

*Rural Area in*

*Feasibility Study on Water Resources Development in*  
*the*  
*Kingdom of Morocco*  
*Final Report*  
*Volume IV Supporting Report (2.A)*  
*Feasibility Study*

***Supporting Report XII Socio-economy***

**FEASIBILITY STUDY  
ON  
WATER RESOURCES DEVELOPMENT  
IN  
RURAL AREA  
IN  
THE KINGDOM OF MOROCCO**

**FINAL REPORT**

**VOLUME IV  
SUPPORTING REPORT (2.A)  
FEASIBILITY STUDY**

**SUPPORTING REPORT XII  
SOCIO-ECONOMY**

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## SUPPORTING REPORT XII

### SOCIO-ECONOMY

#### XIII Introduction

As a result of prioritization of the proposed projects from the technical, social, environmental, and economic viewpoints, the following four projects have been selected as the priority projects:

- No. 5 N'Fifikh,
- No. 9 Taskourt,
- No. 10 Timkit, and
- No. 17 Azghar

The socioeconomic conditions of the beneficial areas of the above four projects will be discussed in this Supporting Report. However, general administration and population conditions are given in this Section.

#### XIII.1 Administrative Condition

The beneficial areas of the four projects cover two municipalities, 13 rural and urban communes consist of more than 180 Douars (villages). Administrative conditions of the beneficial areas of each Project site are as shown in Table XIII.1.1. In accordance, more than 120,000 people will be directly or indirectly benefited from the Projects.

#### XIII.2 Population

Population, number of families and households in the beneficial areas of each Project sites are estimated as shown below:

**Population in the Beneficial Area (as of the year 2000)**

Project	Population	Family Numbers	Household Numbers
No. 5 N'Fifikh	4,360	650	1,040
No. 9 Taskourt	51,030	7,850*	10,630*
No. 10 Timkit	17,560 (59,700)	2,140 (4,500)	3,200 (10,190)
No. 17 Azghar	6,080	580	870

Notes: \*: Estimated from Samples, ( ): including beneficiary by ground water recharge

The total number of population to be benefited by surface water of Timkit Project is 17,560 inhabitants but those to be benefited by surface and groundwater is large at 59,697 inhabitants.

## **XII2 Results of Socioeconomic Survey**

### **XII2.1 Methodology**

The Study Team conducted socioeconomic survey in order to grasp the present condition of the people's livelihood in the beneficial areas. Items clarified by the survey include such as family structure, family size, educational situation, living standard, occupation, scale of farming, land ownership status, family income, social infrastructure, source of information, etc.

The survey has been carried out in two different ways. One is group survey and another is household interview survey.

The group surveys were made for groups of people to be benefited by the Project from two to four times for each project site. The total number of participants is 737 divided in the four sites as 210, 150, 242 and 135 for N'Fifikh, Taskourt, Timkit and Azghar respectively.

On the other hand, the household interview surveys were conducted using a representative sampling of villages per commune and the number of families per village. Social category representation was strictly respected by conducting a survey involving two to three households per class. Number of households for each site is 63 for N'Fifikh, 75 for Taskourt, 77 for Timkit and 44 for Azghar.

It should be noted that both the surveys were conducted under the exact limit of each command area has not been defined yet. Therefore, the surveys were carried out only in the areas where will surely be included in the beneficial area in order not to give too much expectation of the Project to many people.

Since the beneficial area of Taskourt Project is wide, the group surveys were conducted with the participants from eight sample douars out of 127 douars in its beneficial areas.

### **XII2.2 N'Fifikh**

#### **XII2.2.1 Social Organization**

In N'Fifikh, an irrigation water association and some associations for fresh water supply exist but they are not operational at present. The organizations that are still operational are those entrusted with the management of mosques.

### XII2.2.2 Education

The school attendance rates are relatively high both among boys and girls. This is due to the proximity of large urban centers, availability of school and junior high school within reasonable distance from the villages. The literacy rates are low at 55 % for men and 24 % for women.

**School Attendance and Literacy Rates**

Project	School attendance rates (%)		Literacy rates (%)	
	Boys	Girls	Men	Women
N'Fifikh	96	89	55	24

### XII2.2.3 Dwellings

50 % of the studied villages are split and 30 % are scattered. Msaada is the only grouped douar. Concrete constructions are the most predominant type of dwellings (88 % on average). The dwellings with mixed or local materials are scarce and their number is almost equal (6 % on average).

### XII2.2.4 Water Supply and Mode of Supply

1/3 of the villages have already been connected to water supply system, 1/3 are scheduled to be connected, and another 1/3 do not even have plan to be connected.

### XII2.2.5 Electrification

33 % of the villages have already been electrified and the remaining 67 % has not been electrified yet.

### XII2.2.6 Health Infrastructure

50 % of the villages have at least one dispensary in their villages. Another 50 % are located from 7 to 15 km away from the nearest dispensaries.

### XII2.2.7 School Infrastructure

2/3 of the villages have a school in their villages and the remaining 1/3 are located 0.1 to 3 km away from schools.

### XII2.2.8 Commercial Infrastructure

The populations have to travel relatively long distances to buy things from the weekly market. 50 % of the villages have one or more groceries in the villages. 50 % of the villages have one or more mill factories and 33 % have oil expressing factories.

### XII2.2.9 Religious Infrastructure:

Almost every village has its own mosque.

### XII2.2.10 Cultural and Tourist Infrastructure

Mansouria has a youth hostel, a hotel and a beach in the Beni Makraz village. The area has good potential for development of the tourist industry.

## **XII2.3 Taskourt**

### XII2.3.1 Social Organization

The rural society at the downstream area of Taskourt is very well structured. The local population manages all the collective goods. The management of koranic schools and mosques, collective lands and irrigation water are revealing indicators of how well people are informally organized. These informal organizations have credibility among people.

The most important formal (institutional) organizations at the downstream areas are the six milk cooperatives. Four of them are located in the rural communes of Guemmassa and Assif El Mal (two in each commune rural) and two are located in the rural communes of Mejjat and Mzouda (one in each commune).

The milk cooperatives are functioning relatively well because they meet a real farmers' need that is to sell milk. This need couldn't be achieved individually.

The second type of formal organizations is the Irrigation Water Users' Association (AUEA). There are three AUEAs and they were established from 1996. They sought to participate in the irrigation network management. They were created on the basis of existing traditional organizations.

The prolonged drought during last years didn't allow a normal functioning of these organizations.

Two input supply groups were created in Assif El Mal and Adassil, which are not functioning now due to farms' limited financial capacities.

In the PAGER program, new associations have been created lately and other organizations will be created in the near future. The association created in 1998 in the village of Ait Hssaine is an example.



### XII2.3.2 Migratory Movement

The migratory movements concern mainly the men's temporarily emigration. 50 % of active men's population are concerned with emigration. They go to big cities where they stay and work for two to three months. They work in bakeries, cafes, public bathrooms (hammam), etc. Only 4 % of women are concerned by emigration. They go to big cities to work as housekeepers, employees in restaurants or cafes. The main reason of people's emigration is the lack of employment in villages accentuated by the severe drought of the last few years.

### XII2.3.3 Education

The school attendance rates are relatively high in the studied villages. They are of 78 % for boys and 65 % for girls. This situation could be partially explained by the schools' availability that is located at an average distance of 0.4 km. On the other hand, the literacy rates are low at 21% for men and 3% for women.

**School Attendance and Literacy Rates**

Project	School attendance rates (%)		Literacy rates (%)	
	Boys	Girls	Men	Women
Taskourt	78	65	21	3

### XII2.3.4 Road Network

Concerning the 8 villages studied in detail, all of them have roads suitable for motor vehicles and are located next to a national road linking Mzouda and Mejjat. The fairest village from the national road is at a distance of 2 km.

### XII2.3.5 Water Supply and Mode of Supply

Regarding domestic water supply, 21 villages have drinking fountains. In two of these villages (village of Zaouia at Mejjat and Taskkourt at Assif El Mal), people are individually connected to drinking water supply. 3 projects are underway to install drinking fountains in the villages of Azib Ait Abdallah at Guemmassa and in Tigrures and Taloutimt at Assif El mal.

The populations are generally not satisfied with the drinking water supply due to water deficiencies mainly during the drought seasons for the last four years.

Concerning the 8 studied villages, one village (Dar Nams) already has the drinking water supply, three has the plan, and the remaining four do not even have the plan.

### XII2.3.6 Electrification

According to the data collected from the local authority, among the 127 concerned douars (villages), 31 are already electrified and the remaining villages are planned for the next six years.

Out of the eight studied villages, four villages have already electricity and the remaining are planned for the next years.

### XII2.3.7 Health Infrastructure

The distance to medical facilities (clinics) varies from 0.5 to 13 km in the sample douars. Means of transportation to the clinics are the most commonly by vehicles, rarely by animal and on foot. Use of such clinics is basically only in case of illness and no periodic checkup is practiced.

### XII2.3.8 School Infrastructure

Out of the eight sample villages, except the village of Azib Miloud, primary schools exist in all other villages.

### XII2.3.9 Commercial Infrastructure

The sample douars have 35 small groceries, six mills, 28 oil expressing factories, one collective steam bathroom, five bakers, and two cafes.

People make transactions in the weekly markets located at Mejjat (Sunday market), Mzouda (Saturday market), Guemmassa (Wednesday market), and Assif El Mal (Wednesday market). The sample villages are located at distances varying from 0.5 to 13 km from the weekly markets.

### XII2.3.10 Religious and Other Infrastructure

In the 8 studied villages, religious infrastructure is limited to 10 mosques, 3 zaouias and 2 marabouts. There is no tourist spot in the area.

## **XII2.4 Timkit**

### XII2.4.1 Social Organization

In this site, social organization is still very active although it has reduced some of its functions.

The most significant example is the irrigation community. Every unit has its Jmaa and does not avoid the implications of hierarchy and social stratification.

The Jmaa is made up of heads of families or people from influential lineage and is headed by a Cheikh. Cheikh designates his aids to form a so-called "administration" to operate the lands and the community life in the organization unit. The Jmaa settles the conflicts among people, looks after its relations with other communities and monitors collective actions, such as irrigation and fixation of agricultural calendar (e.g. date harvesting). It grants land plots for extending dwellings, etc. On the other hand, it appoints "community-based employees", such as the waterman, the koranic teacher and a guard for the farming plots. Despite the birth of formal associations run by dahir 58 (water supply and electrification associations), the Jmaa still plays a vital role. Its role in helping to resettle the Timkit populations will be decisive, especially if we examine the land status and its sharing among segments of populations upstream and downstream. This organization is not available in the other sites. Despite all this, the work of this conventional or formal organization is still limited to the management of social infrastructure and collective resources. Support and supervision are required to turn it into a professional organization.

#### XII.2.4.2 Education

The schooling rate is also high among boys and girls. On average, it reaches 81% for boys and 76% for girls. In fact, all the villages have a school. The literacy rate is almost average for males (47 %) and low for females (10 %).

**School Attendance and Literacy Rates**

Project	School attendance rates (%)		Literacy rates (%)	
	Boys	Girls	Men	Women
Timkit	81	76	47	10

#### XII.2.4.3 Dwellings

100 % of the douars are grouped together. They are mainly ancient qsours whose dwellings have been divided. Some of them are still partially inhabited. Constructions using local materials are the most common type of dwelling (84 % on average). Concrete constructions account for around 13 %. The remainder is of a mixed type. More than 3/4 of the douars are located close to a trunk road (from 0 to 2km). However the downstream Ifegh douars are very landlocked (34 km from road).

#### XII.2.4.4 Fresh Water Supply and Mode of Supply

More than 2/3 of the studied douars are supplied with water either through ONEP or through associations in the framework of PAGER. 1/3 of the villages is on the agenda for a future connection to the water system. Tinjdad is supplied by ONEP, and Ifegh by a user association.

#### XII2.4.5 Electrification

100 % of the douars are either electrified or scheduled for electrification. Generators are used to feed the douars with electricity and in Ifegh there is a plan to equip the village with such generators. In downstream Ifegh, associations use a generator to provide electricity to people.

#### XII2.4.6 Health Infrastructure

Only Ifegh and Tinjdad have a dispensary. Other douars are 0.5 to 3 km away from the dispensary. People visit health center only in case of serious trouble and periodic medical checkup is not practiced.

#### XII2.4.7 School Infrastructure

100 % of douars have a primary school. Sometimes one school is commonly used by 2 or 3 neighboring qsours. Junior and senior high schools are located in Tinejdad.

#### XII2.4.8 Commercial Infrastructure

The douars in Ifegh is located approximately 34 km away from the nearest weekly market. The other douars are located 0.5 to 6 km from the nearest market (souk).

24 % of the villages have to travel a distance of approximately 34 km to come to the weekly market. This is mainly the case of the villages in downstream Ifegh. The rest of the villages are located 0.5 to 6 km from the souk.

#### XII2.4.9 Religious Infrastructure

There is a mosque in each qsar. Some qsours pool their resources to collectively run a mosque for the Friday prayers.

### **XII2.5 Azghar**

#### XII2.5.1 Social Organization

The organizations that are still operational are those entrusted with the management of the mosque. The creation of an organization for management of irrigation facilities will require supervision of community-based and professional organization. This supervision should be started as soon as possible for the organizations to be functional to participate in the district development, even before launching irrigation work.

### XII2.5.2 Education

The schooling attendance rate is high both for boys (88 %) and girls (78 %). This is due to the proximity of schools to the villages. The literacy rate is low at 44 % for men and very low at 9 % for women.

**School Attendance and Literacy Rates**

Project	School attendance rates (%)		Literacy rates (%)	
	Boys	Girls	Men	Women
Azghar	88	78	44	9

### XII2.5.3 Dwellings

All the villages are grouped except for Mghila douar. The dwellings made of concrete are the most common type of construction (67 % on average). Those made of local or mixed materials are about 17 % and 16 %, respectively. All the villages are accessible easily except Mghila douar, 7 km from a trunk road.

### XII2.5.4 Water Supply and Mode of Supply

43 % of the downstream villages have internal house connections, 14 % are being connected and the remaining 43% is scheduled to connect in the future.

### XII2.5.5 Electrification

57 % of the villages are scheduled for electrification, 29 % are connected and 14 % are in the process of being connected.

### XII2.5.6 Health Infrastructure

71 % of the villages are less than 2 km away from a dispensary.

### XII2.5.7 School Infrastructure

86 % of the villages are less than 2 km away from school.

### XII2.5.8 Commercial Infrastructure

Sales and purchases take place in the weekly market of Ribat El Kheir. The local populations have to travel a distance varying from 4 to 15 km to reach the market. 57 % of the villages have at least 3 and a maximum of 5 shops. Furthermore, each douar has, on average, 2 grain mills. Similarly, 43 % of the douars have, on average, 9 olive oil expressing factories, with a maximum of 16 factories in Mghila. The considerable number of oil plants reflects the importance of oil production in the area.

## XII2.5.9 Religious Infrastructure

Almost all douars have their own mosque except for Nass Said village.

## XII3 Results of Household Interview Survey

Results of the household interview survey were compiled and summarized in each project so that the characteristics of the project would become clear. Though the number of samples is limited compared to the total numbers of households in the Project areas, the results of the survey are to be considered as indicative figures representing some average households. The results are summarized in Table XII3.1.1.

Total numbers of sample houses are 259 divided into 63, 75, 77 and 44 for N'Fifkh, Taskourt, Timkit and Azghar respectively.

### XII3.1 Family

#### XII3.1.1 Number of Households Lives in a House

In many houses, in the Project areas, more than one household live in the same house. Especially in Timkit, 56 % of houses are with more than one household. On the contrary, 84 % of houses are with one household in Taskourt.

**Number of households living in a house**

	N'Fifkh		Taskourt		Timkit		Azghar		Total	
	No	%	No	%	No	%	No	%	No	%
One household	41	65	62	84	34	44	23	52	160	62
More than one household	22	35	12	16	43	56	21	48	98	38

#### XII3.1.2 Family Size

Average family size is 8.9 persons and this is more than average family size in rural area of 6.6 persons in whole Morocco. Especially in Timkit, the average family size is large at 11.4 persons. The summary of family sizes was estimated as 8.4, 7.6, 11.4 and 7.4 in N'Fifkh, Taskourt, Timkit and Azghar respectively with an average of 8.9.

#### AXII3.1.3 Average Composition of Men and Women

Average composition of men and women is as shown below. Only in Timkit, numbers of men are larger than those of women. Probably, this occurred because many of men go to urban areas as migrant workers.

### Average composition of men and women

Class	N'Fifikh		Taskourt		Timkit		Azghar		Total	
	No	%	No	%	No	%	No	%	No	%
Men	4.3	52	4.2	55	5.6	49	3.8	52	17.9	52
Women	4.0	48	3.4	45	5.8	51	3.5	48	16.7	48

## XII3.2 Economic Activities

### XII3.2.1 Major Economic Activities

Almost all the households are engaged in agriculture but many of them are also involved in other businesses. Especially in Timkit, such households make up account for 77 % of the total households. In other sites, the farm families involved in other businesses are large at 48 % for N'Fifikh, 63 % for Taskourt, and 57 % for Azghar. Probably this occurred due to draught in recent years and the need for cash income.

### Major Economic Activities

	N'Fifikh		Taskourt		Timkit		Azghar		Total	
	No	%	No	%	No	%	No	%	No	%
Agriculture only	33	52	28	37	15	19	19	43	95	37
Agriculture + Others	30	48	47	63	59	77	25	57	161	62
Non agricultural work	0	0	0	0	3	4	0	0	3	1

### XII3.2.2 Annual Family Income and Expenditure

Family budget of the households in the Project areas are largely depending on remittance from migrant workers. Approximately 40 % of the family income is covered by remittance from migrant workers on average.

In Timkit, without remittance from migrant workers, the average annual family income is 12,600 DH and it is smaller than the average annual expenditure 16,100 DH by 3,500 DH. With the remittance, the family budget barely keeps plus side.

### Average family income and expenditure (DH/house/year)

	N'Fifikh	Taskourt	Timkit	Azghar	Total
Excl. migrant workers remittance	32,800	20,800	12,600	16,500	20,551
Incl. migrant workers remittance	47,900	27,000	32,400	23,700	33,129
Family expenditure	15,600	17,100	16,100	16,300	16,300

According to many respondents, actual income and expenditure are almost balanced and they cannot afford to save money.

### XII3.3 Agriculture

#### XII3.3.1 Size of Farmlands

Average size of the farmlands is 8.2 ha for N'Fifikh, 8.0 ha for Taskourt, 2.6 ha for Timkit, and 5.0 ha for Azghar. However, size of farmlands varies by farmer. Even in N'Fifikh, about a half farmer have the farmland of 4 ha or less. In Timkit, 56 % of farmers have the farmlands of one ha or less. This is also one of the reasons why people in Timkit have to depend on the migrant workers remittance.

**Size of Farmlands**

Item	N'Fifikh		Taskourt		Timkit		Azghar		Total	
	No	%	No	%	No	%	No	%	No	%
1.0 ha or less	11	17	4	5	43	56	3	7	61	24
1.1 ha - 2.0 ha	11	17	10	13	12	16	12	27	45	17
2.1 ha - 4.0 ha	10	16	16	21	6	8	14	32	46	18
4.1 ha - 6.0 ha	5	8	13	17	10	13	4	9	32	12
6.1 ha - 10 ha	12	19	15	20	1	1	4	9	32	12
10.1 ha - 20 ha	8	13	12	16	4	5	7	16	31	12
More than 20 ha	6	10	5	7	1	1	0	0	12	5
Average size	4.7 ha		7.6 ha		2.6 ha		4.7 ha			

#### XII3.3.2 Condition of Farmlands

The ratio of irrigated farmland to the total farmland is 41 % in the sample study areas. In Taskourt, the ratio is very high at 70 % in the sample study area. However, since the project area is extensive and definition of "irrigated farmland" is not always same, the so-called irrigated farmland may not be wide.

**Condition of Farmlands**

	N'Fifikh		Taskourt		Timkit		Azghar		Total	
	No	%	No	%	No	%	No	%	No	%
Not irrigated (ha)	403	86	173	30	97	49	187	86	860	59
Irrigated (ha)	65	14	399	70	100	51	31	14	595	41

In Timkit, the ratio of irrigated farmland is relatively high at 51 %. In the area, without irrigation, cultivation of crops may be very difficult due to dry climate. In N'Fifikh and Azghar, the irrigation ratio is low at both 14 %.

#### XII3.3.3 Ownership Status of Farmlands

Private ownership is the predominant form of farmland ownership in the project area except Taskourt. The households answered that all the lands are private ownership account for 76 % of the sample households in N'Fifikh, 82 % in Timkit, and 89 % in Azghar.



In Taskourt, situation is a little bit different. 21 % of the households has farmland of collective ownership and 11 % have that of association ownership.

#### Ownership Status of Farmlands

	N'Fifikh		Taskourt		Timkit		Azghar		Total	
	No	%	No	%	No	%	No	%	No	%
Private ownership only	48	76%	30	40	63	82	39	89	180	69
Tenant only	0	0	0	0	0	0	0	0	0	0
Collective ownership only	2	3	0	0	0	0	0	0	2	1
Association only	0	0	1	1	0	0	0	0	1	0
Private ownership + tenant	8	13	4	5	0	0	3	7	15	6
Private + collective ownership	5	8	16	21	12	16	2	5	35	14
Private + association ownership	0	0	8	11	2	3	0	0	10	4
Other	0	0	16	21	0	0	0	0	16	6

#### XII.3.4 Agricultural Land Use

The agricultural land use of the project areas is shown below. Cereals such as hard and soft wheat, barley, and maize are the predominant crops in the sample study area. They make up 66 % of total farmland in N'Fifikh, 86 % in Taskourt, 69 % in Timkit, and 67 % in Azghar.

Other major crops are legumes, vegetables, and fodder.

#### Agricultural Land Use

	N'Fifikh		Taskourt		Timkit		Azghar		Total	
	ha	%	ha	%	ha	%	ha	%	ha	%
Hard wheat	121	25	54	9	70	34	73	32	318	21
Soft wheat	138	29	142	23	10	5	4	2	294	19
Barley	50	10	304	50	40	20	77	33	471	31
Maize	11	2	22	4	20	10	0	0	53	3
Bersim	0	0	29	5	0	0	0	0	29	2
Broad Bean	34	7	0	0	3	1	5	2	42	3
Lentille	0	0	0	0	0	0	3	1	3	0
Bean	33	7	0	0	0	0	0	0	33	2
Alfalfa	10	2	0	0	15	7	0	0	25	2
Vegetable	23	5	37	6	9	4	0	0	69	5
Other	0	0	25	4	3	1	0	0	28	2
Fallow	63	13	0	0	33	16	69	30	165	11

## XII3.4 Flood and Erosion

### XII3.4.1 Inundation of Farmlands

According to the results of the interview survey, flood inundation of the farmlands occurred several times in all the project sites. In this survey, we have asked about one of the large flood events in the past.

In Timkit, a serious flood was occurred in 1979. 73 % of the sample household answered they have suffered from flood inundation in their farmlands. The damaged crops are dates, alfalfa, and wheat. Out of inundated farmlands, more than half household answered that the inundation depth was one meter or more.

In N'Fifikh, a serious flood was occurred in 1996. 41 % of the sample households suffered from flood damage in their farmland. The damaged crops are wheat, beans, and vegetables. Out of inundated farmlands, 66 % of the households answered that the inundation depth was less than 50 cm while seven % answered it was one meter or more.

**Inundation of Farmlands**

	N'Fifikh		Taskourt		Timkit		Azghar		Total	
	No	%	No	%	No	%	No	%	No	%
No inundation	37	59	57	76	21	27	41	93	156	60
Less than 50 cm	17	27	0	0	16	21	1	2	34	13
50 – 99 cm	7	11	0	0	11	14	2	5	20	8
100 cm or more	2	3	18	24	29	38	0	0	49	19

In Taskourt, a serious flood was occurred in 1999. The ratios of suffered households are relatively small at 24 % but they are concentrated in Assif El mal commune. In the commune, 55 % of households suffered from flood damage. The major damaged crops are barley, olive, and alfalfa. All the households suffered from flood damage answered that the inundation depth was one meter or more. Many of them answered the depth was two meters and some answered it was three meters.

**Area of Inundation in Farmlands**

	N'fifikh		Taskourt		Timkit		Azghar		Total	
	No	%	No	%	No	%	No	%	No	%
No inundation	37	60	56	75	45	58	41	93	179	69
0.2 ha or less	4	6	4	5	22	29	0	0	30	12
0.21 - 0.4 ha	3	5	3	4	1	1	0	0	7	3
0.41 - 0.6 ha	6	10	2	3	3	4	1	2	12	5
0.61 - 0.8 ha	3	5	1	1	1	1	0	0	5	2
0.81 - 1 ha	7	11	5	7	3	4	0	0	15	6
more 1 ha	2	3	4	5	2	3	2	5	10	4

In Azghar, flood inundation is not significant. The ratios of suffered households are small at seven %. The major damaged crops are hard wheat and barley. All the households suffered from flood damage answered that the inundation depth was less than one meter.

#### XII3.4.2 Erosion of Farmlands

Other than inundation, flood causes erosion of farmlands in the project sites.

In Timkit, 35 % of the sample households answered they have suffered from erosion of farmlands. The major damaged crops are dates, alfalfa, wheat and olive. Most of the suffered households answered that more than half households answered that the size of erosion was 1,000 m<sup>2</sup> or less.

In N'Fifikh, 25 % of the sample households answered they have suffered from erosion of farmlands. The major damaged crops are wheat, alfalfa, and vegetables. 38 % of the suffered households answered that the size of erosion was 1,000 m<sup>2</sup> or less, 50 % answered it was 2,000 m<sup>2</sup> or less, and 12 % answered it was 3,000 m<sup>2</sup> or less.

**Erosion of Farmlands**

	<b>N'Fifikh</b>		<b>Taskourt</b>		<b>Timkit</b>		<b>Azghar</b>		<b>Total</b>	
	<b>No</b>	<b>%</b>	<b>No</b>	<b>%</b>	<b>No</b>	<b>%</b>	<b>No</b>	<b>%</b>	<b>No</b>	<b>%</b>
No erosion	47	75	58	77	50	65	40	91	195	75
1,000 m <sup>2</sup> or less	6	10	8	11	26	34	0	0	40	15
1,001 – 2,000 m <sup>2</sup>	8	13	3	4	0	0	0	0	11	4
2,001 - 3,000 m <sup>2</sup>	2	3	0	0	0	0	0	0	2	1
3,001 m <sup>2</sup> or more	0	0	6	8	1	1	4	9	11	4

In Taskourt, 23 % of the sample households answered they have suffered from erosion of farmlands and they are concentrated in Assif El mal commune. In the commune, 52 % of households suffered from erosion of farmland due to flood. The major damaged crops are barley, alfalfa, and olive. 48 % of the suffered households answered that the size of erosion was 1,000 m<sup>2</sup> or less, 17 % answered it was 2,000 m<sup>2</sup> or less, and 35 % answered it was 3,000 m<sup>2</sup> or less.

In Azghar, 9 % of the sample households answered they have suffered from erosion of farmlands. The major damaged crops are hard wheat and barley. Average size of erosion was about 1,000 m<sup>2</sup> among the suffered households.

*Rural Area in*

*Feasibility Study on Water Resources Development in  
the*

*Kingdom of Morocco*

*Final Report*

*Volume IV Supporting Report (2.A)*

*Feasibility Study*

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*Socio-economy*

***Tables***

**Table XII.1.1: Administrative Situation of Beneficial Areas**

Project Site	Province	Cercle	Caidat	CR/CU	Douar
N'Fifikh	Ben Slimane	Ben Slimane	Fdalate	Od Yahia Louta	Bni Karzaz Biad
			Ziaida	Mouline Ghaba Tlat Ziaida	Od Tarfaya Mssaada
			Bouznika	Bni Yakhlef	Mansouria
Taskourt	Chichaoua	Mejjat	Sidi Bou Othmane	Assif El Mal Mejjat Guemmassa Mzouda	} 127 douars
			Mejjat		
			Mzouda		
Timkit	Errachidia	Goulmima		Aghbalou Akerdas	Timkit Izoukalen Irbiben Taghya
				High Farkla	Ait Hamou Ait Bzem Ait Boutekhsiam Tamardout Ait Erah Ait Aissa Ait Bouhadou Sidi Yahya (Kmach) Ait Assem Numero Ait Bennacer Set El Kherbates Amlal Azyghmouchen Bour Taghya Ait Derouich Imelouane Ait Said Ihendar Toughach Ait M'hammed Zaouia Ait Maamar Lkdim Tallalt Tayrza Tighfart Ktaa Elouad Ait Ba Omar Jdida Ksiba Dar Amira Ait Ourgham Kettarat Laytama Isilf (Ksar) Ait My mamoun Ait Ba Maati Zizzogharine Gardmite Ait Maamar Jdide Tighdouine Tinjdad Centre
Azghar	Sefrou	Ribat Al Khair	Ribat Al Khair	Ighzrane	Bni Lchaa Taghza Nass Daoud Nass Said Tichou Tamallalt
				Od M'koudou	Mghila Zitouna
		Municipalite Tinejdad			
		Municipalite Ribat Al Khair			

Note: Since the command areas of the Projects have not been exactly fixed yet, the above mentioned administrative units to be included in the beneficial areas are provisional.

**Table XII.1.1: Summary of Interview Survey on Socio-economic Condition of Beneficial Areas (1/4)**

Item	N'Fifikh		Taskourt		Timkit		Azghar		Total	
	nos.	distr.	nos.	distr.	nos.	distr.	nos.	distr.	nos.	distr.
0 Total Number of Respondents	63		75		77		44		259	
1 Family Structure										
1-1 Number of households live in a house										
One household	41	65%	62	84%	34	44%	23	52%	160	62%
More than one household	22	35%	12	16%	43	56%	21	48%	98	38%
1-2 Family size per house										
1 persons	1	2%	0	0%	0	0%	0	0%	1	0%
2 persons	1	2%	1	1%	1	1%	4	9%	7	3%
3 persons	2	3%	4	5%	0	0%	2	5%	8	3%
4 persons	1	2%	4	5%	0	0%	5	11%	10	4%
5 persons	9	14%	6	8%	6	8%	1	2%	22	9%
6 persons	5	8%	10	14%	6	8%	10	23%	31	12%
7 persons	9	14%	13	18%	6	8%	4	9%	32	12%
8 persons	16	25%	12	16%	7	9%	4	9%	39	15%
9 persons	6	10%	4	5%	6	8%	3	7%	19	7%
10 persons	1	2%	10	14%	8	10%	1	2%	20	8%
More than 10 persons	12	19%	10	14%	37	48%	10	23%	69	27%
Average family size	8.4 pers.		7.6 pers.		11.4 pers.		7.4 pers.			
1-3 Average composition of men and women										
Men	4.3	52%	4.2	55%	5.6	49%	3.8	52%	17.9	52%
Women	4.0	48%	3.4	45%	5.8	51%	3.5	48%	16.7	48%
2 Economic Activities										
2-1 Major economic activities										
Agriculture only	33	52%	28	37%	15	19%	19	43%	95	37%
Agriculture + Employee	4	6%	5	7%	9	12%	11	25%	29	11%
Agriculture + Commerce	7	11%	5	7%	5	6%	0	0%	17	7%
Agriculture + Small business	0	0%	4	5%	0	0%	0	0%	4	2%
Agriculture + Labor	0	0%	31	41%	36	47%	0	0%	67	26%
more than two kind of work)	19	30%	2	3%	9	12%	14	32%	44	17%
Non agricultural work only	0	0%	0	0%	3	4%	0	0%	3	1%
2-2 Annual family income (excluding remittance from migrant workers)										
10,000 DH or less	12	19%	18	24%	49	64%	15	34%	94	36%
10,001 - 20,000 DH	21	33%	26	35%	15	19%	17	39%	79	31%
20,001 - 40,000 DH	17	27%	22	29%	8	10%	10	23%	57	22%
40,001 - 60,000 DH	5	8%	8	11%	3	4%	1	2%	17	7%
60,001 - 80,000 DH	2	3%	1	1%	2	3%	1	2%	6	2%
80,001 - 100,000 DH	3	5%	0	0%	0	0%	0	0%	3	1%
More than 100,000 DH	3	5%	0	0%	0	0%	0	0%	3	1%
Average income	32,800 DH		20,800 DH		12,600 DH		16,500 DH			

**Table XII3.1.1: Summary of Interview Survey on Socio-economic Condition of Beneficial Areas (2/4)**

Item	N'Fifikh		Taskourt		Timkit		Azghar		Total	
	nos.	distr.	nos.	distr.	nos.	distr.	nos.	distr.	nos.	distr.
2-3 Annual family income (including remittance from migrant workers)										
10,000 DH or less	1	2%	7	9%	14	18%	3	7%	25	10%
10,001 - 20,000 DH	19	30%	24	32%	28	36%	21	48%	92	36%
20,001 - 40,000 DH	23	37%	29	39%	20	26%	17	39%	89	34%
40,001 - 60,000 DH	6	10%	13	17%	4	5%	1	2%	24	9%
60,001 - 80,000 DH	6	10%	2	3%	5	6%	1	2%	14	5%
80,001 - 100,000 DH	2	3%	0	0%	3	4%	1	2%	6	2%
More than 100,000 DH	6	10%	0	0%	3	4%	0	0%	9	3%
Average income	47,900 DH		27,000 DH		32,400 DH		23,700 DH			
2-4 Number of migrant workers										
None	23	37%	27	36%	22	29%	7	16%	79	31%
One person	22	35%	33	44%	36	47%	12	27%	103	40%
Two persons	13	21%	10	13%	13	17%	20	45%	56	22%
Three persons or more	5	8%	5	7%	6	8%	5	11%	21	8%
2-5 Annual family expenditure										
10,000 DH or less	0	0%	17	23%	34	44%	10	23%	61	24%
10,001 - 20,000 DH	57	90%	38	51%	26	34%	19	43%	140	54%
20,001 - 40,000 DH	6	10%	18	24%	12	16%	14	32%	50	19%
More than 40,000 DH	0	0%	2	3%	5	6%	1	2%	8	3%
Average expenditure	15,600 DH		17,100 DH		16,100 DH		16,300 DH			
3 Agriculture										
3-1 Size of farmlands										
1.0 ha or less	11	17%	4	5%	43	56%	3	7%	61	24%
1.1 ha - 2.0 ha	11	17%	10	13%	12	16%	12	27%	45	17%
2.1 ha - 4.0 ha	10	16%	16	21%	6	8%	14	32%	46	18%
4.1 ha - 6.0 ha	5	8%	13	17%	10	13%	4	9%	32	12%
6.1 ha - 10 ha	12	19%	15	20%	1	1%	4	9%	32	12%
10.1 ha - 20 ha	8	13%	12	16%	4	5%	7	16%	31	12%
More than 20 ha	6	10%	5	7%	1	1%	0	0%	12	5%
Average size	4.7 ha		7.6 ha		2.6 ha		4.7 ha			
3-2 Condition of farmlands										
Not irrigated (ha)	403	86%	173	30%	97	49%	187	86%	860	59%
Irrigated (ha)	65	14%	399	70%	100	51%	31	14%	595	41%
3-3 Ownership status of farmlands										
Private ownership only	48	76%	30	40%	63	82%	39	89%	180	69%
Tenant only	0	0%	0	0%	0	0%	0	0%	0	0%
Collective ownership only	2	3%	0	0%	0	0%	0	0%	2	1%
Association only	0	0%	1	1%	0	0%	0	0%	1	0%
Private ownership + tenant	8	13%	4	5%	0	0%	3	7%	15	6%
Private + collective ownershi	5	8%	16	21%	12	16%	2	5%	35	14%
Private + association owners	0	0%	8	11%	2	3%	0	0%	10	4%
Other	0	0%	16	21%	0	0%	0	0%	16	6%

**Table XII.1.1: Summary of Interview Survey on Socio-economic Condition of Beneficial Areas (3/4)**

Item	N'Fifikh		Taskourt		Timkit		Azghar		Total	
	nos.	distr.	nos.	distr.	nos.	distr.	nos.	distr.	nos.	distr.
3-4 Agricultural land use (ha)										
Hard wheat	121	25%	54	9%	70	34%	73	32%	318	21%
Soft wheat	138	29%	142	23%	10	5%	4	2%	294	19%
Barley	50	10%	304	50%	40	20%	77	33%	471	31%
Maize	11	2%	22	4%	20	10%	0	0%	53	3%
Bersim	0	0%	29	5%	0	0%	0	0%	29	2%
Bean	34	7%	0	0%	3	1%	5	2%	42	3%
Lentille	0	0%	0	0%	0	0%	3	1%	3	0%
PC	33	7%	0	0%	0	0%	0	0%	33	2%
Alfalfa	10	2%	0	0%	15	7%	0	0%	25	2%
Vegetable	23	5%	37	6%	9	4%	0	0%	69	5%
Other	0	0%	25	4%	3	1%	0	0%	28	2%
Fallow	63	13%	0	0%	33	16%	69	30%	165	11%
3-5 Livestock farming										
Number of livestock (head)										
Cattle										
0	16	25%	15	20%	48	63%	37	84%	116	45%
1 - 5	35	56%	51	68%	26	34%	7	16%	119	46%
6 - 10	9	14%	8	11%	2	3%	0	0%	19	7%
more than 10	3	5%	1	1%	0	0%	0	0%	4	2%
Average	3.3 head		2.9 head		1.1 head		0.4 head			
Sheep										
0	31	49%	25	33%	14	19%	22	51%	92	36%
1 - 10	17	27%	12	16%	56	75%	12	28%	97	38%
11 - 20	5	8%	18	24%	5	7%	2	5%	30	12%
21 - 30	4	6%	13	17%	0	0%	4	9%	21	8%
more than 30	6	10%	7	9%	0	0%	3	7%	16	6%
Average	9.9 head		14.2 head		4.8 head		7.6 head			
Horse and donkey										
0	24	38%	34	45%	57	74%	36	82%	151	58%
1 - 5	39	62%	41	55%	20	26%	8	18%	108	42%
more than 5	0	0%	0	0%	0	0%	0	0%	0	0%
Average	0.8 head		0.9 head		0.3 head		0.3 head			
Goat										
0	63	100%	69	92%	65	84%	33	75%	230	89%
1 - 5	0	0%	5	7%	4	5%	5	11%	14	5%
more than 5	0	0%	1	1%	8	10%	6	14%	15	6%
Average	0 head		0.3 head		2.3 head		7.7 head			
4 Flood and Erosion Damage										
Reference year:										
	Year 1996		Year 1999		Year 1979		Nearly no flood			
4-1 Inundation depth (Houses)										
No inundation	59	94%	75	100%	55	71%	43	98%	232	90%
Less than 50 cm	1	2%	0	0%	7	9%	0	0%	8	3%
50 – 99 cm	1	2%	0	0%	7	9%	1	2%	9	3%
100 – 199 cm	1	2%	0	0%	4	5%	0	0%	5	2%
200 – 299 cm	0	0%	0	0%	4	5%	0	0%	4	2%
300 cm or more	1	2%	0	0%	0	0%	0	0%	1	0%



**Table XII3.1.1: Summary of Interview Survey on Socio-economic Condition of Beneficial Areas (4/4)**

Item	N'Fifikh		Taskourt		Timkit		Azghar		Total	
	nos.	distr.	nos.	distr.	nos.	distr.	nos.	distr.	nos.	distr.
4-2 Inundation depth (Farmlands)										
No inundation	37	59%	57	76%	21	27%	41	93%	156	60%
Less than 50 cm	17	27%	0	0%	16	21%	1	2%	34	13%
50 – 99 cm	7	11%	0	0%	11	14%	2	5%	20	8%
100 cm or more	2	3%	18	24%	29	38%	0	0%	49	19%
4-3 Area of inundation (Farmlands)										
No inundation	37	60%	56	75%	45	58%	41	93%	179	69%
0.2 ha or less	4	6%	4	5%	22	29%	0	0%	30	12%
0.21 - 0.4 ha	3	5%	3	4%	1	1%	0	0%	7	3%
0.41 - 0.6 ha	6	10%	2	3%	3	4%	1	2%	12	5%
0.61 - 0.8 ha	3	5%	1	1%	1	1%	0	0%	5	2%
0.81 - 1 ha	7	11%	5	7%	3	4%	0	0%	15	6%
more 1 ha	2	3%	4	5%	2	3%	2	5%	10	4%
4-4 Agricultural damage by inundation (Nos. of farmers)										
Hard wheat	5	20%	2	6%	15	25%	2	67%	24	20%
Soft wheat	5	20%	0	0%	0	0%	0	0%	5	4%
Barley	0	0%	11	34%	11	18%	1	33%	23	19%
Maize	0	0%	3	9%	3	5%	0	0%	6	5%
Bean	7	28%	0	0%	1	2%	0	0%	8	7%
Bersim	0	0%	1	3%	0	0%	0	0%	1	1%
PC	4	16%	0	0%	0	0%	0	0%	4	3%
Alfalfa	0	0%	5	16%	11	18%	0	0%	16	13%
CM(Vegetable)	4	16%	2	6%	3	5%	0	0%	9	7%
Olive	0	0%	7	22%	0	0%	0	0%	7	6%
Orange	0	0%	1	3%	0	0%	0	0%	1	1%
Dates	0	0%	0	0%	13	21%	0	0%	13	11%
Other	0	0%	0	0%	4	7%	0	0%	4	3%
Fallow field	0	0%	0	0%	0	0%	0	0%	0	0%
4-5 Erosion of farmlands										
T No erosion	47	75%	58	77%	50	65%	40	91%	195	75%
1,000 m <sup>2</sup> or less	6	10%	8	11%	26	34%	0	0%	40	15%
1,001 – 2,000 m <sup>2</sup>	8	13%	3	4%	0	0%	0	0%	11	4%
2,001 - 3,000 m <sup>2</sup>	2	3%	0	0%	0	0%	0	0%	2	1%
3,001 m <sup>2</sup> or more	0	0%	6	8%	1	1%	4	9%	11	4%
4-6 Agricultural damage by erosion (Nos. of farmers)										
Hard wheat	3	19%	2	6%	4	10%	2	50%	11	12%
Soft wheat	1	6%	0	0%	0	0%	0	0%	1	1%
Barley	0	0%	11	34%	2	5%	2	50%	15	16%
Maize	0	0%	3	9%	3	8%	0	0%	6	7%
Bean	0	0%	0	0%	0	0%	0	0%	0	0%
Bersim	0	0%	1	3%	0	0%	0	0%	1	1%
PC	2	13%	0	0%	0	0%	0	0%	2	2%
Alfalfa	2	13%	5	16%	5	13%	0	0%	12	13%
CM (Vegetable)	2	13%	2	6%	1	3%	0	0%	5	5%
Olive	0	0%	7	22%	3	8%	0	0%	10	11%
Almond	0	0%	0	0%	4	10%	0	0%	4	4%
Orange	0	0%	1	3%	0	0%	0	0%	1	1%
Dates	0	0%	0	0%	13	33%	0	0%	13	14%
Other	0	0%	0	0%	4	10%	0	0%	4	4%
Fallow field	6	38%	0	0%	0	0%	0	0%	6	7%