

**Basin Synthesis Study of the Lerma-
Chapala River Basin, Mexico**

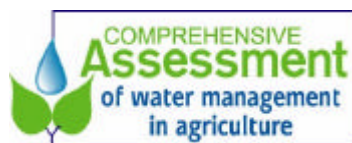


Lake Chapala in 1976



Lake Chapala in 2002

Progress Report January-June 2004



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PROJECT TITLE

Basin Synthesis Study of the Lerma-Chapala Basin, Mexico for the Comparative Study on River Basin Development and Management

PROJECT MANAGER

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GENERAL STATE

As part of the Comprehensive Assessment of Water Management in Agriculture (CA) program, IWMI and its partners have made provisions for case studies on river basins to create a knowledge base on how, in a river basin context, water can be managed in an equitable, pro-poor, efficient and sustainable manner. IWMI requested IWE to form a research team and submit a proposal to produce a basin synthesis report for the Lerma-Chapala basin in Mexico to contribute to the CA knowledge base. This proposal was funded under the 2nd CA Competitive Research Grant Scheme in January 2004.

In the first half of 2004 work on the project started, and many steps were taken to initiate activities. The key milestones as defined in the workplan are presented below, indicating progress. This indicates that most activities were carried out as planned. Key achievements include:

- First researchers meetings held in Mexico in February 2004.
- Three MSc students recruited and started work in March 2004.
- Research seminar held in May 2004 in Wageningen, to launch the project.
- Second researchers meeting held in Mexico in June 2004.

Key Milestones for the first half of 2004

Planned	Actual
November 2003	
Approval of case study proposal and budget by CA	received in January
Development of detailed workplan	completed in January
February 2004	
First researchers meeting in Lerma-Chapala basin	held in February
Definition and allocation of tasks contributing to final report	discussed in February
Chapter 2 final synthesis report drafted	first draft discussed in February
May 2004	
Second researchers meeting in Lerma-Chapala basin	held in June
Review of draft chapters	no chapters were yet finished
Assessment additional information needs and planning remaining research	done in June
July 2004	
Submission of progress report to IWMI	submitted in July

OUTPUTS

Two categories of outputs have been defined for the project. Progress in each category is detailed below.

Publications:

The main output of the study will be a river basin synthesis report based on the format of the Comparative Study on River Basin Development and Management, consisting of four main sections:

- a) The natural setting
- b) The historical transformations of the basin
- c) The current situation
- d) Prospective and scenarios

Work on the synthesis report has started, with the drawing up of a detailed Table of Contents during the February 2004 researchers meeting. This ToC was further detailed during the 2nd researchers meeting in June 2004, and is currently being finalized.

Besides the synthesis report, four MSc thesis reports will be written by MSc students sponsored under this project. In March 2004 three students started their MSc research, and it is foreseen their reports will be available in October 2004. One additional student will start work in July 2004, to be completed by December 2004.

Water Management Information Tools:

A set of new analyses, information, maps, and statistics of the Lerma Chapala Basin will be developed yielding an improved understanding of basin level processes and their interactions. Work was started on the collection and compilation of these data in the first half of 2004, but has not yet produced any concrete outputs.

PROBLEMS

Although the project got off to a good start, progress has been slower than anticipated. This mainly concerns the writing up of material. All planned research activities are on-going, and will be completed by the end of 2004. However, it is foreseen that the drafting of the final report will require more time. A request has been made to the CA coordinator for an extension of the submission date for the final report to May 2005.

During the first half of 2004, two serious problems were faced. The first concerned delays in funding. After the project was approved by CA in January 2004, the Letter of Agreement between IWMI and Wageningen University was drawn up. This took a bit longer than anticipated, and the first installment of funding was received by IWE at the end of March 2004. While the LoA was being finalized, work on the Collaboration Agreement between Wageningen University and IMTA was started. This again took much longer than anticipated, and the signed version was received by IWE at the end of May 2004. The first payment to IMTA could then be made, with IMTA receiving funds towards the end of June 2004. While costing valuable research time and creating uncertainty, most field research activities were initiated as planned.

The second problem was of a different order, with one of the key researchers (Paula Silva) being involved in a serious car accident in March 2004. As a result, she could not pick up work again until June, causing delays in progress with WP 1, 2 and 5.

PROJECT MEETINGS

Two main researchers meetings were held, in February and June 2004, during visits by Flip Wester to Mexico. A third researchers meeting will be held in October. In May a research seminar was held in Wageningen University, to present the Lerma-Chapala study, and the CA more generally. Around 70 people attended.

WORKING SCHEDULE

The Lerma-Chapala case study will document the historical development of the basin, characterize in more detail its present state, and develop *scenarios* of future development. It will follow the research protocol developed under the Comparative Study on River Basin Development and Management to ensure a degree of comparativeness. This entails that the analysis will unfold along eight main lines of scientific problematics as identified under the Comparative Study. As the Lerma-Chapala basin is relatively large, complex and highly developed, the documentation of its historical development and the characterization of its present state is challenging. Six work packages have been formulated with this challenge in mind, to ensure that a satisfactory level of detail will be attained in the study. To the extent that existing data allow, all research components will focus on the whole Lerma-Chapala basin. The six work packages will yield the expected outputs as defined above. Progress for the six work packages is indicated below, in [brackets] and *italics*, based on the original planning in the workplan of January 2004.

Work Package 1: The Physical, Hydrological and Ecological Characteristics of the Lerma-Chapala Basin

Objectives: Based on available information this activity will result in a detailed description of the natural setting of the basin. Information will be drawn from existing studies on the basin as well as the on-going study by INE to arrive at an ecological restoration plan for the basin.

Output: Draft report, forming the basis of Chapter 2 of the Basin Synthesis Report.

Milestones:

- Draft report finished end of January 2004, based on work done in 2003 and additional time input in January 2004. [*a rough draft was finished by half February 2004*].
- Lerma-Chapala CA Research Team meeting in February 2004 in Mexico to discuss draft report and to further define tasks and responsibilities concerning the final report [*rough draft was discussed by the researchers team in February 2004, and remaining work defined. However, due to a serious car accident by one of the main authors of the draft, work was delayed. In June 2004 an improved draft was produced, which is currently being revised.*]
- Revision of draft report in September-October as basis for Basin Stakeholder Conference end November/early December. [*Final draft will be finished over the summer, to be discussed in October.*]

Work Package 2: Water Flows and Water Productivity in the Lerma-Chapala Basin

Objectives: This activity aims to arrive at a detailed water balance of the basin as well as water productivity, focusing on the past ten years and the following points:

- Characterization of the types of water use in agriculture to determine areas irrigated by groundwater, surface water and wastewater in irrigation districts, units and commercial farms.
- Water balance and accounting, spreadsheet for scenarios
- Evolution of water productivity within the basin ($\$/m^3$) for different water use sectors.
- Techniques and strategies implemented to improve water productivity (including low cost innovations for water saving).
- Scope for end-use efficiency gains and the impact of irrigation modernization projects on water savings.

Output: Draft report, forming the basis of parts of Chapter 4 and 6 of the Basin Synthesis Report.

Milestones:

- Lerma-Chapala CA Research Team meeting in February 2004 in Mexico to discuss detailed planning of WP2 [*discussion took place, and a preliminary workplan for this activity was drawn up*]
- Initiation of activities in March, with monthly reporting on progress [*due to car accident, initiation of work was delayed, although student research started*]

- Draft report end of June 2004 for discussion at 2nd Lerma-Chapala CA Research Team meeting in July. [*draft report remains to be written, discussions were held in June to plan the coming half year*]
- Revision of draft report in October-November as basis for Basin Stakeholder Conference end November/early December [*work on draft report will start towards the end of the year, to be completed by March 2005*]

<p>Work Package 3: The History of Water Management in the Lerma-Chapala Basin: Basin Trajectory, Equity and Benefits</p>
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Objectives: This activity will recount the political history of water development and management in the basin over the past fifty years, focusing on the period after 1988 when serious water reforms were set in motion:

- The distribution of benefits of water development to different categories of users in the basin and the impacts on poverty.
- Changing relationships between the hydraulic bureaucracy and water users.
- The development of rainfed agriculture and the small-scale irrigation sector (irrigation units)
- Demographic developments, including urbanization and migration.
- Agrarian reform and land ownership in relation to water development.

Output: Draft report, forming the basis of Chapter 3 of the Basin Synthesis Report.

Milestones:

- Lerma-Chapala CA Research Team meeting in February 2004 in Mexico to discuss detailed planning of WP3 [*discussion held in February*]
- Initiation of activities in April, with monthly reporting on progress [*data collection and review of literature has started*]
- Review of progress at 2nd Lerma-Chapala CA Research Team meeting in July [*progress reviewed during researchers meeting in June*]
- Draft report finished end of October 2004 as basis for Basin Stakeholder conference in November/December. [*work on draft report will start in January 2005, to be completed in March 2005*]

<p>Work Package 4: Water Allocation and Management in the Context of Political and Institutional Transitions</p>
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Objectives: This activity will combine an analysis of water rights and allocations for surface, ground, and derivative water at different scales (field, WUA, irrigation system, aquifer, basin), and the water management institutions at these different scales, with special attention for the changing role of the state and its relationship with water users. Attention will be paid to:

- The technical and social performance of different types of agricultural water use, including a hydraulic, social and agricultural typology and a characterization of farming strategies and agricultural production chains.
- Technical and social study of direct pumping from Lerma River and Lake Chapala for irrigation.

- Social and technical initiatives by water users to deal with water scarcity and the conflict between agriculture and Lake Chapala, in particular the work of GTEPAI to convince farmers to shift to less water consuming crops and new kinds of economic regulation (water banking, water markets, water pricing).
- Public opinion and negotiation processes in multi-stakeholder platforms for water management, focusing on the river basin council and aquifer management councils, as well as the role of irrigation units and federations of WUAs in river basin management.

Output: Draft report, forming the basis of Chapter 4 and parts of Chapter 6 of the Basin Synthesis Report.

Milestones:

- Lerma-Chapala CA Research Team meeting in February 2004 in Mexico to discuss detailed planning of WP4 [*discussions held in February*]
- Initiation of activities in May, with monthly reporting on progress [*student work initiated in March, other work in April and May*]
- Review of progress at 2nd Lerma-Chapala CA Research Team meeting in July [*progress reviewed in June, a lot of material has been collected*]
- Draft report finished end of November 2004 [*work on the draft will start in November, report will be finished in March 2005*]

Work Package 5: Impact Assessment of Water Development on the Environment

Objectives: To scope the impacts of water development and management on the environment, focusing on the complex relationships between water pollution, over-exploitation of primary water and the desiccation of Lake Chapala, changes in the hydrologic cycle, and damage to aquatic ecosystems. Special attention for estimating the value of environmental uses, in particular the trade-off between Lake Chapala and agriculture as well as environmental perceptions of stakeholders.

Output: Draft report, forming the basis for Chapter 5 of the Basin Synthesis Report.

Milestones:

- Lerma-Chapala CA Research Team meeting in February 2004 in Mexico to discuss detailed planning of WP5 [*detailed planning was not discussed*]
- Initiation of activities in March, with monthly reporting on progress [*due to car crash of key person in this WP, no work was done until June*]
- Review of progress at 2nd Lerma-Chapala CA Research Team meeting in July [*progress reviewed in June, planning revised to complete the work in the 2nd half of 2004*]
- Draft report finished end of September 2004. [*draft report will be completed end of February 2004*]

Work Package 6: Trends, Scenarios and Prospects

Objectives: To explore scenarios for the future based on a thorough understanding of the present situation, constraints, trends, and trajectories, with the active involvement of and input from stakeholders within the basin. In the definition of the scenarios the following issues will be addressed:

- Scope for water savings and feasible innovative solutions;
- Water allocation mechanisms and priorities;
- Necessary and feasible institutional/policy changes to make the scenarios effective;
- Feasibility, costs and impact of new interventions and implications in terms of risk for stakeholders;
- Impact on equity, efficiency, poverty, food security and livelihood strategies;
- How to make information useful to stakeholders.

Output: Draft report, forming the basis of Chapter 6 and 7 of the Basin Synthesis Report.

Milestones:

- 2nd Lerma-Chapala CA Research Team meeting in July 2004 in Mexico to discuss detailed planning of WP6 [*planning discussed in June, work on this WP will start towards the end of 2004*]
- Initiation of activities in September, with monthly reporting on progress [*moved back to December 2004*]
- Draft report finished end of November 2004 as input for Basin Stakeholder conference. [*draft by end of March 2005*]

Revised Project Schedule

2 nd Researchers meeting	review progress, detailed planning												
3 rd Researchers meeting				Discuss progress									
WP 1	draft			Finalize									
WP 2												Draft	
WP 3												Draft	
WP 4												Draft	
WP 5												Draft	
WP 6												Draft	
Progress Reporting												progress report to IWMI	Final progress report
Basin Stakeholder Conference													Sometime in April
Final Report	outline											Draft end of March	Final version
	June	July	August	September	October	November	December	January	February	March	April	May	

BUDGET

The total costs for the basin synthesis study was originally calculated on the basis of an exchange rate of €1 = \$1.16, and came to a total amount of \$129,000. Of this amount IWE was to contribute \$34,000 and IRD \$20,000. A request was made to the CA Competitive Research Grant Scheme to support the Lerma-Chapala Basin Synthesis Study with a lump sum grant of US\$ 75,000, which was granted. Expenditures for the 1st half of 2004 are indicated below for the CA grant and IWE's input. As Wageningen administers the project in euro's, amounts are indicated in euro's, with the original US\$ budget in brackets. The original budget was based on the October 2003 exchange rate of €1 = \$ 1.16, but when the first installment of funds was transferred in March 2004, the exchange rate was €1 = \$1.23. At this exchange rate US\$ 75,000 amounts to €60,976 instead of €64,655 as originally planned, far exceeding the exchange rate contingency included in the budget. On the other hand, IWEs contribution in dollar terms becomes higher.

Name of Project	Case Study Lerma-Chapala Basin, Mexico for Comparative Study on River Basin Development and Management			
Project Leader	Philippus Wester			
Contributors	CA		IWE	
Line Item (in euro's, with US\$ budget in brackets)	Budget	Spent	Budget	Spent
Researchers:				
International ARI (IWE)	14,920.00 [18,351.00]	6,724.00	17,400.00 [21,401.86]	8,808.75
National NARES (IMTA)	21,138.42 [26,000.00]	13,305.61		
Consultants	8,780.58 [10,800.00]			
Nat'l Staff Salaries & Benefits				
Office & Research Supplies				
International Travel (IWE)	5,691.00 [7,000.00]	2,088.81	4,085.00 [5,024.52]	
Workshops	2,439.00 [3,000.00]		5,000.00 [6,149.96]	
Fellowships	4,878.00 [6,000.00]	2,394.62		
Publications & Dissemination	813.00 [1,000.00]	226.73	4,000.00 [4,919.97]	
Contract Research	1,626.00 [2,000.00]	13.80		
Contingency (exchange rate)	690.00 [849.00]			
Vehicles & Equipment				
Total	60,976.00 [75,000.00]	24,753.57 [30,466.70]	30,485.00 [37,496.31]	8,808.75 [10,834.76]

All figures based on an exchange rate of €1 = US\$ 1.23