

Interaction between Migration, Land & Water Management and Resource Exploitation in the Oases of the Maghreb

# 'Striking a balance'

# Reporting guidelines for the IMAROM final report

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## IMAROM Working Paper Series no. 10 November 2000

IMAROM is a research project funded by the EC (DG XII) 1998-2001 INCO-DC programme contract number IC18-CT97-0134 http://www.frw.uva.nl/IMAROM E-mail: imarom@frw.uva.nl

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#### 1. Introduction

It is of utmost importance that the final report responds in a concrete, concise way on the main and specific objectives of the IMAROM project, as described in the technical annexe. I advise all of you to re-read the technical annexe in detail, in order to 'synchronise' our thoughts, and to reach the <u>synergy</u> needed to elaborate a comprehensive clear final report. The objectives set in this technical annex are the ultimate references for the final report, and will constitute the building stones for reporting.

Whereas the working papers contain a mass of descriptive and analytical information on the specific research sites, the contributions to the final report should focus on the questions we posed ourselves when writing the project proposal and discussing at the kick-off meeting in Amsterdam. So, the contributions to the final report should be very targeted at reaching general conclusions through integration of the different pieces of information (work packages) collected by the five IMAROM partners. Reaching comparability through standardisation of reporting are the main goals underlying the need to draw up these reporting guidelines. These guidelines are intended to elaborate a specific reporting format on which we all can agree.

In this IMAROM working paper, I intend to list and re-evaluate again the main objectives of the IMAROM project and the research questions they inherently comprise. I will continue with a proposal by proposing a concrete reporting framework indicating how the chapters should be written and what issues they should address. This final version is the result of discussions between the partners and reflects the consensus that was achieved.

In principle, following the technical annexe and the work divisions practised, the reporting tasks should be divided as follows:

	socio-economic questions (1)	bio-physical questions (2)
Moroccan sites	UvA/UMV	UMO
Tunisian sites	IRA	EEZA
Overall analysis	UvA in collaboration with other partners	
(incl. modelling)		

Each partner report will constitute one chapter of the final report, which therefore will comprise two bio-physical chapters and three socio-economic chapters, containing answers on the research questions on the oasis level. The last chapter will contain a general comparison and overall analysis, including modelling by the UvA.

### 2. Objectives

It seems instrumental to repeat IMAROM's <u>main objectives</u> as formulated in the technical annexe:

- 1. To study the interaction between migration and changing land & water management with resource exploitation in the oases of the Maghreb.
- 2. To examine the ecological impact of the changes in land & water management and resource exploitation, especially their contribution to desertification processes.
- 3. To design a model for increased investments and improved spin-off of allocation of remittances in sustainable agriculture

#### The specific objectives were formulated as follows:

- 1. To determine the socio-economic characteristics of oasis households and their livelihood strategies in migration and agriculture.
- 2. To determine actual cropping patterns and existing land & water management on plot level, related with the socio-economic characteristics and livelihood strategies.
- 3. To identify the main obstacles and enabling conditions of sustainable land & water management:
  - (A) <u>physical</u> (i) existing agricultural and hydrological infrastructure on oasis level (land distribution; water rights) (ii) ecological constraints (water availability; soil and water quality; climate)
  - (B) <u>socio-economic and political</u> (1) traditional local decision making structures concerning land & water management. (ii) access to credit and legal structures.
- 4. To determine which measures adapted to the local socio-economic, political and ecological conditions, are most appropriate to prevent desertification and to improve efficiency of resource exploitation.
- 5. To determine under which enabling conditions migration remittances will be invested in the development of oasis agriculture and sustainable resource exploitation, in order to establish a positive feedback between migration and agricultural development.

#### The expected results were formulated as follows:

- 1. The research will, through the elaboration of theoretical models, improve understanding of enabling conditions for investment to investment of migration remittances in sustainable agriculture.
- 2. The research will lead to improved insight in current water management systems, and the way in which the efficiency of this water management can be improved.
- 3. The research will identify the best methods to improve the efficiency of land & water management and resource exploitation in oasis agriculture, explicitly taking into account the existing traditional agricultural and hydraulic

infrastructure, and the local socio-economic and political circumstances (policy recommendation)

The above-mentioned objectives and expected results should be explicitly kept in mind as a general guideline for reporting. After all, the ensemble of the contributions should give answers to the main IMAROM research questions. In the following proposal, I have attempted to structure the chapters in such a way, that all the objectives as stipulated in the technical annexe are included in the proposed reporting framework. To reach this goal, I took reporting items not only from the overall and specific objectives, but also from the description of the working packages (containing minimum requirements for data collection), and the expected results included in the technical annexe. I tried to structure the reporting framework in such a way, that all items are treated in a logical, structured way. Two kind of chapters have to be distinguished: the socio-economic ones (by UvA, UMV and IRA) and the bio-physical ones (UMO and EEZA). I propose the following structures:

## 3. Framework for the bio-physical chapters (UMO, EEZA)

Nr.	Paragraph title	Should contain data on / should answer questions on (minimum reporting requirements)	Max length
1	General description of research sites (general objective 2) (specific objective 3.a.ii) (work package 3.a.)	<ul> <li>brief geomorphologic description</li> <li>basic data on <ul> <li>(1) geology / hydrogeology</li> <li>(2) climate, precipitation / drought index</li> <li>(3) relief and regional land use</li> </ul> </li> </ul>	3
2	Methodology	sampling techniques and methodology	1
3	Water resources  (general objective 2) (specific objective 3.a.ii) (work package 3.b.)	<ul> <li>Assessment of water resources         <ul> <li>(4) water quality (pH, EC, cations and anions).</li> <li>(5) water quantity</li> <li>(6) results of small-scale studies, including soil moisture with automatic recording sensors</li> <li>(7) evaluation of total water resources (small-scale and larger-scale estimations, existing models based on the relations between drainage-basin and discharge)</li> </ul> </li> <li>Make an assessment of future sustainability of current trends in water exploitation practices, especially related to the further development of motor pumping)</li> <li>What potentials are there for improvement in efficiency of water exploitation and for further agricultural extension?</li> </ul>	5
4	Land resources  (general objective 2) (specific objective 3.a.ii, 4) (work package 3.c.)	General description and mapping of land properties of the oases (including estimations of their variability)     (8) Topography (DEM for Tunisia, desciption)     (9) soil     (10) vegetation     (11) Land use (for Tunisia: interpretation of satellite images of 1996 and 1985.     (12) assessment agricultural extensions (if possible)     Specific soil characterisation for the sites, incl:	7

Nr.	Paragraph title	Should contain data on / should answer questions on (minimum reporting requirements)	Max length
5	Agriculture (general objective 2) (specific objective 3.a.i, 4) (work package 4.a.)  Conclusion	<ul> <li>(13) soil profile descriptions</li> <li>(14) particle size analysis,</li> <li>(15) pH, organic matter, N, P, K, electrical conductivity, soluble ions</li> <li>(16) water holding capacity</li> <li>(17) erodibility assessment by simple tests in the laboratory. Hydrological behaviour of soils (infiltration and saturated hydraulic conductivity) by field tests.</li> <li>Description of soil degradation indicators</li> <li>(salinisation, erosion, sand encroachment etc)</li> <li>(identification by simple visual methods of land degradation and by applying models of soil degradation adapted to oasis environments.</li> <li>Make an overall assessment of land quality, soil degradation / desertification assessment</li> <li>(18) overall assessment of soil quality and soil degradation and explanation of its spatial variability</li> <li>(19) causes of soil degradation (including the question: to what extent are they humaninduced?)</li> <li>(20) future scenarios; possiblities for combating soil degradation (if relevant)</li> <li>Physical characteristics of the agro-hydrological infrastructure (water distribution, irrigation systems)</li> <li>Evaluation of current irrigation methods and cultural practices, answering the questions what the potentials for agriculture are, in what way efficiency can be improved, taking into account the local social-economic context (i.e. feasibility of improvements).</li> <li>What bio-physical factors seem to constitute the largest obstacles for the development of agriculture</li> </ul>	4
	(general objective 3) (specific objective 3.a.,4,5) (work package 5)	and agricultural investments? (with an analytical distinction between agricultural infrastructure and ecological constraints) (analysis on oasis level and between oases) (specific objective 3.a.)  How can the spatial variability (i.e. differences between research sites/oases) in soil and water resources as well as agricultural development be explained?  Based on the comparison between your oases: Which policy measures adapted to the local socio-economic, political circumstances seem to be most appropriate to prevent desertification and to improve efficiency (i.e. more economical use) of water and land management and resource exploitation? explicitly taking into account the existing traditional agricultural and hydraulic infrastructure, and the local socio-economic and political circumstances. (policy recommendation = specific objective 4)?	
	Literature		2
	TOTAL		30

# 4. Framework for the socio-economic chapters (UvA, UMV, IRA)

Nr.	Paragraph title	Should contain data on / should answer questions on (minimum reporting requirements)	Max leng th
1	General description of	History	3
	research sites	• geography	
	(general objective 1)	political structure	
	(specific objective 1)	general topographic maps	
2	Methodology	sampling techniques and methodology	1
3	Demography and	• total population and number of households (table)	5
	migration	• population development in the last 50 years (graph)	
		• households (as a percentage of total number of	
	(general objective 1)	households) belonging to groups of (table)	
	(specific objective 1)	(1) internal migrants	
	(work package 1.a. and 1.b.)	(2) international migrants	
	1.0.)	(3) returned migrants	
		<ul><li>migration destinations</li><li>recent and predicted trends in migration</li></ul>	
		(1)quantitative (more/less)	
		(2)destinations (possible shifts in destinations)	
4	Agriculture	General description of agricultural practices (cropping)	4
		patterns, techniques, equipment, irrigation methods)	
	(general objective 1)	Description of traditional local collective	
	(specific objective 2)	organisation/institutions and common law in	
	(work package 4.b. & 4.c.)	concerning land & water management (collective soil	
		and water conservation practices)	
		Analysis of recent changes in land & water	
		management practices, treating:	
		(1) agricultural extensions (why, when, how much)	
		(2) use new techniques (water pumps, tractors, fertilisers etc.)	
		(3) evaluation of functioning of traditional land and	
		water management and the possible rise of new	
		arrangement (e.g. for the Tunisian case: modern	
		water users' association) (4) overall evaluation (is agriculture doing well or	
		not, why, what main problems are encountered and what potentials are there?)	
		support/role of state (!!) Describe the central state's	
		agricultural policies in your oases and the extent to	
		which they intervene	
		access to agricultural credit and legal structures.	
5	Migration impact	In this entire paragraph, analysis should be based on a	
		systematic comparison, comparing two groups:	
	(general objective 1)	emigrants/remigrants vs. non-migrants. Present those	
	(specific objective 1,2)	groups seperately in tables, and test relationships by	
	(work package 1.c-1.i.)	formal statistical tests such as t-tests, analysis of variance, or others.	
		5.1. NON-AGRICULTURAL & GENERAL IMPACT	4
		tables relating migration to education levels and	-
		activity patterns	
		tables relating migration with income and welfare	
		status (see questionnaire: revenus et équipement)	
		• tables relating migration to investments in different	

Nr.	Paragraph title	Should contain data on / should answer questions on (minimum reporting requirements)	Max leng th
6	Conclusion (general objective 3) (specific objective 3.b.,4,5) (work package 5)		_
	Literature	more economical use) of water and land resource exploitation? (policy recommendation = specific objective 4)?	2
	Dictature		
	TOTAL		30

## 5. General remarks and proposals

• !! Please respect exactly the paragraph structure (after mutual agreement on the structure to be chosen), including the subdivisions within each paragraph. This is highly necessary in order to reach comparability All items should be treated!!

- !! Note that the level of analysis is the <u>oasis level</u>, i.e. that data should be presented for each oasis apart (for example Mareth I, II and Fatnassa) and that results for different oases within your sample should be compared and that (spatial) differences should be explained!!
- The chapters should be principally based on empirical data, collected in the context of the IMAROM project. Naturally, intensive use can be made of the working papers.
- <u>Pay special attention to the conclusion</u>, as this is the most important analytical part, where your entire analyse will be brought to gather, and with the highest relevance for the formulation of the project's overall conclusions!
- The chapter's conclusion should comprise a comparison between the different oases studied by the partner (differentiation between the oases can help us in responding to the main research questions.
- It is of utmost importance that the chapters concentrate on comparison and analysis, i.e. they should be focused on responding to the main objectives of the research project. They should explicitly go beyond mere descriptions (for this purpose, we have developed the working papers).
- Contributions should not exceed 25-30 pages in total (each page counting 450 words), including tables but excluding maps. Try to be as concise as possible.
- As final reports to the European Commission should be delivered in English, the chapters should be written in English.

# 6. Modelling & conclusion of the final report

The conclusion will largely follow the structure of the chapter framework, and will be mainly aimed at comparing results from Morocco and Tunisia, before coming to general conclusions. It goes without saying that the conclusion also comprises the modelling exercise. In fact, the structural qualitative and quantitative analyses in the preceding chapters can already be interpreted as an attempt to formalise which contribute to testing hypotheses included in our model. The partners' chapters provide quantitative and qualitative input to test the theoretical model. Each partner has collected an important amount of data, which will enable them to test the hypotheses of the project for its own research sites. The conclusion and modelling will 'repeat' this exercise on an inter-oases and international level.

During the project, we came to the conclusion that the initially planned formalquantitative modelling for comparison between the oases is not really feasible regarding the following considerations:

1. The relative small number of research sites (11) which makes sophisticated statistical analysis with oases as research units not realistic. This is only possible

on household level (intra-oasis analysis), which is already been carried out by the individual partners.

- 2. Large political-economic and social differences between the different research sites, which make purely quantitative comparison difficult
- 3. Limited availability of data and scale-level problems

For further discussion and later elaboration on IMAROM's theoretical model, I refer to the IMAROM working paper on modelling<sup>1</sup>, which I wrote in January 2000, as well as the discussions during and after the Tunisia meeting (February 2000). Regarding these constraints, it seems preferable to concentrate on the intra-oasis analysis by the partners themselves, which will in themselves form quantitative and qualitative input for theoretical model on central project level. The hypotheses of the theoretical model are better analysed on household level than on inter-oases level, as in the first analysis we have hundreds of research units.

Whether we will send you an additional list of qualitative/quantitative variables to be delivered by each partner to further feed a model on central project level remains to be questioned. Provided that the analyses by the different partners closely follows a predetermined and agreed reporting framework, data will become *comparable* on the project level as well.

The analysis of the conclusion will largely follow the body of hypotheses developed in the above-mentioned working paper. It will primarily be focused on testing relationships between:

- A. Migration and investments in agriculture (hyp 1-4)
- B. Bio-physical constraints and enabling conditions for investments in agriculture (hyp VI)
- C. Political-economic constraints (local and national) and enabling conditions for investments in agriculture (hyp VI and VIII)
- D. Ecological consequences (soil degradation, falling water tables) of changing land & water management (hyp XIII)

<sup>&</sup>lt;sup>1</sup> De Haas, Hein (2000) Modelling for the IMAROM project: Basic Ideas and Proposals. IMAROM working paper series no. 4. In collaboration with Mongi Sghaier, Laurens Nijzink, and Leo de Haan (UvA Amsterdam). January 2000. Amsterdam: AGIDS (University of Amsterdam)

In order to analyse these relationships, the results of the partners' analyses of the 8 Moroccan and 3 Tunisian sites will be compared. After analysing these relationships, the conclusion will end with a discussion of the questions mentioned as the <u>expected</u> results (see Technical Annexe) of the IMAROM project.

- 1. What insights has IMAROM created on the enabling conditions and obstacles for investment of migration remittances in agriculture (both bio-physical and socio-economic conditions; from the local to the national level)
- 2. To what extent do changes in land & water management contribute to degradation and desertification? In what way are current developments in land and water management sustainable?
- What seem to be the best methods to improve the efficiency of land &
  water management and resource exploitation in oasis agriculture,
  explicitly taking into account the existing traditional agricultural and
  hydraulic infrastructure, and the local socio-economic and political
  circumstances.

It goes without saying that when writing the final conclusion, we will send you draft versions, in order to discuss our synthesis, and to ask your personal vision on these questions. Preferably, a seminar should be organised to provide feedback, to be included in the final report (see next paragraph).

This leads us to the following overall structure of the final scientific report (excluding annexes):

	Prime	Pages
	responsibility	
1. Introduction on IMAROM	UvA	5
2. Theoretical framework	UvA	10
3. Todgha bio-phys	UMO	30
4. Morocco I socio-econ	UMV	30
5. Morocco II socio-econ	UvA	30
* Overall synthesis Morocco	UvA,UMV,UMO	3
6. Tunisia bio-phys	EEZA	30
7. Tunisia socio-econ	IRA	30
* Overall synthesis Tunisia	IRA, EEZA	3
8. Conclusion	UvA	20
TOTAL		191

The last year's IMAROM working papers will be attached as annexes to this final report.

#### 7. Time frame

The IMAROM project will end on 1 March 2001. In order to have sufficient time to internally discuss the final report and main conclusions of the project, and to be able to organise a seminar in March 2001, all partners should finalise the first version of their chapter on 1 January 2001. For the coming months, I propose the following time frame:

Date	Action
1 January 2001	-Deadline 1 <sup>st</sup> draft of chapters, including per-country syntheses, to
	be sent to the project coordinator and all other partners (in
	English!)
14 January 2001	-Project coordinator and other partners send back feedback on
	drafts (comments, questions, discussion) to partners
	-Project coordinator sends draft conclusion to partners
21 January 2001	-Hard deadline 2 <sup>nd</sup> draft, to be sent to the project coordinator
	and other partners.
	-Deadline (brief) activity report on the 3 <sup>rd</sup> project year, to be sent
	to the project coordinator
	-Partners send feedback on conclusions to the project coordinator
1 February	- Final report ready, to be disseminated to partners, external
	experts and selected policy makers.

Ideally, a seminar will be organised in March 2001, were the results of IMAROM will be presented and the conclusions discussed among IMAROM partners and external experts. Possibilities for external funding of such a seminar are being explored. Provided that sufficient financial resources will be available, the scope of the seminar can be enlarged by discussing other (interdisciplinary) research being carried out within our field of study and inviting experts involved in such research.

### 8. Format for document delivery

The documents should be delivered in the following format:

- 1. In order to speed up compiling a final report, you should deliver your final reports in the same format: Please use Word documents, <u>Times New Roman</u>, <u>12 pts</u>, <u>single line spacing</u>
- 2. This format is the norm for what will be considered as 'one page'
- 3. Please, don't use different line spacings, different character formats for your paragraph titles etc, bold, underlined characters, don't insert section breaks etc etc, as this will all frustrate final editing. Try to deliver a text that is as 'bare' as possible.

#### 9. Discussion and dissemination of research results

The European Commission rightly attaches high value to the dissemination of the results 'their' research projects. Too often, valuable results remain within a small circle of directly involved scientists. An important element in the evaluation of each research project, are the efforts to discuss and disseminate research results by the project coordinator. With regard to dissemination activities, IMAROM's technical annexe states the following:

• Dissemination of the project findings will be oriented towards a scientific as well as to a policy audience.

- The main publications are expected at the end of the project when the final reports will be published. These publications will be of interest to both policy makers and scientists. Policy relevance will be ensured by regular contacts with policy makers in Morocco and Tunisia and by asking them feedback on intermediate results published in working papers. Scientific relevance will be ensured by regular contacts with the scientific networks of the various partners.
- Intermediate results will be published in a working paper series named after the project and jointly edited by the partners. These working papers will be distributed through the regular distribution channels of the partners and will be send to policy makers. Moreover, whenever possible, and additional funds available, working papers will be submitted to congresses and seminars.

Several options are available to reach these goals:

Activity	Actions
Organisation of a seminar (see above)	UvA is currently investigating possibilities for funding, but needs your advise on funding agencies and general ideas on the set-up of such a seminar.
2. Updating and further promoting the IMAROM webpage (www.frw.uva.nl/IMAROM)	The present webpage is rather outdated. UvA is currently working on this. You are requested to promote the IMAROM webpage, for example by informing colleagues and including the url in your e-mail 'signature'
3. Dissemination of the IMAROM final report as well as working papers among a wide public.	You are kindly requested to draw up a list of scientists and policy makers to whom the end report might be interesting. Please send it to the project coordinator as soon as possible.
4. Publication of the IMAROM final report in the form of a book	This also depends on funding. The book might be a further revised and edited version of the end report. Also in this case, your advise on possible funding is highly welcome.
5. Presentation of IMAROM research results at congresses and seminars	Present IMAROM research results as often as possible et external congresses and seminars.  Please provide the coordinator with a list of such presentations (to be included in the end report)
6. Publication of IMAROM research results in academic journals or other books.	Try to publish IMAROM research results in scientific articles or contributions to books. You are formally obliged to mention in a footnote the article that the research was fully or partly enabled by the IMAROM project (IC18-CT97-0134), funded by the EC (INCO-DC, DG XII). Please send a copy of articles and presentations to the project coordinator.

#### 10. A serious request to you!

It is of utmost importance that you provide me with detailed feedback on this note, in order to further improve its quality. This is important in order to write an end report that meets high standards, and which should be much more than an incoherent patchwork of individual contributions.

I am convinced that, despite the usual difficulties we experienced in multidisciplinary and multi-cultural research we did, our project has much potential of reaching interesting conclusions. At a recent project coordinators' meeting in Brussels, I experienced how unique our kind of projects are. The one or two other 'pioneers' I met there, experience exactly the same difficulties as we do, but we were all convinced that it is a pity that so few projects attempt at bringing together people from different disciplines. It is of course much easier to hide yourself between the high and safe walls of your own mini-discipline and specialisation. Scientific communities tend to be highly self-confirming and projects therefore sometimes resemble 'l'art pour l'art' exercises. Our experience is more confusing and frustrating but in another way also more interesting.

From very beginning of the project's preparation on (in 1996), I have been a spider in the web of this project. Based on this experience, I am absolutely convinced that the basic difficulty of work in multidisciplinary teams are literally the different languages we speak, and the different scientific traditions in which we were brought up. And as anybody else, we tend to absolutize our own discipline and its traditions. We literally live in different realities. Therefore, we have problems understanding each other. Even wen using the same terms, we probably interpret them differently. This explains that drawing up a technical annexe as such is not enough, as it will be differently interpreted by different partners. It cannot be expected that this kind of obstacles can be overcome at once. The only way to gradually clear these 'linguistic' barriers is to constantly communicate with each other, to ask each other's advise, to give constant feedback.

This need to communicate is urgent more than ever, now we are nearing the end of the project. I am convinced that we succeeded in collecting an impressing body of data, which is now stored in the partners' databases, archives and minds. It is now important to get them out of those databases, archives and minds in a structural, <a href="systematic">systematic</a> way. A comprehensive comparison between the research sites can only be made, and an answer to central research questions can only be given, if the final conclusions of the project are drawn up in a systematic way, following a mutually agreed <a href="reporting framework">reporting framework</a>, so that results become <a href="comparable">comparable</a>. The very capacity to compare and explain spatial differences (on migration impact, on ecological impact, on agricultural development....) is of vital importance to the success of the project.