



Improvement of irrigation water management in Lebanon and Jordan

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NCARTT



Associazione Volontari
per il Servizio Internazionale



The implementing consortium is composed of 5 partners:

3 European Non Governmental Organizations:

1. I.C.U. - Istituto per la Cooperazione Universitaria
(Rome – Italy)



2. AVSI – Associazione Volontari per il Servizio
Internazionale (Milan – Italy)



3. CESAL – Centro de Estudios y Solidaridad con America
Latina (Madrid – Spain)



2 Local partners:

1. L.R.A - Litani River Authority (Lebanon)



2. N.C.A.R.T.T. – National Center for Agricultural Research and Technology Transfer (Jordan)

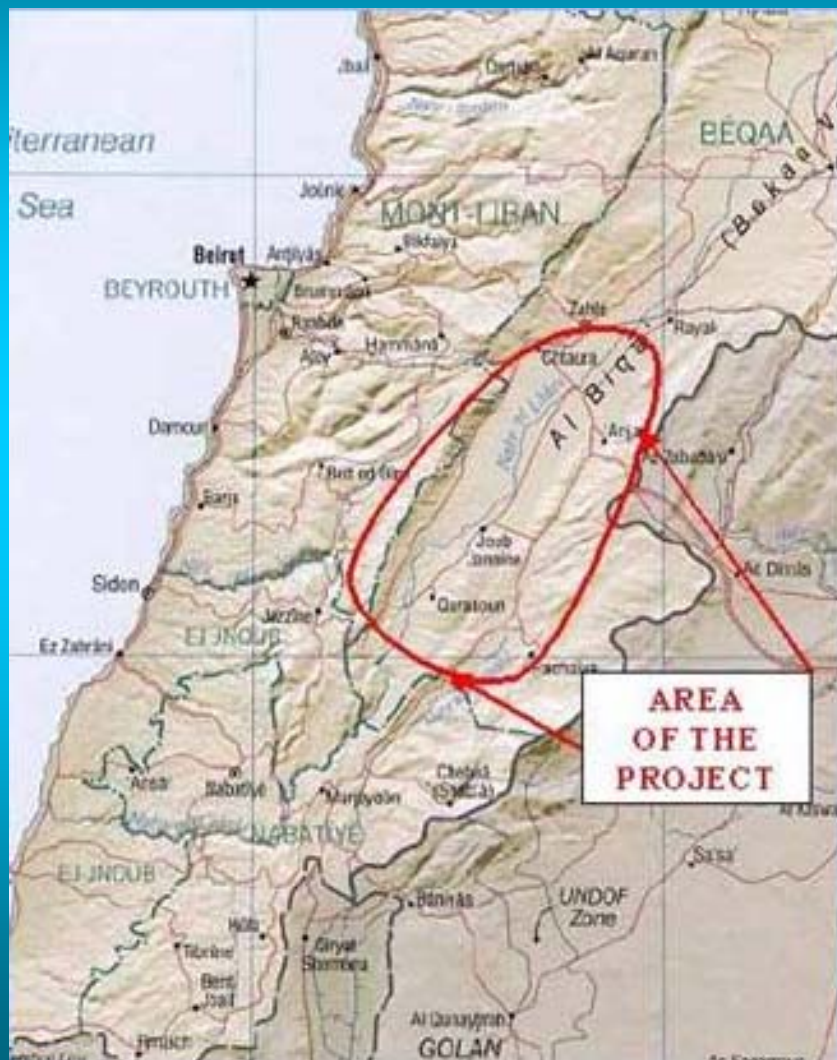


AREAS OF INTERVENTION:

- **Lebanon**: *the Bekaa Valley and the Litani River*

- **Jordan**: *Central and Southern Jordan River Valley*

Region of intervention in Lebanon

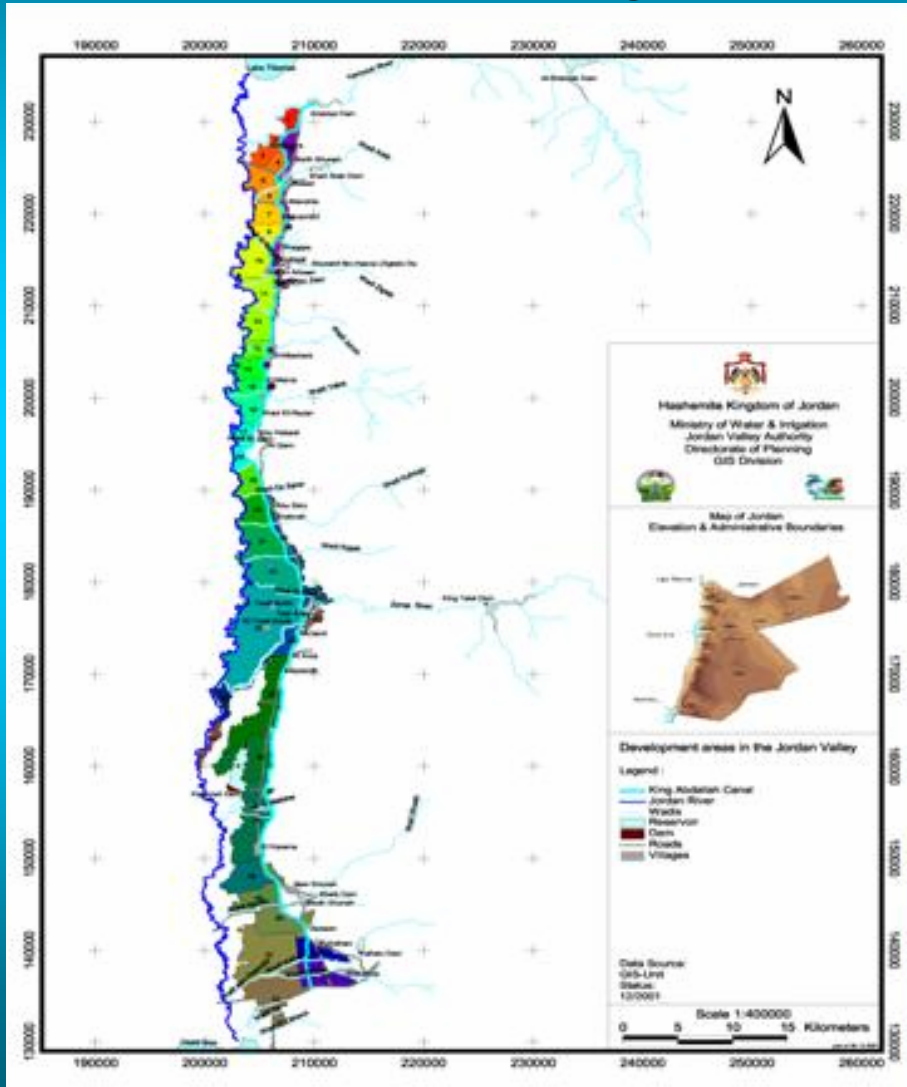


The southern part of the Bekaa Valley, long the Litani river, between lake Qaraoun and the village of Bar Elias (area known as Western Bekaa or Bekaa-Gharbi) is the main area of the project in Lebanon: the country's most fertile region.

The Litani river is the main water resource for agriculture and, therefore, its correct management is crucial.

The villages directly involved by the project lie on both banks of the river.

The region of intervention in Jordan



- Central and Southern parts of the Jordan Valley
- Turn Out 70 (Damieh) long King Abdullah Canal (Jordan Valley Authority)
- NCARTT Station in Deir Alla
- 30 farm units in the area interested by TO 70

Problems addressed by the Project

1. Inundations and land erosion long the Litani River course
2. Violations long the Litani River (illegal water pumping, garbage disposal, etc.)
3. Poor water quality and inefficiency of the irrigation network (poor filtration long KAC, clogging, etc.)
4. High levels of salinity (problem that will increase in the future)
5. Lack of efficient water storage facilities at on farm level
6. Poor technical know-how of the farmers with regards to a water-saving mentality
7. Weak regional cooperation among the institutions dealing with water.

Inundations in Western Bekaa

February 2003



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Inundations in Western Bekaa February 2003



Inundations in Western Bekaa

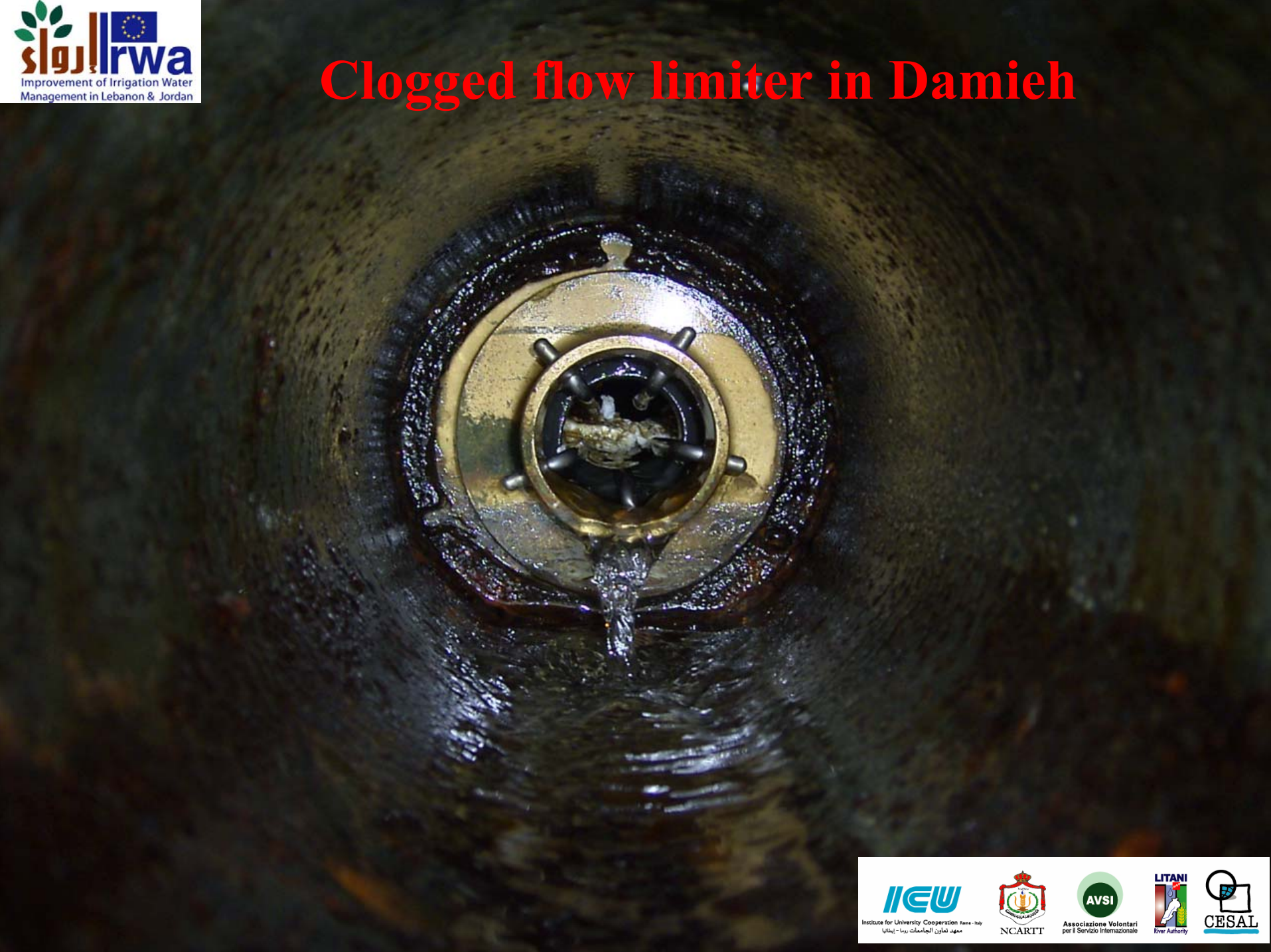
February 2003



Algae long King Abdullah Canal



Clogged flow limiter in Damieh



Clogging agent



Farmer unclogging a JVA flow limiter (... 3 to 4 times per day ...)



Water stocking pool at on-farm level



Overall objective

Contribute to improve the income of the farmers of the target areas by reducing irrigation water losses

Specific objectives of the project

- Rehabilitation of part of the Litani River
- Increase the availability of cultivable lands through protection from inundations and their control
- Increase irrigation efficiency in the central and southern parts of the Jordan Valley
- Improve the water stocking facilities at on-farm level
- Increase awareness on water management
- Improve farmers' technical know-how
- Strengthen regional cooperation on agricultural water issues

Irwa Activities

- Rehabilitation and recalibration of a portion of the Litani River
- Installation of a filtration unit at TO 70 (Damieh) long King Abdullah Canal and introduction of efficient filtration systems at farm level
- Introduction of water harvesting techniques from greenhouses in the Jordan Valley
- Strengthening of the local partners by setting up service centers, equipped labs for water and soil analyses and meteorological stations
- Setting up demonstration plots
- Training 16 extension agents
- Organization of training courses and workshops for the farmers of the targeted areas
- Networking with other organizations of the region dealing with water management in agriculture
- Organizing and supporting regional workshops and conferences on water issues

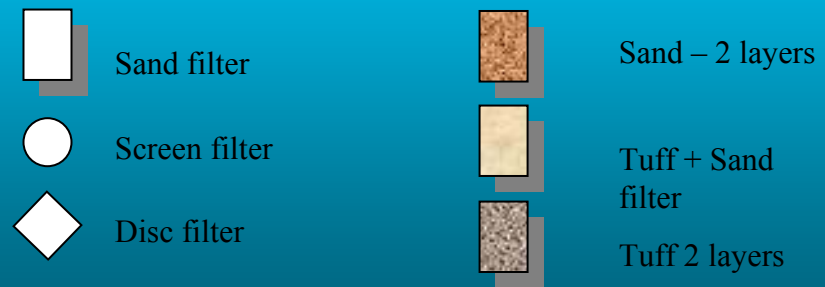
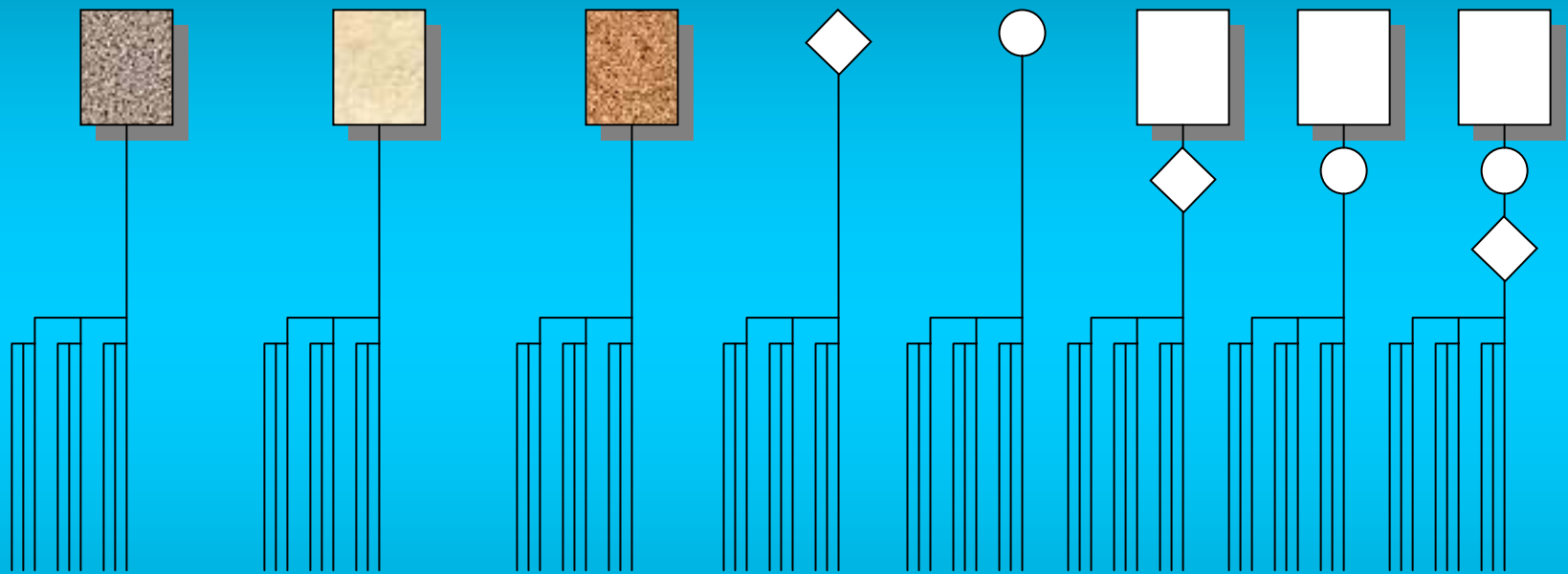
Ongoing activities in Jordan

- Networking activities with other organizations working in the sector (ESCWA, UNESCO, MREA, local NGOs, universities, etc.)
- Rehabilitation works of Deir Alla Station lab in Jordan
- Preparation of a socio-agro-economic study of the targeted area to define the exact needs in terms of training and extension activities
- Establishment of experimental plots for the determination of the best filtering combination in relation with the characteristics of the area of intervention.

Demonstration Plot – NCARTT Station in Deir Alla (Jordan)

Experiment on filtering systems on onion open field crop

October 2003 – May 2004



Filter combinations in Deir Alla Station



Onion crop in Deir Alla Station Filter experiment



Filter experiment main data collected:

1. Water turbidity before and after the filtration at every irrigation
2. Water analyses (EC and pH) before and after the filtration once a week
3. Water pressure variation in the system
4. Determination of the materials caught by the filters
5. Complete water analyses once a month before and after the filtration
6. No. of cleaning sessions
7. No. of clogged drippers
8. Yield
9. Evaluation of the irrigation system efficiency (emission uniformity)
10. Soil analyses at the beginning and end of the experiment.
11. Microscopic pictures of the clogged drippers