



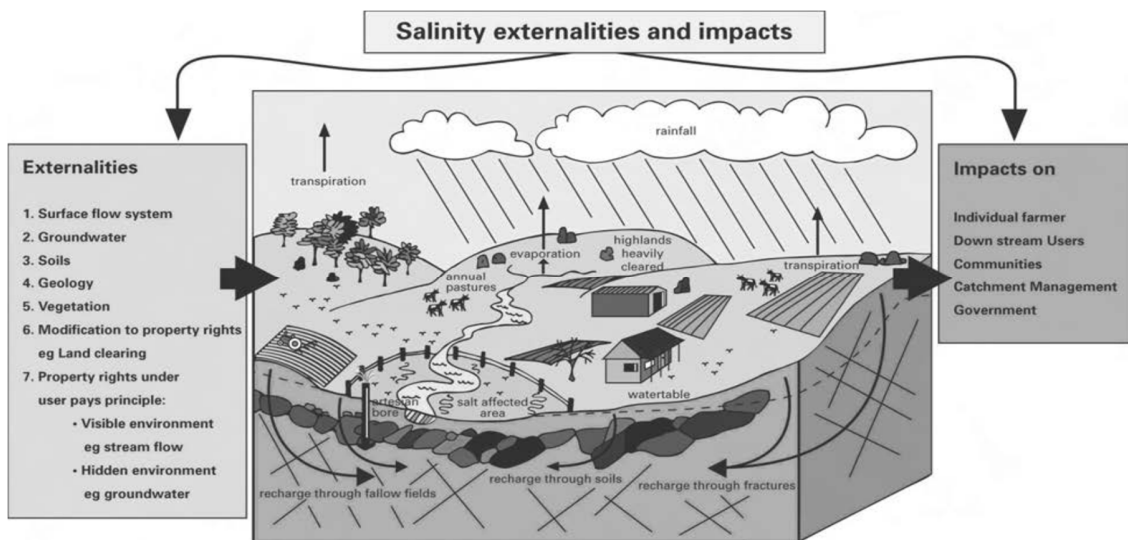
## Technical Report

### TRAINING COURSE ON

# *Socio Economic and Environmental Impact of Salinity on Livelihoods*

14 – 18 December, 2014

Amman, Jordan



Japan International Cooperation Agency (JICA)

and

International Center for Agricultural Research in the Dry Areas (ICARDA)



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## EXECUTIVE SUMMARY

### **Name of the project**

Capacity Development for Agriculture and Water management for Iraq and Regional countries

### **Partners**

Japan International Cooperation Agency (JICA)

International Center for Agricultural Research in the Dry Areas (ICARDA)

National Center for Agricultural Research and extension (NCARE) - Hashemite Kingdom of Jordan

### **Purpose**

To enhance Capacity Development of government officials and researchers who are engaged in irrigation projects and agricultural development mainly in Iraq

### **Specific objectives of the training course on Improving Water Productivity in Agricultural Systems with emphasis on dry land agriculture**

Up-to-date knowledge and enhanced capacity in Socio Economic and Environmental Impacts of Salinity on Livelihoods, Water Policies and Policy Analysis, adoption and Impact Assessment of Water Policies

### **Specific outputs**

9 professionally-trained NARS partners from Iraq, 2 from Jordan and 2 from other countries: 1 from Yemen and 1 from Algeria on Improving Water Productivity in Agricultural Systems with emphasis on dry land agriculture

### **Specific outcomes**

- To provide the agricultural economists from Iraq and other countries with evaluation methodologies and specific technical skills that will assist them in developing and delivering effective assessment of socio economic and environmental impacts of salinity on livelihoods and policy analysis with emphasis on data management and statistical and economic analysis at farm level;
- To enable the participants to effectively understand the socio economic and environmental impacts of salinity on livelihoods, and to identify policy constraints and opportunities for the effective use and remediation of saline land and water resources in their respective countries.



## **GENERAL OVERVIEW**

Water is the major limiting factor for agricultural production in the dry areas of Central and West Asia and North Africa (CWANA). Agriculture accounts for around 80% of water consumption in the region, however, the rapidly growing population, industrialization, and urbanization will lead to reallocation of water increasingly away from agriculture to other sectors. On the other hand, high population growth rates require a continuous increase in agricultural production.

ICARDA's mission is to improve the welfare of people through agricultural research and training to increase the production, productivity, and quality of food, while preserving or improving the resource base. ICARDA's training courses are designed to improve the capabilities of scientists and technicians in national agricultural research systems (NARS) in developing countries to conduct research independently, and to foster transfer of technology and address issues related to farmers' decisions in adopting or rejecting new technologies.

The training course offered to WANA country researchers an opportunity to get to effectively understand the socio economic and environmental impacts of salinity on livelihoods, and to identify policy constraints and opportunities for the effective use and remediation of saline land and water resources in their respective countries (see detailed program Annex I).

## **TARGETED AUDIENCE**

Fifteen trainees from whom seven were women, participated in this training course. Amongst the fifteen trainees, 13 were funded by JICA. (see list of participants Annex II). Trainees funded under JICA were coming from the following countries: 9 from Iraq, 2 from Jordan, 1 from Yemen and 1 from Algeria.

## **COURSE ORGANIZATION**

With financial support from the Japan International Cooperation Agency (JICA), through its overseas office in Jordan and in collaboration with the Jordan's National Center for Agricultural Research and Extension (NCARE), the International Center for Agricultural Research in the Dry Areas (ICARDA) conducted the course at ICARDA-Amman, Jordan.

The training was conducted by the Social, Economic and Policy Research (SEPR) Program in the International Center for Agricultural Research in the Dry Areas (ICARDA) scientists with the collaboration of two scientists: One from The National Center for Agricultural Research and Extension (NCARE) in Jordan and one scientist from the Department of Natural Resource Economics, College of Agricultural & Marine Sciences - Sultan Qaboos University in Oman.

Course instruction was organized through tutorial and practical sessions, which provided participants with hands-on experience using different data sets, software packages and policies analysis framework such SWOT (Strengthens, Weaknesses, Opportunities and Threats) and other tools.



## ORGANIZING COMMITTEE

Mr. Charles Kleinermann, Head, ICARDA Capacity Development Unit (CDU)

Dr. Aden Aw-Hassan, Director, ICARDA - Social, Economic and Policy Research Program (SEPRP)

Dr. Boubaker Dhebi, ICARDA Agricultural Hydrologist, Course Coordinator (SEPRP)

## COURSE STRUCTURE

The course covered the following themes and sub-themes:

- **Theme I: Economic of salinity: Impact, adaptation and management**
  - Economic impact of salinity using surveys
  - Adaptation to salinity (Part I: Mathematical programming)
  - Adaptation to salinity (Part II: Opportunity costs of adoption/rejection)
  - Management of coastal aquifers and seawater intrusion
- **Theme II: Salinity economics: Tools for assessment and monitoring**
  - Economics of soil management
  - Salinity economics: Tools for assessment I
  - Salinity economics: Tools for assessment II
  - Economic monitoring of salinity: Adoption influence factors and salinity control measures
- **Theme III: Water, Salinity and Agricultural Policies Analysis**
  - Agricultural and natural resources policy analysis: Basic concepts and theoretical background for policy analysis
  - Economic tools for policy analysis and case studies
  - Macro-instruments of agricultural policies
  - Water and salinity policies in perspective: The case of Iraq
- **Theme IV: Socio economic and environmental impacts of salinity on livelihoods**
  - Economics of natural resources management
  - Assessment of socio economic impacts of salinity on livelihoods: Theoretical background and empirical model
  - Assessment of environmental impacts of salinity on livelihoods: Theoretical background and empirical model
  - Adoption and diffusion outcome tool – ADOPT – Application to NRM technologies evaluation

## COURSE IMPLEMENTATION

The one week training course provided the agricultural specialists (economics, water, agronomists, etc.) in Iraq, in general, and other West Asia and North African (WANA) participants with the following:

- 1) Evaluation methodologies and specific technical skills to assist the participants in developing effective assessment of socio economic and environmental impacts of salinity on livelihoods



and policy analysis with emphasis on data management and statistical and economic analysis at different levels.

2) Enabling the participants to effectively understand the socio economic and environmental impacts of salinity on livelihoods, and to identify policy constraints and opportunities for the effective use and remediation of saline land and water resources in their respective countries.

Participant's were able to learn during the week course how to:

- Characterize, measure and assess impact of salinity on livelihoods;
- Understand the economic impact and adaptation to salinity using surveys, mathematical programming techniques and opportunity cost tools;
- Learn on tools for economics assessment and monitoring of salinity;
- Conduct economic and environmental analysis of salinity problems;
- Critically evaluate water and salinity policies and policy failures in the Iraqi case;
- Understand the process on how to move from policy recommendations to policy change;
- Conduct technology assessment using ADOPT (Adoption and Diffusion Outcome Prediction Tool Software).

A certificate of completion was awarded at the end of the course to each trainee.

### GENERAL COURSE EVALUATION by TRAINEES

Overall, the evaluation of the course by the participants was positive (*details in Annex III*). The list of the three most interesting ideas/concepts that the trainees learned in the course actually includes all course topics. This shows on one hand the heterogeneity in the scientific and professional background of the trainees but also that all topics were relevant to trainees. They stressed that the main relevant topics were on: benefit cost analysis/ economic analysis, ADOPT program/model, salinity effects/analysis and assessment & development of new technologies.

The trainees also suggested that the course period should be longer and offering to the same group and advanced training course.

### LIST of ANNEXES

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## ANNEX I: Course Program

Date	Topic	Responsibility
<b>Saturday 13 December 2014 (Arrival of Participants)</b>		
<b>Sunday 14 December 2014</b>		
08:00 – 09:00	Registration	SEPRP – CDU (ICARDA)
09:00 – 09:45	Opening Session	SEPRP (ICARDA) and JICA
09:45 – 10:15	Overview of SEPRP	Aden Aw-Hassan (SEPRP-ICARDA)
10:15 – 10:30	Course presentation	Boubaker Dhehibi (SEPRP-ICARDA)
10:30 – 11:00	Coffee break and group photo	
11:00 – 12:30	Economic impact of salinity using surveys	Slim Zekri (SQU – Oman)
12:30 – 13:30		
13:30 – 14:30	Lunch break	
14:30 – 16:00	Adaptation to salinity (Part I: Mathematical programming)	Slim Zekri (SQU – Oman)
<b>Monday 15 December 2014</b>		
09:00 – 10:30	Adaptation to salinity (Part II: Opportunity costs of adoption/rejection)	Slim Zekri (SQU – Oman)
10:30 – 11:00	Coffee break	
11:00 – 12:30	Management of coastal aquifers and seawater intrusion	Slim Zekri (SQU – Oman)
12:30 – 13:30		
13:30 – 14:30	Lunch break	
14:30 – 16:00	Economics of natural resources management	Samia Akroush (NCARE-Jordan)
<b>Tuesday 16 December 2014</b>		
09:00 – 10:30	Agricultural and natural resources policy analysis: Basic concepts and theoretical background for policy analysis	Roberto Telleria (SEPRP-ICARDA)
10:30 – 11:00	Coffee break	
11:00 – 12:30	Economic tools for policy analysis and case studies	Roberto Telleria (SEPRP-ICARDA)
12:30 – 13:30	Macro-instruments of agricultural policies	Roberto Telleria (SEPRP-ICARDA)
13:30 – 14:30	Lunch break	
14:30 – 16:00	Water and salinity policies in perspective: The case of Iraq	Roberto Telleria (SEPRP-ICARDA)
<b>Wednesday 17 December 2014</b>		
09:00 – 10:30	Economics of soil management: Theoretical background	Aymen Frija (SEPRP-ICARDA)
10:30 – 11:00	Coffee break	
11:00 – 12:30	Salinity economics: Tools for assessment 1	Aymen Frija (SEPRP-ICARDA)
12:30 – 13:30	Salinity economics: Tools for assessment 2	Aymen Frija (SEPRP-ICARDA)
13:30 – 14:30	Lunch break	



14:30 – 16:00	Economic monitoring of salinity: Adoption influence factors and salinity control measures	Aymen Frija (SEPRP-ICARDA)
<b>Thursday 18 December 2014</b>		
09:00 – 10:30	Assessment of socio economic impacts of salinity on livelihoods: Theoretical background & empirical model	Boubaker Dhehibi (SEPRP-ICARDA)
10:30 – 11:00	Coffee break	
11:00 – 12:30	Assessment of environmental impacts of salinity on livelihoods: Theoretical background and empirical model	Boubaker Dhehibi (SEPRP-ICARDA)
12:30 – 13:30	ADOPT: Adoption and Diffusion Outcome Prediction Tool – An application to NRM technologies evaluation	Boubaker Dhehibi (SEPRP-ICARDA)
13:30 – 14:30	Lunch break	
14:30 – 15:15	Course evaluation and recommendations	SEPRP - ICARDA
13:15 – 16:00	Award of certificates and closing session	SEPRP/CDU/JICA
<b>Friday 19 November 2014 (Departure of Participants)</b>		





## Annex II: Trainees List of Contacts

	Name/Country	Position/Specialization/Institution	Contact
1	Ms. Dhifaf Abdulelah Mahdi Al-Khafaji/Iraq	Assigned Cheif Engineer at the Ministry of Water Resources, The Directorate of Planning and Follow-Up	Mobil: 00964 7801625220 e-mail: dhmahdi@yahoo.com
2	Mr. Hayder Hasan Falah Tabana/Iraq	National center for water management, environment studies depart. Soil Survey	Mobile: 9647706335013 E-mail: zamanjawa@yahoo.com
3	Ms. Salwa Hamid Odhar Al-Saadi/Iraq	National center for water management, environment studies depart.	Mobile: 00964-7901325241 E-mail:saadysalwa75@gmail.com
4	Ms. Huda Abed Kadhim Al-Shammari/Iraq	Civil Engineer – Ministry of Water Resources	Mobile: 00964 7700365660 e-mail: huda_alshanny@yahoo.com
5	Mr. Ali Abduljabbar Younus Al-Wazzan/Iraq	Engineer environment /ministry water rescoces	Mobile: 009647901417313 e-mail:ali_noowazz@yahoo.com
6	Ms. Alyaa Jumaah Hadi Alawefdhawe/Iraq	Engineer at ministry of water resources	Mobile: 0094700423038 e-mail: Alyaa Jumaah@yahoo.com
7	Ms. Hadeel Waheed Saeed/Iraq	Engineer at ministry of water resources	Mobile:00964770167085 e-mail:Rafel-said@yahoo.com
8	Nabil Hussain Mousa/Iraq	Engineer at ministry of water resources	Mobile: 00964-7801507494 e-mail: khafajinabil15@gmail.com
9	Mr. Husam Salman Kadhim Albo Kasem/Iraq	Engineer at ministry of water resources	Mobile: 9647809747347 e-mail: husam.civil@yahoo.com
10	Ms. Souici Malika/Algeria	State Engineer in Agronomy Saharanian at the Technical Institute of Field Crops	Mobile: 00213771799506/00213556901200 e-mail: malika_souici@yahoo.fr
11	Mr. Abdulrahman Esmail Mohammed Basha/Yemen	Socio-Economic researcher ,agricultural research & extension authority	Mobile: 00967-777670477 e-mail: basha_ar76@yahoo.com
12	Ms. Enass Mohammad Mousa Gharaibeh/Jordan	Co-Socio-Economic researcher, NCARE, Jordan	Mobile: 00962796600499 e-mail: g.enas@hotmail.com
13	Mr. Malek Abed Almo'ty Aburomman/Jordan	Researcher Assistant ,NCARE , Jordan	Mobile: 00962-776612184 e-mail: malek_aburomman@yahoo.com
14	Mr. Sleiman Badih El SKAF/Lebanon	Researcher Assistant (Agr.Eng; Postgraduated) at LARI	Mobile: 00961 3 146524 e-mail: sleimskaf@hotmail.com
15	Mr. Ahmed Saleh Thiab Rabaya/Palestine	Socio-Economic Studies, NARC, Palestine	Mobile: 0569-500352 / 0598907853 0598907853 e-mail: anos_anos_anos@hotmail.com



**TRAINEES AND TRAINERS : GENDER AND COUNTRY DISTRIBUTION**

	Gender		Total
	F	M	
<b>Trainees / Countries</b>			
Iraq – under JICA	5	4	9
Algeria – under JICA	1	0	1
Jordan – under JICA	1	1	2
Yemen – under JICA	0	1	1
Palestine	0	1	1
Lebanon	0	1	1
<b>Total Trainees</b>	<b>7</b>	<b>8</b>	<b>15</b>
<b>Trainers / Institutions</b>			
SEPRP - ICARDA	0	3	3
SQU - Oman	0	1	1
NCARE - Jordan	1	0	1
<b>Total Trainers</b>	<b>1</b>	<b>4</b>	<b>5</b>
<b>Grand Total</b>	<b>8</b>	<b>12</b>	<b>20</b>



### Annex III: General Course Evaluation : Average Scores

#### I. Contents of the course:

Item/rating/percentage	AVERAGE SCORE
<b>Relevance of the course to your job</b> 1=Not relevant; 5=Very relevant	3.9
<b>Accomplishment of subject matter</b> 1=Inadequate 5=Very comprehensive	4.0
<b>Clarity of course objectives</b> 1=Not clear; 5=Very clear	3.7
<b>Level of lectures</b> 1=Too basic 5=Just right	4.3
<b>Time allocated for discussions</b> 1=Too short 5=Just right	3.9
<b>Interaction with participants enrolled in the course</b> 1=Very low 5=Very high	4.4
<b>Overall, how would you rate this course</b> 1=Poor 5=Excellent	4.4

#### II. Schedule and time allocation:

Item/rating/percentage	Average Score
<b>Percentage of Time allocated to lectures</b> 1=Too short 5=Just right	3.5
<b>Usefulness of Lectures</b> 1=not useful 5=useful	4.2

#### III. Teaching aids:

Item/rating/percentage	AVERAGE SCORE
<b>Effectiveness of teaching aids in general</b> 1=Not effective 5=Very effective	4.4
<b>Clarity of slides/overheads/Powerpoint</b> 1=Not clear 5=Very clear	4.2
<b>Handouts and material</b> 1=Not useful 5=Very useful	3.9



**IV. Administrative arrangements:**

<b>Item/rating/percentage 1=NI 5=Excellent</b>	<b>AVERAGE SCORE</b>
<b>Pre-course communication</b>	4.2
<b>Travel arrangements</b>	3.9
<b>Quality of the accommodation</b>	3.7
<b>Payment of allowance on time</b>	3.3
<b>Transportation</b>	3.6
<b>Lecture rooms</b>	3.8

**V. Your comments and suggestions on the course:**

1. Please state the three most important ideas/concepts that you learned from this course

- Benefit cost analysis/ Economic analysis
- ADOPT program/model
- Salinity effects/analysis
- Assessment & development of new technologies

2. Suggestions for future improvement of the course

- Longer course (more days)/ more courses
- Maintain the same group and offering an advanced training course

3. Do you recommend this course to be repeated in the future?

Yes 100%