



**ICARDA**

*International Center for Agricultural Research in the Dry  
Areas*

**Inception Workshop**

**On**

**Sustainable Land Management – Research Project  
(CACILM)**

**Proceedings**

**2-4 July, 2007  
Tashkent, Uzbekistan**

*ICARDA-CAC Regional Office*

Tashkent, Uzbekistan

**Inception Workshop  
on  
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An Inception workshop on “Sustainable Land Management – Research Project (CACILM)” was organized in Hotel Merkezy, Tashkent from July 2-4, 2007. More than 45 participants attended the workshop which included the Heads of NARS and leading scientists from all Central Asian countries, representatives of CACILM Multicountry Secretariat, ADB, FAO, UNDP, ZEF, CG scientists (ICARDA Head Quarters and the CAC Regional office, CIP, ARVDC, IWMI) .

The discussions were organized in joint sessions and as well as in 3 Working Groups constituted to deliberate specifically the issues related to soil-water and rangeland management and socio-economic components. The participants of the Working Groups developed specific recommendations which were presented and further improved in a joint session and presented during the Plenary Session and approved.

During the Workshop, issues relating to the CACILM project management were discussed and finalized, including work plans and outlays/ budgetary line items.

**DAY-1 (Monday) 2 July, 2007**

**INAUGURAL SESSION**

***Chairpersons: Prof. Abdushukur Khanazarov and Dr. Surendra Beniwal***

Dr. Surendra Beniwal, Acting Regional Coordinator, ICARDA-CAC, extended his warm welcome to all the participants, thanking them for attending the workshop. He expressed his appreciation to the Chief Guest H.E. Prof. Abdushukur Khanazarov, Deputy Minister of Agriculture and Water Management of the Republic of Uzbekistan and Director of Uzbek Scientific Center for Agriculture for his presence and the support to the activities of the CGIAR Program for CAC. He also appreciated the support and encouragement extended by Dr. John Patterson and Ms. Judy Vermudo of ADB. He emphasized that soil and water management project has been the first regional project funded by any donor organization on NRM in Central Asia and also the first major step towards ADB – ICARDA partnership, which is now being further strengthened.

Dr. Surendra Beniwal also welcomed the scientists of the NRM Program; ICARDA headed by the Director, Dr. Richard Thomas and appreciated their role in the effective starting of new Project. He then stressed that the project would build on the achievements under the second phase of ADB Soil and Water Project with more emphasis to be laid on technology demonstration and dissemination to farmers, who are in need for low-cost effective technologies that would be able to help in improving their livelihoods. Finally, he wished all the participants to have fruitful deliberations that would contribute to the development of the workplan to ensure successful implementation of the project.

H.E. Prof. Abdushukur Khanazarov inaugurated the workshop and extended his warm welcome to all the participants from Central Asian countries and to the representatives of ICARDA, ADB, UNDP, FAO and representatives of the other organizations. He emphasized the importance of the SLMR project for the region as a whole and Uzbekistan, in particular. Prof. Khanazarov also thanked the ADB for the continued support for addressing issues that are critical for the livelihoods of resource poor farmers in Central Asia. He also expressed his satisfaction with the results achieved under the ADB Soil and Water Project in the areas of improved irrigation technologies, conservation agriculture and crop diversification. He was particularly happy with the outputs of this project as it led to significant human resource development and hoped that these activities would be further continued in the CACILM project. Prof. Khanazarov assured his full support for the implementation of the SLMR project in Uzbekistan.

Dr. John Patterson, Head, CACILM Multi-country secretariat presented the CACILM's strategy for sustainable agricultural development in Central Asia. He emphasized, that good soil and water management practices would reverse land degradation and improve livelihoods. He underlined the ICARDA's role in introducing suitable soil, water and crop management technologies in the region and also in organizing training programs for the researchers, extensionists and more particularly the farmers. He also remarked that CACILM recognizes that effective implementation of rural developmental programs requires institutions, talented people for operations and sound land, water and crop management practices that help produce more at less costs and sustain the quality of the renewable resource bases on which people depend now and also in future. He remarked that CACILM Secretariat will do its utmost to promote conservation of agriculture in the region as part of the regional strategy for an all-round development of the region.

***Technical Session - I: Sustainable Land Management (SLM) and CACILM***

**Chairpersons: Acad. Tolib Nabiev and John Patterson**

**Rapporteurs: Dr. Raisa Taryanikova and Dr. Muhammed Nepesov**

Dr. Richard Thomas was happy to see that the stakeholders' participating in the workshop has been broadened. He made presentation on Sustainable land management research (SLMR) Project and explained its main objectives, approaches and its functioning mechanisms. He emphasized that ICARDA as the lead implementing agency will be responsible for developing a multi-country program but the activities will be implemented by the National partners with technical backstopping from ICARDA and supervised by the National Coordination Council. He also briefed about main elements that will ensure the success of SLM program in Central Asia, He emphasized that innovative technology links with institutional and policy framework will be important for reversing land degradation processes. For the accelerated spread of the land water and crop management technologies, farmers would need options to fit their socio-economic resource endowments.

**CACILM Multicountry Support Knowledge Management –Dr. Judy Vermudo, ADB**

Dr. Judy Vermudo gave an overview of SLM component on Knowledge Management system under the CACILM project. She highlighted importance of the Knowledge Sharing Mechanism for dissemination of knowledge between various SLM components and the stakeholders of the CACILM Project. She indicated that partners can find most of the information on SLM at the website <https://cacilm.adb.org>. She

indicated that CACILM website will be managed in decentralized mode where partners can load their information. The presentation generated lot of interest and it was suggested that the website should be managed in a decentralized mode with SLM component partners having access to facilities for loading and updating information from the respective sites. It was also emphasized that establishing linkages with bilateral development projects funded by ADB and other donors will be critical for wider dissemination of improved technologies amongst farmers. Best bet practices should be shared in Russian and other local languages.

### **Sustainable Land Management Information System (SLMIS)**

Dr. Riccardo Biancalani from Tenure and Management Unit (NRLA), FAO, Rome gave an overview of SLMIS component of SLM under CACILM including the project goals, benefits and data needs for documenting land degradation using LADA and Wocat protocols. He emphasized the importance of understanding the Land Degradation causes and processes, establishing common methodologies for data collection and analysis in GIS framework for an assessment of Land Degradation in Central Asia. He provided the website <http://lada.virtualcentre.org>, for getting more information on SLMIS. Linkage of SLMIS with other SLM project components (SLMR, SLMKM and SLMCB) were also discussed. A major source of worry for the SLM component partners was that the FAO led SLMIS project would just provide the computer aided framework design protocols and would not undertake the actual or any ground truthing of the data bases. In reference to a suggestion, it was mentioned that ICARDA would not be able to support the validation work of SLMIS without partnership and funding provisions. Mr. John Patterson agreed to look into the issue of Issue of Ground truthing and validation separately.

Mr. Alexey Volkov, UNDP representative, highlighted the role of UNDP in the SLM-Capacity Building component. Linkages with other project components was discussed and it was generally felt that the Capacity Building component of the SLM activity should take off the ground at an accelerated pace for good use of the invested resources and speedy dissemination of the technologies.

During the discussions, Dr. Bulat Bekniyazov, Kazakhstan remarked that ICARDA should be a lead organization in conducting research activities and technical backstopping in view of the technical competence of its qualified staff. He remarked that ICARDA staff should actively be involved in revisiting the Projects launched in CAC countries last years as the performance of such project prepared by consultants is not upto the mark. ICARDA experts should examine the projects and suggest mid-course corrections so that the success of all such projects could be ensured. Dr. Bekniyazov also underlined the need for feasibility research at different levels of water management entities.

Dr. Kubanichbek Kulov, wanted the GIS tools should be used in documentation of the problems and also for dissemination of the technologies, This was successfully adopted in ADB Soil and Water project in some good measure but the need is to use this technology more extensively in the SLMIS component.

Acad. Rasulmat Khusanov, Uzbekistan drew attention of the participants to past experiences wherein technologies developed remained on the shelf and never reached the farmers. This could be avoided if farmers' perspectives could be accommodated and given due importance. SLMR should be implemented in farmer participatory

approaches to meet the farmers present short term needs and also meet long range vision. Project outputs must reach the penultimate users of the technologies. He underlined the need to highlight losses due to soil degradation processes in higher political circles without which it wouldn't be possible to make a big positive difference in soil degradation processes.

Acad. Jamin Akimaliev, Kyrgyzstan said that it is necessary to involve NARs partners actively in implementing the CACILM project activities. Research activities are to be coordinated by ICARDA, since it has a great confidence of its NARS partners and of Kyrgyzstan NARs in particular. In his concluding remarks, Mr. John Patterson pointed out that CACILM is a complex project and not well understood by the people. It will be his endeavor to bring transparency and link various SLM components in a harmonious manner. SLMR will act as a pace setter for the other Project components. Concluding the session Acad. Tolib Nabiyeu, Tajikistan emphasized the need for maximum involvement of NARs in Project activities and wanted that CACILM more funds for action research for technology development, refinement, farmer participatory traveling seminars and farmer-farmer dissemination of technology in data via publication.

**Technical Session – II: Integrated System Analysis for SLMR: Problems, Innovations, Extended Partnerships, Research Sites and Expectations**

*Chairpersons: Drs. Richard Thomas and Bakhtiyar Kadirov*

*Rapporteurs: Dr. Abdulla Saparov and Dr. Nazar Korpeyev*

Dr. Raj Gupta, ICARDA-CAC gave very detailed overview on agroecologies, farming systems, production constraints, technology options for handling different form of land degradation processes, criteria for site selection, partnerships etc. He indicated that in his presentation he mentioned that the desirable outputs of the workshop will be as under:

- Development of SLM-R Work plans
- Final agreement on site (s) as reached in the workshop
- Potential extended Partnerships (Institutions/ Experts)
- Ensuring demonstration of SLM-R activities in all 5 Central Asian countries
- Use of technical approaches that will be required to address land degradation issues in the *linked CACILM Projects*.
- Ensure that technical, social and economic issues are factored-in for sustainable land management.

Following this, the Heads of NSEK & National Coordinators from CAC countries gave presentations highlighting issues, possible choices of the sites according to selected criteria and naming national coordinators and specifying the partnerships. From Uzbekistan, Prof. Abdushukur Khanazarov highlighted the issues related to soil degradation (soil salinity, soil erosion) resulting in loss of crop productivity, the ameliorative actions to be applied (crop rotations, irrigation practices, farming practices, fertility management options) and proposed the experimental sites to be used for demonstration the advanced technologies (Boikozon farm, Hodjakabud farm in Djizak province, Kushman ata farm in Syrdarya province, Kizilkum site in Navoi province).

Acad. Jamin Akimaliev and Dr. Kubanychbek Kulov, Kyrgyzstan in their presentation highlighted the main issues of soil salinity and soil erosion due to overgrazing of the pasture lands and lack of professionalism of staff involved in water management

organization. He demonstrated that new technologies related to introducing alfalfa in crop rotations, raised bed planting, WUA establishment and other technologies aimed to effectively using of soil and water resources under CACILM Project would significantly improve livelihood of the rural population, who are making up 75 % from the total country population.

Acad. Tolib Nabiev and Dr. H. Ahmadov from Tajikistan made presentation on “Main tendency towards to SLM”. Dr. Ahmadov in his speech emphasized importance to introduce new advanced soil and water saving technologies, new crop varieties, develop human capacity building actions to prevent further decreasing of livelihood peoples living in the rural areas.

In their presentation on “Analysis of research system for SLM”, Dr. Abdulla Saparov and Ms. Margulya Baekenova indicated that soil degradation is reducing the land use efficiency and productivity of the cropping systems. Several degradative forces such as processing factories, military polygons, soil salinity and wind and water erosion, are worsening the land quality.

Dr. Ashyr Saparmuradov and Dr. Nazar Korpeyev, from Turkmenistan highlighted the main causes of of land degradation as soil salinity and water logging and soil erosion by water. He emphasized that there is need for adoption of innovative policy options and active involvement of the farmers in decision making process for reversing land degradation in the rural areas.

Dr. Margulya Baekenova, National Coordinator, Kazakhstan gave an overview of the agricultural scenario in northern and southern parts of the country. The presentation emphasized on the need for improvement in productivity of the range lands and arresting the problems associated with excessive use of water in Kyzyl Orda and nearby Oblasts for reversing land degradation processes.

Following the presentation of the country reports intense discussions tookplace and it was suggested that NARS need time to debate internally and reach agreements on the research sites following the given criteria and keeping in view all the discussions in the workshop. They generally felt that there is a need to expand the influence of the SLMR project to sites where investment projects will be operative in the five Central Asian republics. This will enable them to have benefit of technical back-stopping from ICARDA and help uptake of the tested technologies in investment project areas. In spite of the resource constraints, NARS wanted to have at least 2 research sites per country for greater reliability of the data sets under different agro-climatic conditions.

**DAY-2, July 2, 2007 (Tuesday)**

**Technical Session – III: Selection of experimental benchmark sites in CAC**  
**Chairpersons: Drs. Richard Thomas and Acad. Jamin Akimaliev**  
**Rapporteurs: Mr. H. Ahmadov and Ms. Margulya Baekenova**

In this session discussions mainly centered around the following:

- Selection of two research sites to enable cross country comparisons
- Approaches based on (Agro-ecologies, Distinguishing Characteristics of the Sites, Production Systems and their Problems).
- Extended partnerships and linkages with other projects

Head and National Coordinators from CAC countries opened the discussions and following decisions were taken in the workshop.

### Decisions on Research Benchmark Sites

Country	Site Locations	Major Component	National Coordinator
<b>Kazakhstan</b> (Southern Parts)	1. Zhambyl Province	Rangelands	Dr. A. Sparov
	2. Shieli (Kzyl-Orda Oblast)	Rice-Wheat/ salinity	
<b>Kyrgyzstan</b>	1. Sokuluk	Soil & Water	Dr. Malik Bekenov
	2..Kenenbay, Sokuluk	Sloping lands	
<b>Tajikistan</b>	1. Faizabad	Soil/Water/ Slopes	Dr. S. Sanginov
	2. Ziddiy	Rangelands	
<b>Turkmenistan</b>	1. Bugdaily	Foothills	Dr. M. Nepesov
	2.Murgab,Sakrachaga.	Foothills/ Ranges	
<b>Uzbekistan</b>	1. Zizak Oblast	Cotton-wheat	Dr.Rakhimjon Ikramov
	2. Kyzylkum	Desert Rangelands	

The project activities will be monitored by a Project Steering Committee, which will meet annually and consist of the following:

- Research Program Leader , ICARDA, Aleppo, Syria
- Regional Coordinator of ICARDA CAC, Tashkent
- Head of the Multicountry Secretariat, CACILM, Bishkek
- National coordinators of five CAC countries nominated by National Secretariats,
- SLMR Project Manager, Member Secretary

#### Technical Session – IV: Project Work Plans: Socio-economic, Policy and Technology Options for Improved Livelihoods and Identification of Development Pathways

Chairpersons: Acad. Rasulmat Khusanov and Dr. Kamel Shideed

Rapporteurs:

Dr. Kamel Shideed made a very interesting presentation on ‘Enabling Policy Options for Sustainable Land Management: Work Plans, Research Prospectus for Development Pathways” in Central Asia. He gave several examples of policy effectiveness from the Dry Areas from the WANA Regions of Jordan, Egypt, Syria, Morocco, Sudan and Tunisia. Several speakers including Dr Kulov, Acad. Mekhlis Suleymenov, Ms. Margulya Baekenova, Dr. H Ahmadov, Dr. Gulchekhra, and Dr.Nazar Korpejev, mentioned about the varying socio-economic and policy environments in CAC, interactive roles of research information with policy and institutional mechanisms and general lack of extension systems. It was felt that a policy environment related information on Land degradation is least understood. It is not clear how much of land degradation is due to policy failures. Dr. Shideed suggested that national partners should review the existing legislations on land tenure and other related issues for a better understanding.

#### DAY-3 (July 4, Wednesday)

##### Session – V: Action Research Plans by Site

Chairpersons: Dr. Raj Gupta and Dr. Raisa Taryanikova

Three Working Groups were formed to discuss on the Workplans related with

- **Soil and Water Management (Co-Chairs:Drs M Pala & Akimaliev)**
- **Rangeland Management (Chairpersons Dr. Suratbek Yusupov)**
- **Socio-economic research (Dr. Kamel Shideed)**

Thematic area plans for the SLMR project were discussed in the above mentioned three working groups and then presented in Joint sessions for a consensus. The activities are given in Table (1) indicate the participation of the research teams in different sites in each country. It may be clarified here that the broadly projected activities in Table (1) will be detailed out by the Research Teams at each of the sites after taking into consideration the actual site specific conditions during the visits of the SLMR Project Manager for implementation of the program.

**Session – VI and VII: Project Finances and the budgetary Allocations and Plenary  
Chairpersons: Drs. S. Beniwal , John Patterson Prof. Abdushukur Khanazarov**

Dr. Raj Gupta presented the Financial plan of the SLMR Project for two years ) 2007-2009 by line items and also the outlines of the Research Prospectus for development of sustainable land management research. NARS leaders and participants were generally remarked that the funds for the duration and budgetary allocations for SLMR Project led by ICARDA were highly inadequate for undertaking some longer term studies and facilitate work sites located in the Investment Project areas. They appealed to the CACILM management to find ways to correct this anomaly so that the technology dissemination and capacity building work can proceed simultaneously. They also mentioned that in absence of creditable extension systems, mobility of the scientists will continue to be a major bottle neck in dissemination of the technologies unless corrective measures are applied to SLMR project.

Dr. Beniwal responded to the various comments of the NARS partners and explained to them “ It is not possible either to increase the SLMR budget or the duration of the project”. He remarked that it is a very difficult project for ICARDA to implement. He mentioned that ICARDA will have to spend its core funds as project has no good provision for salary, local transport, and secretarial staff even to support the Project Manager. Therefore, ICARDA and its partners will have to find resources internally to implement the SLMR and make it a success. He also mentioned that in order to Promote Resource conserving technologies through Conservation Agriculture , ICARDA will soon prepare a Project which if approved by the Donors will provide sufficient opportunities for up-scaling the technologies and also address other concerns of the national partners.

Mr. John Patterson intervened several times during the discussions and offered to look into the funding problems and suggested that NARS partners and ICARDA should prepare a supplementary proposal to support capacity building, Information and Technology dissemination activities of the SLMR from the Knowledge Management (ADB) and Capacity Building (UNDP) SLM components. After considerable debate the budget as presented was agreed (Table 2).

During discussions on specific issue of funds for data collection, it was clarified that Dr. Eddy De-Pauw and Dr. Kamel Shideed will be responsible for the Benchmark characterization and digitization of data sets in GIS framework and socio-economic surveys for ex-ante assessment and Development of the research prospectus for sustainable land management , respectively. The funds will be allotted to the two groups from the total budget of USD 80 K provided in the project.

In his closing remarks, Mr. John Patterson thanked all the participants for some excellent discussions and debates. He also thanked ICARDA-CAC staff for their excellent support in organizing SLMR Meeting successfully.



**TABLE 2. FINANCIAL PLANS OF THE SLM-R PROJECT  
JUNE 15, 2007 To MAY 31, 2009**

Item	SLM Program	National Research	Total
<b>A. Asian Development Bank Financing</b>			
1 Consultants			
a. Remuneration			
i. International Consultants	120 000		120 000
ii. Domestic Consultants			
2 International Travel and Per Diem	60 000		60 000
3 Training Seminars and Conferences	90 000	30 000	120 000
4 National Research Program Agreement <sup>1</sup>		300 000	300 000
5 Local Transportation		20 000	20 000
6 Data collection studies and surveys <sup>2</sup>	80 000		80 000
7 Equipment <sup>2</sup>		70 000	70 000
8 Publication, reports, communication	20 000		20 000
9 Contingencies	10 000		10 000
<b>Subtotal A</b>	380 000	420 000	800 000
<b>B. ICARDA Financing</b>			
1 ICARDA Personnel	250 000		250 000
2 ICARDA Administration and Support	90 000		90 000
3 Research Operations Ongoing	160 000		160 000
<b>Subtotal B</b>	500 000		500 000
<b>TOTAL</b>	880 000	420 000	1 300 000

<sup>1</sup> National Research program Agreements will be made for the following activities:

- a. Collaborative research activities at the benchmark sites
- b. Supply of materials
- c. Training (English, etc)
- d. Publications

<sup>2</sup> 80K will be required to collect socio-economic and bio-physical datasets for characterization of the Benchmark Sites in five countries in GIS Framework. ICARDA will directly coordinate this survey and digitization work implemented together with the national partners.

- ICARDA will be directly responsible for purchase of need base equipments for each site and their supply to national partners within 70K provisions.

**SLM-R : Design, Monitoring Framework and Implementation Schedules**

Activities	Milestones	2007		2008				2009		Qtr
		Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	3
1. Developing a program of SLM Options	1.1 Cooperations agreements, , contributions of ICARDA+ NARS counterparts Instt. Established by MOU in CAC	█								
	1.2 CA countries will have better understanding of policy, institutional , environmental drivers of LD and have developed a Comprehensive Research Prospectus,		█	█						
	1.3 Research Prospectus for SLM Research including Developemnt Pathways Research Hypotheses and link with National Program frameworks		█	█	█					
2. National Research Activities	2.1. Research Projects initiated in Bench mark sitesin CAC and options tested with land users	█	█	█	█	█	█	█	█	█
	2.2 Progress Reporting, Half yearly and final report		█		█		█			█
	2.3 National development programs will have established strategies for facilitating refinement and adoption of SLM practices		█	█	█	█	█	█	█	

**TABLE 1. Technology Options - Research Activities under SLM-R Project by Country and By-Site**

Activity Choices in Thematic Areas	Kazakhstan		Kyrgyzstan		Tajikistan		Turkmenistan		Uzbekistan	
	Site 1	Site 2	Site 1	Site 2	Site 1	Site 2	Site 1	Site 2	Site 1	Site 2
<b>Over-arching activities in the Workplans</b>										
Benchmark site data (NARS) and digitization of sets in GIS Frameworks (ICARDA)	x	X	x	x	x	x	x	x	x	x
Development of a Draft SLMR Research Prospectus with links with NPF of CACILM	x	X	x	x	x	x	x	x	x	x
National development programs establish a strategy for adoption and refinement of the SLM practices.	x	X	x	x	x	x	x	x	x	x
<b>A. Irrigation induced erosion control in Sloping lands</b>	<b>Kazakhstan</b>		<b>Kyrgyzstan</b>		<b>Tajikistan</b>		<b>Turkmenistan</b>		<b>Uzbekistan</b>	
	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>
Precision land leveling	x		x			x	x	x	x	
Best irrigation methods (chutes, contour, raised bed-furrows, residues) all combined)	x		x	x		x	x	x	x	x
Supplementary irrigation for dry areas				x			x			
Reduced tillage / zero tillage	x		x		x	x	x	x	x	x
Inter-row Planting of cover crops in orchards on sloping lands					x					
Low water requiring legumes on sloping lands			x	x	x		x		x	x
In-situ composting in furrows/Nutrient recycling										
Use of composting / Biohumus/ Humus /Green manure			x	x	x	x	x	x	x	
Strip cropping on slopes		X		x	x		x			
<b>B. Efficient Irrigation Water Management in the Plains</b>	<b>Kazakhstan</b>		<b>Kyrgyzstan</b>		<b>Tajikistan</b>		<b>Turkmenistan</b>		<b>Uzbekistan</b>	
	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>
Planting methods and best-bet agronomic/ crop management practices	x		x	x		x	x	x	x	
Check border in ZT / reduced till soils with residue management						x	x			
Supplementary irrigation in rainfed areas		X								
Irrigation management in sandy soils ( Land use options)										x
Reuse of drainage water for meet ET requirements							x	x	x	
Cultivar choices and seed systems	x	X	x	x		x	x	x	x	x
Rehabilitation of ravines Sideration (Green manure)					x	x				

<b>C. Salinity /Sodicity Management</b>	<b>Kazakhstan</b>		<b>Kyrgyzstan</b>		<b>Tajikistan</b>		<b>Turkmenistan</b>		<b>Uzbekistan</b>	
	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>
Need for Winter, Fall and Pre-plant leaching	x		x				x	x	x	
Conjunctive use of multi-quality waters										
Salt tolerant crops/ cultivars	x		x			x	x	x	x	X
Afforestation with saline water, salt tolerant tree/shrubs / grasses	x									X
Efficient leaching methods/ reduce salinization rates	x		x			x	x	x	x	
Improve phospho-gypsum usage efficiency	x		x				x	x		
<b>D. Conservation Agriculture (Dry/Irrigated areas)</b>	<b>Kazakhstan</b>		<b>Kyrgyzstan</b>		<b>Tajikistan</b>		<b>Turkmenistan</b>		<b>Uzbekistan</b>	
	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>
Develop/ manufacturing of zero till drill / Bed planter prototypes			x				x		x	
Planting techniques in surface residues	x		x	x	x	x	x	x	x	X
<b>E. Crop Diversification</b>	<b>Kazakhstan</b>		<b>Kyrgyzstan</b>		<b>Tajikistan</b>		<b>Turkmenistan</b>		<b>Uzbekistan</b>	
	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 1</b>	<b>Site 2</b>
Legume introduction in some major cropping systems	x		x	x	x	x	x	x	x	X
Intercropping/ Relay cropping					x	x	x		x	X
Cropping in plantation crops					x	x				

Note: The activities will be picked up from the list of thematic activities given in the table above as appropriate for the different sites located in different agroecologies and further detailed out during the actual field visits of the project Manager to the identified sites for investments.