

SUMMARY JORDAN PROJECT REPORT FOR IALC

Name: Dr. Prabhu Dayal, Adjunct Research Scientist,
Department of Soil Water & Environmental Science, UA

Subject: Development of Carbon Sequestration Credits by Waste Water Reuse
in Jordan for Sustainable Forestry Management

Program: Sustainable Development of Dry Lands in Asia and Middle East
- Jordan Component

Project Director: Robert J. Freitas, International Arid Lands Consortium, (IALC)
University of Arizona, 1955 E. 6th Street, Tucson, Arizona 85719.

Project Dates: June 4, 2004 to June 11, 2004

Objectives:

Assessment and review of projects to identify the feasibility of carbon sequestration potential by waste water reuse in Jordan for sustainable forestry management.

Scope and Summary of Activities:

1. Investigated the feasibility with the project director a proposal for the identification, assessment and development of a carbon sequestration sinks program in Jordan with waste water and bio-solids reuse for the growth of arid land species using sustainable forestry management techniques.
2. Performed site visit and toured through several projects in Jordan to assess opportunities and feasibility for the development of carbon sequestration by sustainable forestry management.
3. Participated and coordinated efforts in the IALC Workshop in Jordan on “Recycling Wastewater and Bio-Solids” to meet and discuss the development of carbon sequestration potential with project participants and other stakeholders.
4. Identified a summary of potential agencies and stakeholders interested in development of a sustainable forestry management program with carbon sequestration benefits in Jordan.
5. Developed a summary for three potential proposals recommended for consideration to develop carbon sequestration techniques in Jordan.

Summary of Results of Agencies with Interest in Carbon Sequestration:

This list provides a summary of the various agencies and stakeholders identified in Jordan for the development of a sustainable forestry management program with carbon sequestration benefits.

1. Jordan University of Science & Technology (JUST)

Dr. Wajih M. Owais, President of JUST, expressed an interest in the development of a broad memorandum of understanding and agreement between UA and JUST to foster tech transfer and new techniques such as carbon sequestration and sustainable management of ongoing projects.

Dr. Ziad Al-Ghazawi, Asst. Prof of Environmental Engineering, has a an existing waste water reuse demonstration site at JUST growing cactus and other arid land species with support from USAID. Dr. Al-Ghazawi is very interested in incorporating the carbon sequestration component with sustainable forestry management practices in existing and future projects at JUST. He is also interested in development of sustainable carbon sequestration credits in other renewable energy projects including wind, solar and waste methane from landfills to electricity.

2. Higher Council for Science & Technology, Jordan Badia R&D Program (BADIA)

Mr. Mohammed Shahbaz, Program Director who leads the program identified a current GEF project in Jordan implemented by UNEP for the “Assessment of soil organic carbon stocks and change at the national scale”. This project promotes the assessment and quantification of SOC for its environmental benefits but does not have a component to identify and develop the potential carbon sequestration offsets for additional financial benefits. There are several partners who provide case studies from different countries into this project, including the UK, Netherlands, Austria, Kenya, Brazil, India, and the Colorado State University, US (who provided the modeling).

3. National Center for Agricultural Research & Technology Transfer (NCARTT)

Dr. Abdel Nabi Fardous, Director General for Soil and Irrigation, is interested in development of the carbon sequestration component using sustainable forestry management at several sustainable agricultural projects now funded by USAID (wastewater reuse project growing Eucalyptus trees), and a dry land/Saline water/Denmark project. Dr. Samir Khalifah, is the Deputy Director.

4. The University of Jordan (UJ)

DR. Maynar Fayyad, Director of the Water & Environment Research & Study Center, and Dr. Mohammed Duggah, Assistant Professor are very interested in sustainable forestry management with carbon sequestration sinks development at the University of Jordan.

5. Royal Scientific Society, Environmental Research Center (RSS)

This facility have several scientists and officials with knowledge and experience to facilitate environmental monitoring, data collection and verification capabilities for on-site activities that may help us collaborate in future projects. (Contacts include: Rafat Assi, Head Air Quality Division, Nael Almulki, Research Quality Officer, Wael Suleiman, Environmental Eng., Bayan Athamneh, Researcher.)

6. Ministry of Water and Irrigation, Water Authority of Jordan.

Saleh Malkawi, Director and Jamal Rashdan can provide the necessary Government and stakeholder approval for the sustainable forestry management projects to develop carbon offsets.

7. US Agency for International Development (USAID)

Mr. James Franckiewicz, Director for Water Resources and Environment, and Dr.Hjazi will be the USAID contacts for any USAID funded projects in Jordan.

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Summary of Proposals Recommended for Carbon Sequestration in Jordan:

PROPOSAL 1: Development of above-ground carbon sequestration credits component for the existing GEF-SOC (Soil Organic Carbon) project with BADIA and UJ

This proposal would consider the potential for adding or extending the scope of an existing project by adding three components to BADIA's existing GEF-SOC Project implemented by UNEP, where an assessment of soil organic carbon stocks has been made for Jordan.

The three proposed components that add value to this project are:

1. Identify, define, collate, format and quantify the estimate of current above ground carbon stocks and the potential for carbon sequestration by waste water reuse for forestry and agriculture development in a country scale.
2. Evaluate, identify, and quantify the estimates of carbon sequestration sinks available for banking or sale of carbon credits in Jordan.
3. Develop a program identifying the various steps for design, monitor, verification and certification of forestry carbon sequestration credits that have potential market for financing through banking or sale of carbon credits in Jordan.

COLLABORATING PARTNERS:

- Mr. Mohammed Shahbaz, Program Director, Higher Council for Science & Technology, Jordan Badia R&D Programme (BADIA)
- Dr. Maynar Fayyad, Director of the Water & Environment Research & Study Center, and Dr. Mohammed Duqqah, Assistant Professor, the University of Jordan (UJ)

PROPOSAL 2: Development of a model forestry carbon sequestration project for quantification, monitoring, verification and certification of carbon credits at NCARTT and JUST

This proposal would develop a program for the identification and development of techniques and procedures for quantification, monitoring, verification and certification of carbon sequestration credits at a model waste water reuse forestry project. The benefits would include the potential market for financing through banking or sale of carbon credits which provide an additional option for funding these projects. The development of the carbon sequestration component includes sustainable forestry management at several sustainable agricultural projects now funded by USAID such as the wastewater reuse project growing Eucalyptus trees, and a dry land saline water project.

COLLABORATING PARTNERS:

- Dr. Abdel Nabi Fardous, Director General for Soil and Irrigation, National Center for Agricultural Research & Technology Transfer (NCARTT)
- Dean College of Agriculture, Jordan University of Science & Technology (JUST)
- Dr. Ziad Al-Ghazawi, Asst. Prof. of Environmental Engineering, JUST

PROPOSAL 3: Identification, evaluation and quantification of methane production from anaerobic digestion at waste water treatment plants in Jordan and the development of methane use for electric power generation.

This proposal would develop a program for the identification and quantification of methane production capacity from waste water treatment plants in Jordan. The project would include the feasibility assessment for electric power generation with carbon sequestration credits available for the displacement of fossil energy and use of waste methane.

The three proposed components for this project are:

1. Identify, collate, format and quantify the estimate of current methane production from anaerobic digestion at waste water treatment plants in Jordan.
2. Evaluate, identify, quantify and estimate the feasibility for electric power production from this methane production.
3. Identifying the various steps for quantification, design, monitor, verification and certification of carbon sequestration credits that can be obtained from electric power generation from waste methane and evaluate the potential market for financing through banking or sale of carbon credits.

COLLABORATING PARTNERS:

- Saleh Malkawi, Director and Jamal Rashdan, Ministry of Water and Irrigation, Water Authority of Jordan.
- Dr. Maynar Fayyad, Director of the Water & Environment Research & Study Center, and Dr. Mohammed Duqqah, Assistant Professor, the University of Jordan.
- Dr. Ziad Al-Ghazawi, Asst. Prof. of Environmental Engineering, JUST

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