付　属　資　料

１．要請書

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４．主な収集資料リスト

ROYAUME DU MAROC

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MINISTERE DE L'AGRICULTURE

DU DEVELOPPEMENT RURAL ET DES

EAUX ET FORETS

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OFFICE REGIONAL DE MISE EN

VALEUR AGRICOLE DU TAFILALET

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Errachidia

PROJET DE DEVELOPPEMENT DES COMMUNAUTES RURALES A TRAVERS LA REHABILITATION DES KHETTARAS DANS LES REGIONS SEMI-ARIDES DE L'EST SUD-ATLASIQUE

REQUETE DE FINANCEMENT DES

ETUDES DE DEVELOPPEMENT

PAR LE GOUVERNEMENT DU JAPON

September 2001

APPLICATION FORM FOR JAPAN'S DEVELOPMENT STUDIES

Date of entry : September 2001

Applicant : The government of the Kingdom of Morocco

I. Project digest

1. Project title : Rural Community Development Project in Semi-Arid East Atlas Regions with Khettara Rehabilitation

2. Location :

Country : Morocco

Province : Errachidia(see Attachment -1)

From the metropolis : About 7 hours ride from Rabat

3. Implementing agency

3-1 Executing agency

Name : Irrigation agency and Rural Development of Tafilalet (ORMVA/TF)

Number of Staff : 940

Budget allocated to the agency : 192,000,000 Dirhams per year

Year	97/98	98/99	99/00	2d semester 2000	2001
Yearly Budget					
• Investment budget	71.800.000	102.200.000	142.300.000	128.200.000	130.000.000
• Operating budget	54.000.000	61.500.000	64.000.000	32.000.000	62.000.000

(see Attachment -2 "Organization Chart")

4. Justification of the project:

4-1 Present conditions of the sector

The regions located at the east of the Atlas mountains, adjoining to the Sahara desert, is suffered from a devastation of natural resources of agricultural lands, soil, water, etc. which is inevitable for oasis based agriculture. The devastation has been mainly triggered by shortage of labor force by migration of village people to urban regions so as to attain higher income to secure their increasing population, while such migration has simultaneously become social problems of over population, unemployment in and around the urban areas. Less activities by women and aged villagers remained in these regions cannot mitigate a devastation of these areas and oasis based agriculture is in crisis of its continuance. Devastation usually begins from a spot on the land abuse. Agricultural lands abandoned from continuous cultivation and also over grazing without proper fodder cultivation are subject to devastation, and such devastation is economically irreversible for most purpose when it has been excessively developed.

Aiming at preventing a devastation of these natural resources that is inevitable for sustainable agricultural activities, it is essential to evolve farming systems and their development priorities. Lower productivity of these regions limits the potential for supporting increasing population from agriculture in future without expansion of reliable and more efficient agricultural support as well as irrigation scheme. Markets are also enforced to realize stable and higher farm income. A few large production units limit the opportunity for small-scale producers to enter into market.

The Province of Errachidia is located at the most eastern area of Morocco, adjoining to the boundary of Algeria. The climate of these provinces is semi-arid to arid with its annual rainfall is 50 to 250 mm only, and most of activities and life base relies upon oasis based farming and grazing using scarce water through hundreds of Khettaras systems. Khettara, which is also very common in southwest Asia as Qanats, is traditional water-taking system in arid and semi-arid regions. Khettara is the system to convey natural ground water to village for long distance through small tunnel that is dig only by manpower in subsurface ground, where a water loss of evaporation is not anticipated. In Morocco it was established several hundred years ago mainly in south and east region of Atlas. Amount of water through individual Khettara is small level of 10 L/s as it collects naturally filtrating and dripping water through wall of tunnel in the resource zone. Water through Khettara is utilized as domestic water and irrigation water of villages. As an amount is limited, village and its irrigation farmland are small scale. But water is very carefully and effectively utilized with minimum loss. Although increment of water volume in Khettara is hard, its existing and operating for several hundred years improves sustainability of the system. This implies that Khettara is very soft and harmonized system to nature. Water right for Khettara is established for long years and strictly secured by village people because it is the lifeline in village. There were 570 Khettaras extending about 10 km in average, dominating an area of about 20,000 ha with its total length of 1,900 km, and its annual production capacity is estimated at about 18 billion cubic meters which is equivalent to a large dam of Hassan Addkhil of 15 billion cubic meters used for the irrigation to the Tafilalet plain. However, only 308 Khettaras are being operated and the land area irrigated has been reduced to about 12,700 ha or 40 % of the provinces. This reduction is due to poor maintenance works against wall collapse, sand deposition in the Khettaras and the draw down of the water table, caused by the

rapid reduction of the maintenance power by migration as explained above. Improvement of agricultural productivity is essential to maintain rural population growth, and is realized by means of upgrading rural productivity condition such as improvement of agricultural intensification, irrigation scheme development, and empowerment of a cooperative production unit consisting of agricultural production and grazing to access to the market against large production units in and around urban areas.

The Tafilalet-ORMVA covers an area of 77,250 km^2 in the provinces, of which 60,000 ha are irrigated and the population is approximately estimated at 600,000. The agricultural area is irrigated by surface waters (regulated from reservoir or diverted flood water), and by underground water using the Khettaras as well as pumping. In the area covered by ORMVA/TF, there are seven (7) potential zones with this system. The table below gives the present situation of the Khettara systems as major sample.

Present Situation of Khettara Systems

Perimeter	Importance of existing Khettaras		
	Number	Area (ha)	Length (km)
1. Fezna-Jorf-Hannabou	59	4,342	410
2. Sifa	25	538	130
3. Rissani-Taouz	33	2,193	244
4. Alnif	96	3,412	241
5. Goulmima-Tinejdad	71	1,460	130
6. Errachidia	8	467	21
7. Beni-Tadit	16	435	11
Total	308	12,847	1,187

See Attachment -3 Map of the project site.

4-2 Sectoral development policy of the national government

The present project has objectives included in the National socio-economical plan and the Strategy for Rural Development for 2020.

Name of the plan : National Socio-economic Plan

Period : From year 2000 to 2005

Name of the plan : 2020 Strategy for Rural Development

Period : From year 2000 to 2020

The plans aims at the following objectives:

(1) Enforcement of agricultural productivity to satisfy the requirement of domestic food demand and export market.

(2) Generation of employment opportunity in rural area in both agricultural and non-agricultural activities to meet increasing rural population, and alleviation of poverty.

(3) Prevention from artificial devastation to natural resources, control of vegetation and water resources.

(4) Rehabilitation of existing agricultural systems.

(5) Educational level up to both male and female in rural areas.

(6) Quality improvement for life and social welfare, especially public health, drinking water, electrification and transportation services.

(7) Strengthening of regional and inter-regional economy in terms of infrastructure, development opportunity.

4-3 Problems to be solved in the sector

Less agricultural productivity including over grazing due to mainly scarce water sources causes the villagers to migrate to the urban areas to maintain increasing rural population. Such a migration accelerates a devastation of natural resources, e.g. water and soil, eventually accelerate a desertification. It is essential to support rural community development by means of water resources control, improvement of agricultural productivity, credit and market systems as well as grazing production. Development and adoption of appropriate and financially accessible technologies for sustainable agriculture are required for establishing rural communities in semi-arid regions.

4-4 Outline of the project

The project aims at rural community development in semi-arid regions consisting of support of village organizations and also natural resources management through the development activities for agriculture and livestock, irrigation, credit and marketing activities, women and community development. The project eventually contribute to conservation of natural resources and prevention of desertification through activating rural economic condition and improvement of agricultural productive infrastructures.

4-5 Purpose of the project

Poor intervention to cultivation and live stock systems has caused a devastation of natural resources, in addition, emphasis is put upon the rehabilitation program for existing Khettara systems because of its fundamental requirement for realizing all activities in the regions. The following are the project objectives in short-term:

- The project provides, ORMVA/TF a program for establishing rural community composed of the plans of water source rehabilitation, agricultural support service for livestock, seasonal crops, seed distribution, introduction of cropping pattern, post harvesting, transportation and marketing.

- Rehabilitation works on existing Khettara systems including procurement of machinery and equipment to construct and rehabilitate systems by ORMVA/TF.

- Community units are also organized by ORMVA/TF to accelerate participation of beneficiaries to reflect their local development plan, and also to disseminate the project objectives through economically and environmentally sustainable farm

and off-farm income-generating activities.

4-6 Goal of the project:

The project consecutively provides beneficiaries the following plans according to the ORMVA/TF programs.

- Reducing unemployment by enhancing the farm activities in the perimeters dominated by the Khettaras by means of rehabilitation works on existing Khettara systems.
- Increase of farm productivity by means of irrigation, land development, grazing including fodder cultivation on vulnerable soils.
- Sanitation and water logging study in the beneficial areas, and the palm grove cultivation so as to prevent desertification.
- Improve the small farmers income and micro credit service through rural community unit
- Reduce the sand invasion of the irrigated perimeters and other socio-economic infrastructure
- Improve life and economic conditions of the regions to eliminate migration to urban areas by encouraging transportation and market systems
- Promotion of agricultural and non-agricultural job opportunity, and support of emergent local demands and initiatives that are important for poor rural women

4-7 Prospective beneficiaries

The farmers of the Khettara perimeters and their families will benefit from this project, the estimated total population concerned by the project is about 600,000 (135,000 for Tafilalet only) inhabitants.

5. Desirable or scheduled time of the commencement of the project:

March 2002

6. Expected funding source:

The Government of Japan

7. Other relevant project, if any:

Project by IFAD (International Fund for Agricultural Development)

Khettara grass root project financed by the Government of Japan

II. Terms of reference of the proposed study

1. Necessity / Justification of the study

Study is emphasis upon the establishment of the rural community units in the regions with collaboration with ORMVA/TF. Agricultural productivity in individual agricultural activities on householder basis have been economically not viable due to its ineffective income generation while a few large scale enterprises have grown up using wider groundwater exploitation and also transportation and marketing control.

Appropriate development plan is established based on the study of potentials of natural resources in terms of human resources, agriculture, irrigation, water and soil, especially a potential of groundwater collected by Khettaras due to its irreversibility towards increase of agricultural productivity. In addition, it is also needed to define a suitable technical approach, and appropriate technology for water resources development.

2. Necessity / Justification of the Japanese cooperation

The Japanese technical cooperation is chosen for the study of the rural development, especially for rural community development, farming and irrigation practices, agricultural extension, credit and marketing services. Furthermore geological exploitation and conservation of groundwater development is highly reliable from its environmental point of view. Development of rural community system aiming at sustainable agriculture and environmental conservation plan requires the assistance from leading countries such as Japan.

3. Objectives of the study

1) To formulate a master plan on the rural community development plan in the east Atlas regions.

2) To conduct a feasibility study on the priority rural communities, and to select pilot rural community units for verification study.

3) To carry out technology transfer to ORMVA/TF and concerned counterpart personnel through on-the –job training in the course of the study, which provide organizational, technical and managerial expertise to supplement local organization capabilities.

4) To conduct analysis and monitoring, and establishment of the nation-wide rehabilitation scheme on rural community development.

4. Area to be covered by the study

The study will cover the province of Errachidia, which is governed by the ORMVA/TF and related government organizations in the east Atlas regions.

5. Scope of the study

Phase 1: Formulation of master plan

1) Inventory survey on existing village communities including water potential survey (Installation of water measurement devices in representative Khettara systems in the project area and their measurement of seasonal discharges)

2) Data collection and field survey

a) Natural condition

Meteorology, hydrology, hydrogeology, geology, soil, topography and others

b) Agriculture

Land use and tenure, cropping pattern and yield, agro-economy and institution, agricultural supporting organization, credit, transportation, marketing and others

c) Agricultural infrastructure

Irrigation and drainage, well and others

d) Socio-economic condition

Population, household and farmer, regional socio-economy and household economy, historical water right/customs and others

e) Other information related to the project

Administrative organization and others

3) Review of other relevant projects and related study

4) Formulation of master plan for rural community development project including following components;

Community development plan, agriculture development plan, irrigation and drainage development plan, agricultural infrastructure development plan, Khettara rehabilitation plan, environmental preservation plan, preliminary design of major structures, operation and maintenance plan, implementation schedule, estimation of cost and benefit, project evaluation, and recommendations

5) Initial Environmental Examination (IEE)

6) Selection of the priority communities for the feasibility study in Phase 2

Phase 2: Feasibility study on priority communities

1) Selection of priority communities amongst inventory communities.

2) Collection of supplementary data and information on the priority communities

through field survey

3) Environmental impact assessment on the priority communities

4) Formulation of the rural community development plan including following components:

Community development plan, rehabilitation plan for the Khettara systems, irrigation and drainage, agricultural infrastructure, farm practice, credit, transportation and marketing, preliminary rehabilitation design of Khettara and major structures, environmental conservation, operation and maintenance scheme, implementation schedule, estimation of cost and benefit, project evaluation, and recommendations including verification study plan

6. Study Schedule

The Study will be carried out in accordance with the attached tentative schedule as Attachment 4, and summarized below.

- Preparatory Study in Japan	0.5 months
- Phase 1 Field Survey in Morocco	4.0 months
- Phase 1 Home Office Work in Japan	2.0 months
- Phase 2 Field Survey in Morocco	4.0 months
- Phase 2 Home Office Work in Japan	2.0 months
- Explanation/Discussion of Draft Report in Morocco	0.5 months
- Preparation of Final Report in Japan	0.5 months

JICA shall prepare and submit the following reports in French to the government of Morocco.

- Inception report	30 copies	at the commencement of Phase 1 study
- Progress report 1	30 copies	at the end of Phase 1 field survey
- Interim report	30 copies	at the commencement of Phase 2 study
- Progress report 2	30 copies	at the end of Phase 2 field survey
- Draft final report	30 copies	at the end of Phase 2 home office work
- Final report	50 copies	at the end of the Study

7. Expected major outputs of the study:

- Inventory of general information on rural communities, activities on agriculture, grazing, accessibility to market, etc.

- Inventory of natural resources related to water, soil and desertification, etc.

- Verification and monitoring of rural community development as well as Khettara rehabilitation.

- Analysis of results and establishment of the rural communities development scheme in regional and national- wide level

8. Possibility to be implemented / expected funding resources

For the moment, the only funding possibility is by the Government of Japan.

9. Request of the study to other donor agencies, if any

None

10. Other relevant information

None

III. Facilities and information for the study

1. Assignment of the counterpart personnel of the implementing agency for the study:

The ORMVA/TF will assign adequate personnel for the study (Agricultural engineers 3, technicians 7, a topographic team, logistic team, etc, specifying their academic background.)

2. Available data, information, documents, maps related to the study

- Topographic maps of various scales 1/50,000, 1/100,000
- Aerial photos
- Geological maps of the scale 1/200,000
- The annual reports of activities of ORMVA/TF since 1970
- Climatic data of localities near the Khettaras

3. Information on the security conditions in the study area

The study area has no political and ethnic dispute.

IV. Global issues

1. Environmental components

The study contributes to prevention of desertification through a devastation of the natural resources in semi-arid regions.

The study area is completely free from any kind of pollution, the climate is arid and the average annual rainfall in the region is less than 100 mm/year.

The recharge of draining zones of Khettaras is insured by the diversion of floodwaters from the main rivers of the regions.

The Khettara in most case is the source of water supply for the villagers due to

water quality and perennial flow condition.

2. Anticipated environmental impacts by the project, if any

The project will undoubtedly have many environmental positive impacts:

- Protecting the palm groves from desertification,
- Limit the rural exodus,
- The system does not use fuel or any kind of power supply for operation.

3. Women as main beneficiaries or not

Support is provided to address the immediate needs of village women and their families, including beneficiary skill enhancement for income generating activities. The women in the village work with the males in all the farming activities, many of them take care of the farm while the male is moving to city for a subsidiary job. Thus the women are the main component concerned by the project.

4. Project components that require special considerations for women, if any.

None

5. Anticipated impacts on women caused by the project, if any

The women of the village will benefit directly from the project, the save of time and cost for maintaining the Khettara system will allow them to do other beneficial activities (children education, craft work, etc.) and the increase of production will directly affect their nutrition, sanitary and health.

6. Poverty alleviation of the project, if any

The project will solve one of the main concerns of the Moroccan Government to alleviate poverty among the population in the arid regions.

In fact, the re-dynamics of the agricultural activity by improving the irrigation conditions in the perimeters dominated by the Khettaras, will enhance the production of the small size farms and grazing.

7. Any constraints against the low-income people caused by the project.

None

V. Undertakings of the Kingdom of Morocco government

(1) To secure the safety of the study team,

(2) To permit to the members of the study team to enter, leave and sojourn in the

Kingdom of Morocco in connection with their assignment therein, and exempt them from foreign registration requirements, and consular fees,

(3) To exempt the study team from taxes, duties and any other charges on equipment, machinery and other material brought into and out of the Kingdom of Morocco for the conduct of the study,

(4) To exempt the study team from income tax and charges of any kind imposed on or in connection with the implementation of the study,

(5) To provide necessary facilities to the study team for remittance as well as utilization of the funds introduced in the Kingdom of Morocco from Japan in connection with the implementation of the study,

(6) To secure permission o fro entry into private properties or restricted areas for the conduct of the study,

(7) To secure permission for the study team to take all data, documents and necessary materials related to the study out of the Kingdom of Morocco to Japan,

(8) To provide medical services as needed. The expenses will be chargeable to members of the study team.

6. The Government of the Morocco shall bear claims, if any arise against member(s) of the Japanese Study Team resulting from, occurring in the course of or otherwise connected with the discharge of their duties in the implementation of the Study, except when claims arise from gross negligence or willful misconduct on the part of the member of the Study. Team.

7. The ORMVA/TF shall act as counterpart agency to the Japanese Study Team and also as coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the study.

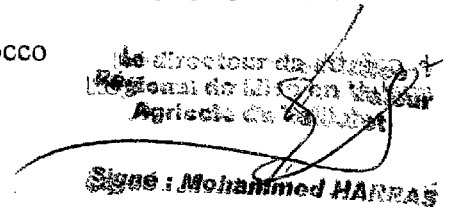
8. The ORMVA/TF will, as the executing agency of the project, take responsibilities that may arise from the products of the study.

Signed: **Harras Mohamed**

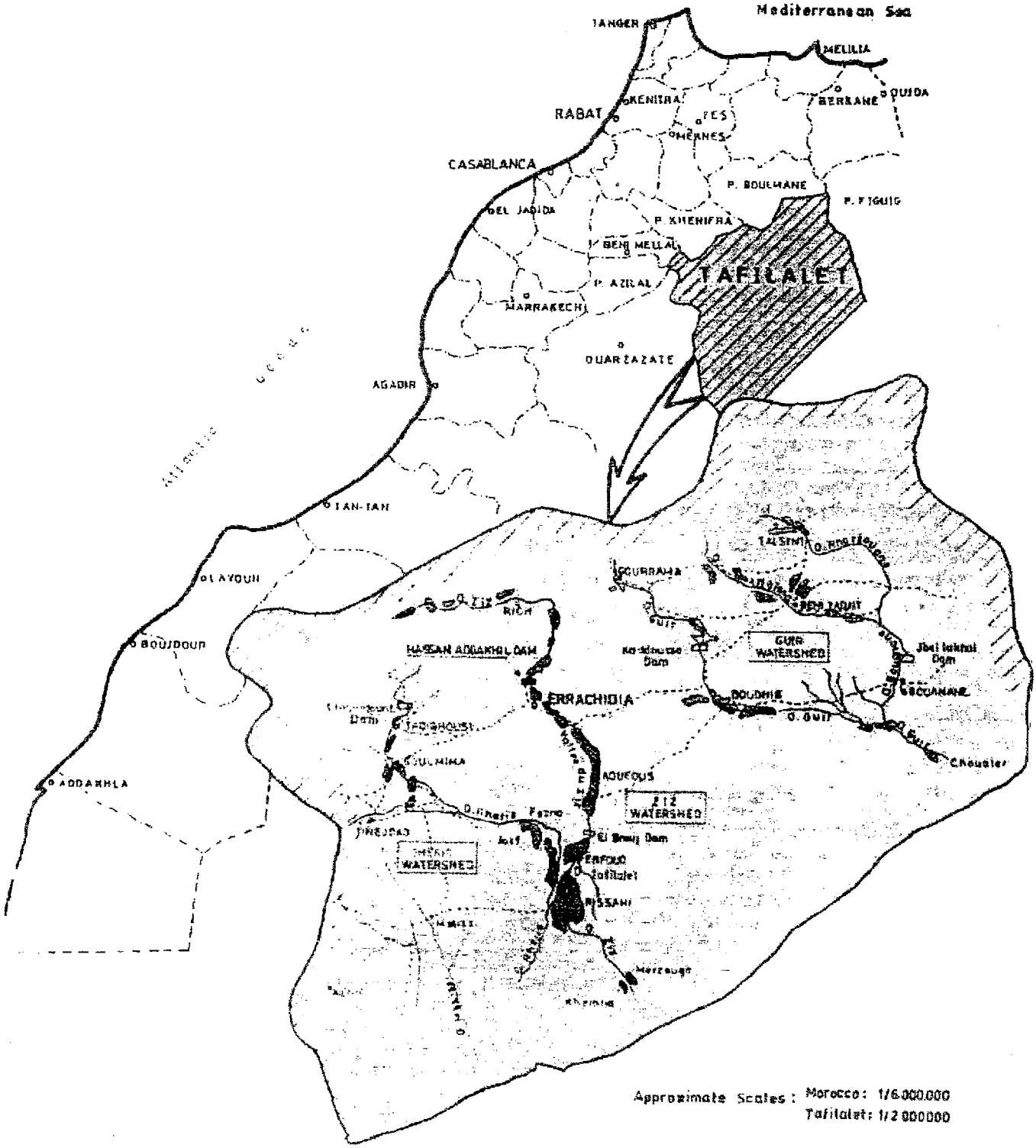
Title : Director of ORMVA/TF

On behalf of the Government of the Kingdom of Morocco

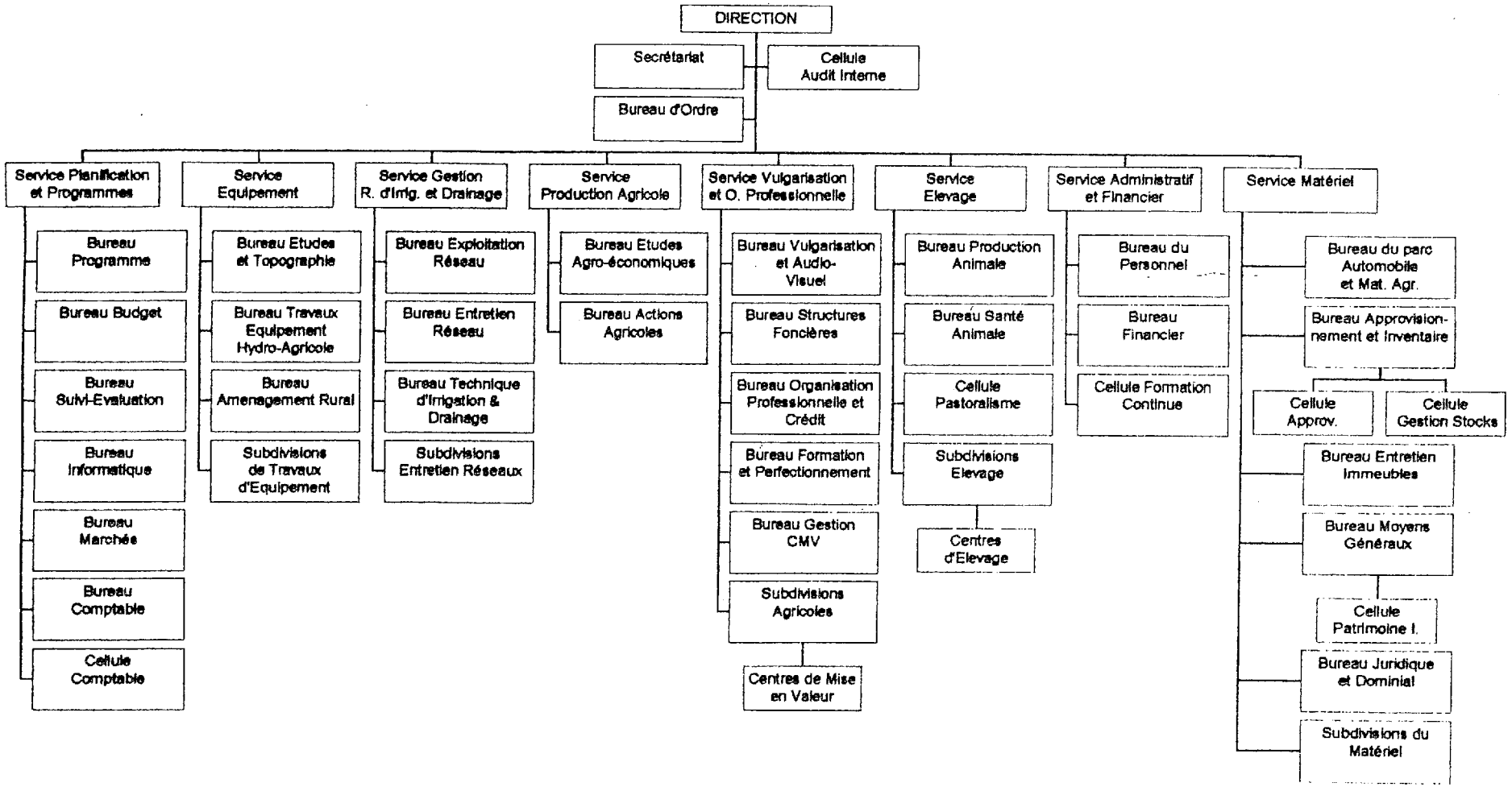
Date: September 2001



ATTACHMENT 1:
LOCATION MAP AREAS COVERD BY THE ORMVA OF TAFILALET

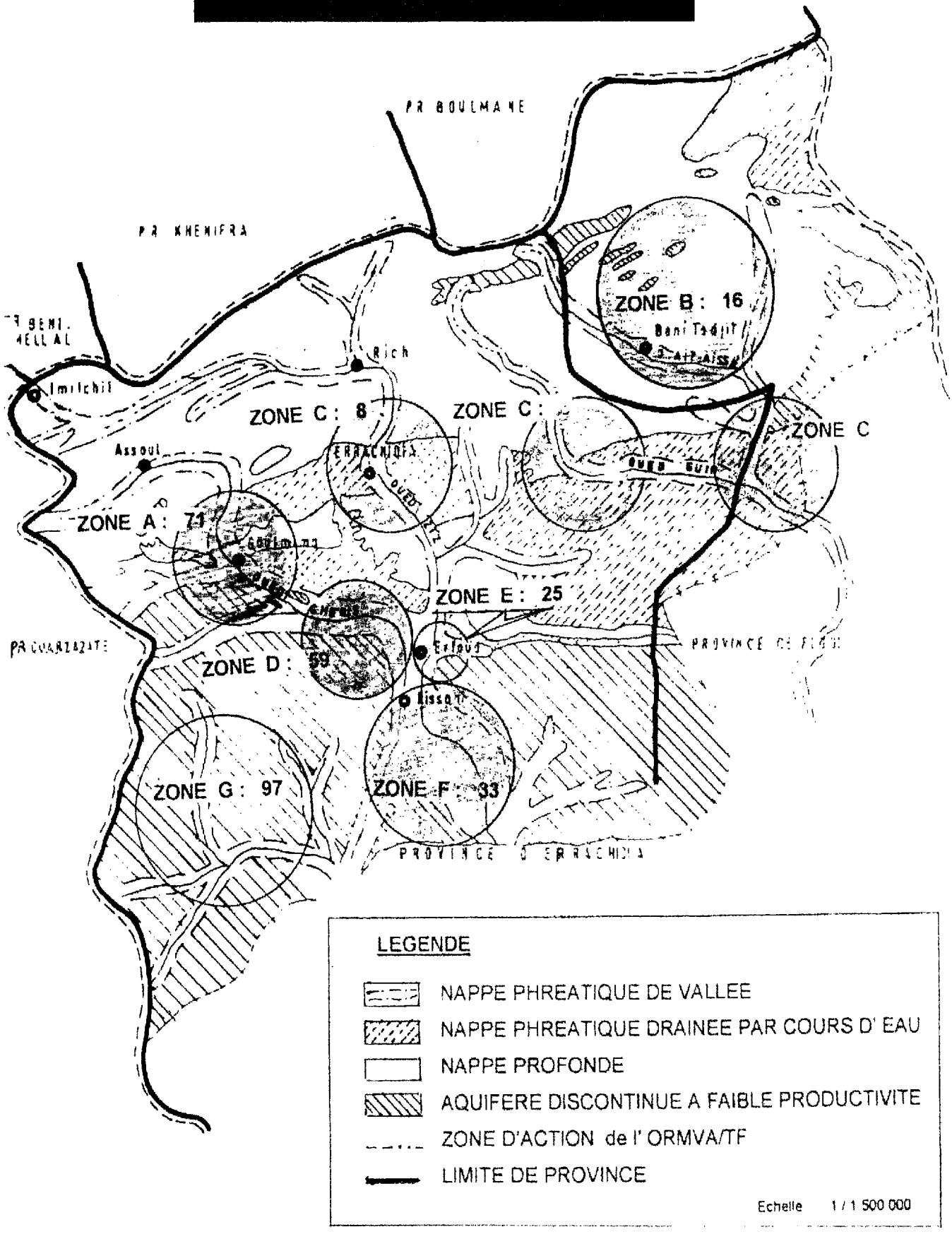


ATTACHMENT - THE ORMVA OF TAFILALET ORGANIZATION CHAT.



ATTACHMENT 3:

MAP OF THE PROJECT SITES



ATTACHMENT 4:

MANNING SCHEDULE OF CONSULTING SERVICES(Tentative)

Experts	Works in Charge	Month	Working Month		
		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	Field	Home	Total
	STAGE				
Project Formilation Engineer (Civil or Irrigation or hydro-geological field engineer)	Team Leader, Project Formulation and overall Project Planning		8.5	5	13.5
Hydro-geologist	Geological & Hydro-geological survey and study		8	4	12
Ground Water Engineer	Ground Water Survey, Analysis & Study		8.5	5	13.5
Irrigation Engineer	Irrigation Planing, Water Demand Analysis		8	4	12
Community Planner	Community development study		8.5	5	13.5
Agricultural Supporting System Planner	Agricultural supporting system		8	4	12
Design Engineer	Structural Design, Construction Planing & Cost Estimate		5	2	7
Rural Sociologist	Farmer's Association organization		5	2	7
Environmental Specilist	Natural & Social Impact Study		5	2	7
Agronomist	Agronomical Survey & Study		5	2	7
Socio-economist	Farmer's Economy, Marketing & Project Evaluation		5.5	2.5	8
Interpreter	Interpriting between Local Language & French and English		3		3
	Installation of water discharge measurement and observation				
Total			78	37.5	115.5
Report submission		△Inc. R △Pr.R 1 △Int. R △Pr.R 2 △D.F. R △Fin. R			

NOTE: Field Study Home Study

Inc.R : Inceotipn Report Pr.R : Progress Report Int.R : Interrim Report D.F.R : Draft Final Report Fi.R : Final Report