbread@cgiar.org</a>
ICRISAT	Mali	Pierre Sibiry Traore	WAS	<a href="mailto:p.s.traore@cgiar.org">p.s.traore@cgiar.org</a>
ICRISAT	Ethiopia	K.P.C Rao	ESA	<a href="mailto:k.p.rao@cgiar.org">k.p.rao@cgiar.org</a>
ILRI	HQ	Polly Ericksen	ALL	<a href="mailto:p.ericksen@cgiar.org">p.ericksen@cgiar.org</a>
ILRI	Burkina Faso	Augustine Ayantunde	WAS	<a href="mailto:A.Ayantunde@cgiar.org">A.Ayantunde@cgiar.org</a>
ILRI	HQ	Amare Haileselassie	SA	<a href="mailto:A.haileselassie@cgiar.org">A.haileselassie@cgiar.org</a>
INRA	Morocco	Rachid Mrabet	NAWA	<a href="mailto:rachidmrabet@gmail.com">rachidmrabet@gmail.com</a>
INRAT	Tunisia	Sonia Bedhiaf	NAWA	<a href="mailto:bedhiaf.sonia@gmail.com">bedhiaf.sonia@gmail.com</a>
Institution	Burkina Faso	Louis SAWADOGO	WAS	<a href="mailto:sawadogo_ls@hotmail.com">sawadogo_ls@hotmail.com</a>
Institution	Country	Shukhrat Mukhamedjanov	CA	<a href="mailto:shukhrat_m@icwc-aral.uz">shukhrat_m@icwc-aral.uz</a> ; <a href="mailto:shuhrat.shakir@mail.ru">shuhrat.shakir@mail.ru</a> .
IWMI	South Africa	Everisto Mapedza	ALL	<a href="mailto:E.Mapedza@cgiar.org">E.Mapedza@cgiar.org</a>
IWMI	Ghana	Tim Ellis	WAS	<a href="mailto:T.Ellis@cgiar.org">T.Ellis@cgiar.org</a>
KARI	Kenya	Anthony Esilaba	SA	<a href="mailto:aesilaba@gmail.com">aesilaba@gmail.com</a> ; <a href="mailto:anthony.esilaba@kari.org">anthony.esilaba@kari.org</a>
PicoTeam	South Africa	Jurgen Hagmann		<a href="mailto:Jurgen.Hagmann@picoteam.org">Jurgen.Hagmann@picoteam.org</a>
PicoTeam	Kenya	Anita Msabeni		<a href="mailto:amsabenis@gmail.com">amsabenis@gmail.com</a>
Texas A&M	USA	Bob Stewart	ISAC	<a href="mailto:bstewart@mail.wtamu.edu">bstewart@mail.wtamu.edu</a>



## 10.2 Open space discussions

Although there was no time for to conduct the open space, the following topics had been suggested

- 1 How does systems approach look in a desertified region – communications team
- 2 How does innovation platforms work in different regions
- 3 Agricultural bio-diversity assessment: discussion of early results
- 4 What CRPDS can gain by establishing "foreign platform/mechanisms?
- 5 Help to make your data and information useful and attractive (free advice)

